

Copr. 1911, J. C. W. Co. AMERICAN TREE LEAVES, FLOWERS AND FRUITS

1. White pine. 2. Shellbark hickory. 3. Red spruce. 4. Incense cedar. 5. Hemlock. 6. Black walnut. 7. Bedwood. 8. Chestnut. 9. Cottonwood. 10. River birch.

=WINSTON'S= CUMULATIVE ENCYCLOPEDIA

A COMPREHENSIVE REFERENCE BOOK

Editor-in-Chief

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KEY TO PRONUNCIATION

Three methods are used to indicate the pronunciation of the words forming the headings of the separate articles:

- (1) By dividing the word into syllables, and indicating the syllable or syllables to be accented. This method alone is followed where the pronunciation is entirely obvious. Where accent marks are omitted, the omission indicates that all syllables are given substantially the same value.
- (2) Where the pronunciation differs from the spelling, the word is re-spelled phonetically, in addition to the accentuation.
- (3) Where the sound values of the vowels are not sufficiently indicated merely by an attempt at phonetic spelling, the following system of discritical marks is additionally employed to approximate the proper sounds as closely as may be done:

```
    a. as in fate, or in bere.
    a. as in alms, Fr. ame, Ger. Behn=a
    of Indian names.

a, the same sound short or medium, as eu, corresponding sound short or medi-
in Fr. bel, Ger. Menn. eu, corresponding sound short or medi-
um, as in Fr. pes=Ger. s short.
a, as in fet.
6, obscure, as in rurel, similar to u in but, è in her: common in Indian
        names.
6, as in me=i in machine.
e, as in met.
e, as in her.
I, as in pine, or as ei in Ger. Mein.
i, as in pin, also used for the short sound corresponding to ē, as in French and Italian words.
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eu, a long sound as in Fr. jeane, = Ger. long ö, as in Söhne, Göthe (Goethe). ō, as in note, mosn. o, as in not frog—that is, short or medium.
ö, as in move, two.
ü, as in tube. u, as in twb: similar to e and also to a.
u, as in bell.
ii, as in Sc sounc=Fr. 4 as in d4,
Ger. 4 long as in gran, Bahne.
t, the corresponding short or medium sound, as in Fr. bet, Ger. Maller. oi, as in oil. ou, as in pound; or as su in Ger. Hous.

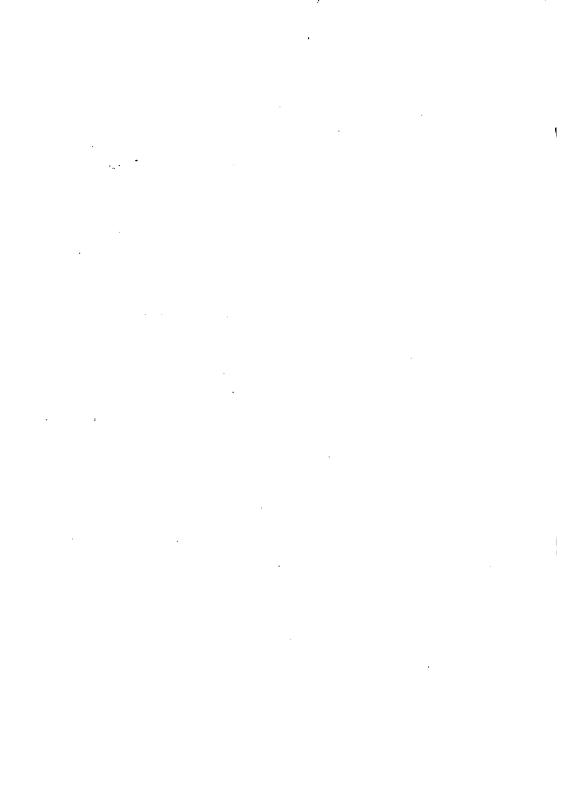
The consonants, b, d, f, h, j, k, l, m, n, ng, p, sh, t, v, and z, when printed in Roman type, are always given their common English values in the transliteration of foreign words. The letter c is indicated by s or k, as the case may be. For the remaining consonant sounds the following symbols are employed:

```
ch is always as in rick.
d, nearly as the in this = Sp. d in s, always as in so. Madrid, etc.
g is always hard, as in go.
th, as the in this.
     represents the guttural in Scotch lock, Ger. nack, also other similar
gutturals.

p, Fr. nasal n as in bon.

g represents both English r, and r in foreign words, in which it is gen-
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erally much more strongly trilled.
w always consonantal, as in we. x = ks, which are used instead.
y always consonantal, as in yea (Fr. ligne would be re-written leay).
sh, as s in pleasure = Fr. j.
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WINSTON'S CUMULATIVE ENCYCLOPEDIA

VOLUME X

T the twentieth letter in the English forests. The inhabitants are chiefly In-alphabet, a sharp mute consonant, dians. The capital is San-Juan-Bautista. representing the sound produced by a Pop. of the state, 159,834. quick and strong emission of the breath Tab'asheer, or TABASHIE (Persian), after the end of the tongue has been placed against the roof of the mouth sembling hydrophane, sometimes found near the roots of the upper teeth. By in the joints of bamboos and other large Chimzia Law in English correspond to the large transcent. Grimm's Law t in English corresponds to d in Latin. Greek and Sanskrit, and to as or s in German.

Taasinge (to'sing-e), an island of Denmark, south of Funen; area, 29 square miles. Pop. 4035.

Tabanus (tab'a-nus). See Gad-fty.

Tabard (tab'ard), a sort of tunic of as to reflect the middle ages, worn over the armor, and generally embroidered waves. Silks with the arms of the wearer, or if worn called moiré.



grasses. It is highly valued in the East Indies as a medicine, but its virtues are merely imaginary.

Tabby (tab'i), the name given to stuffs watered or figured by being passed through a calender, the rollers of which, bearing unequally on the stuff, render the surface unequal, so as to reflect the rays of light differ-ently, and produce the representation of waves. Silks treated in this way are

Tabernacle (tab'er-na-kl), in Jewish antiquities, the tent or antiquities, the tent or sanctuary in which the sacred utensils were kept during the wanderings of the Israelites in the desert. It was in the shape of a parallelogram, 45 feet by 15, and 15 feet in height, with its smaller ends placed east and west, and having its entrance in the east. Its framework consisted of forty-eight gilded boards of shittim-wood bound together by selder ring-wood bound together by selder ring. tim-wood, bound together by golden rings and set into silver sockets; and this framework was covered with four car-The interior was divided by a curtain into two compartments, the outer the 'sanctuary' proper, and the innermost the holy of holies. In the sanctuary was Tabard, Sir John Cornwall, Ampthill Church, Beds.

Tabard, with those of his lord or sovereign. It still forms a part of the covenant. The tabernacle was situated in a court 150 feet by 75, sursula and Vera Cruz; area, 10,072 square miles. The surface consists almost entirely of a great flat, sloping northwards to the Gulf of Mexico. A large portion laver, at which the priests washed their of the state is still covered with primeval

at Jerusalem. Tabernacle, in ecclesiology, an ornamented receptacle in which the host is kept on the altar; also tensive table-land in the world, the sandy rainless Desert of Gobi, nearly 400,000 square miles; also the loftiest inhabited table-land in the world. vals of the Jews which required the presence of all the males in Jerusalem. Its object was to commemorate the dwelling object was to commemorate the dwelling of the Israelites in tents during their sojourn in the wilderness, and it was also a feast of thanksgiving for the harvest and vintage. The time of the festival fell in the autumn, when all the chief fruits were gathered in, and hence it is often called the feast of the ingathering. Its duration was strictly only seven days, but it was followed by a day of holy convocation of peculiar solemnity. During the seven days the people lived in booths erected in the courts of houses, on the roofs, and in the court of the temple. It roofs, and in the court of the temple. It was the most joyous festival of the year.

Tabes (tābēz), a term formerly applied to a disease characterized by a gradually progressive emaciation of the whole body, accompanied with language, depressed spirits, and, for the most ism, in which a number of persons sit part, imperfect or obscure hectic fever, around a table, with hands or fingers without the real cause of the affection toothing it, the result in many cases believe the state of the affection of the state of the being properly localized or defined.—
Tabes mesenterios, abdominal phthisis, or consumption of the bowels, is a disease of the bowels caused by the formation of tubercles similar to those of the lungs in

Tableaux Vivants (tab-lo ve-van; French = 'living pictures'), representations of scenes from history or fiction by means of per-sons grouped in the proper manner, placed in appropriate postures, and remaining silent. Table-land, or PLATEAU (pla-tô'), a flat or comparatively level tract of iand considerably elevated

above the general surface of a country. Being in effect broad mountain masses, Tabor (tabur), a small drumany of these plateaus form the gathering grounds and sources of some of the accompaniment to a pipe or fife. noblest rivers, while their elevation con-fers on them a climate and a vegetable and animal life distinct from that of the surrounding lowlands. In Europe the fect cone from the plain of Esdraelon to

tuary. It was superseded by the temple chief table-lands are that of Central at Jerusalem. Spain, the less-defined upland in Switzerland, and the low plateaus of Bavaria and Bohemia. In Asia is the most extable-land in the world, that of Tipet, with an elevation of from 11,000 to 15,-000 feet. In Africa are the plateaus of Abyssinia, and the karoos or terrace plains of South Africa. In America the great table-lands are those of Mexico and the Andes. The table-lands of the West-ern United States are of large extent, comprising much of the states of Colorado, Utah, Oregon, Washington, and Idaho, with considerable portions of other states

Table Mountain, a mountain of South Africa, south of Table Bay, its highest point being right over Cape Town. It is about 3500 feet high and level on the top. It joins the Devil's Mount on the east, and the Sugar Loaf or Lion's Head on the west.

Table-turning, one of the phenomena of spiritualing a tipping or other movements of the table, questions asked being frequently answered by responsive tips indicating 'yes' or 'no.' The phenomenon has been ascribed to involuntary muscular actupercies similar to those of the lungs in ordinary consumption. It causes extreme tion of the sitters, but in view of the wasting, feebleness, and thinness of body, fact that the table is occasionally lifted and recovery is rare.— Tabes dorsdis is bodily from the floor, while touched only the same as locomotor ataxy (which see). on its surface, this explanation seems insufficient. The agency at work is claimed setting of a warp of silk and to be that of spiritual beings, but further a weft of wool, employed for window curtains and other furniture purposes.

Table, ROUND. See Round Table.

Taboo, or Tabu (ta-bö'), a peculiar institution formerly prevalent

Taboo, or Tabu (ta-bb'), a peculiar institution formerly prevalent among the South Sea islanders, and used in both a good and bad sense - as something sacred or consecrated, and as something accursed or unholy—both senses forbidding the touching or use of the thing \$taboo. The idea of prohibition was always prominent. The whole religious, political, and social system of the primitive Polynesians was enforced by the taboo the infringement of which in seritaboo, the infringement of which in seri-

ous cases was death.

Tabor (ta'bur), a small drum, beaten with a stick, and used as an

a height of nearly 1000 feet. It is Tachypetes (ta-kip'e-tez). clothed with woods to the very summit, where a view of immense extent is obtained. Its isolation led the earlier ec-

which we possess show that its summit was employed without intermission from 218 s.c. till 70 A.D. as a stronghold.

Tabor, (tá'bor), a town of Bohemia, on an eminence above the Luschnits, 48 miles s. s. e. of Prague, with old walls and towers. Its castle was a stronghold of the sect of Hussites called the contract of the sect of Hussites called the sect of Hussit Taborites, and makes a conspicuous figure in their history. Pop. 10,703.

Tahorites. See Hussites.

Taborites.

Tabreez, or Tabriz (tabrez'; the ancient Tauris), a city of Persia, capital of the province of Azerbijan, on the Aigi, 36 miles above its entrance into Lake Urumia. It lies at the inner extremity of an amphitheater, about 4000 feet above sea-level, with hills on three sides, and an extensive plain on the fourth. It is surrounded with a wall of sun-dried brick, with bastions, and entered by seven or eight gates. There are numerous mosques, bazaars, baths, and caravanserais. The citadel, originally a mosque, and 600 years old, was converted by Abbas Mirza into an arsenal. The blue mosque dates from the fifteenth century. Tabreez has manufactures of silks, cottons, carpets, leather and leather goods, etc. It is the great emporium for the trade of Persia on the west, and has an extensive commerce. It has frequently suffered from earthquakes. Pop. estimated about 200,000.

Tabular-spar (tab'û-lar), or TABLE-SPAB (called also Wollastonite), in mineralogy, a silicate of lime, generally of a grayish-white color. It occurs either massive or crystallized, in rectangular four-sided tables, and usually in granite or granular limestone, occasionally in basalt or lava.

Tacahout (tak'a-hut), the small gall formed on the tamarisk-tree (Tamaris indica). It is of great value for the gallic acid obtained from it which is used as a mordant in dyeing and

in tanning.

Tacamahac (tak'a-ma-hak), the name given to a bitter balsamic resin, the produce of several kinds of trees belonging to Mexico and the West Indies, the East Indies, South America, and North America. The balsam-poplar or tacamahac is one of these. See also Calophyllum.

Tachygraphy (ta-kig'ra-fi). See Shorthand.

Tacitus (tas'i-tus), CAIUS CORNELI-Us, an eminent Roman hisclesiastics to make it the scene of the torian, born probably about 54 A.D. Of transfiguration; but the historical data his education and early life we know littransfiguration; but the historical data his education and early life we know lit-which we possess show that its summit tle. He seems to have been first appointed to public office in the reign of Vespasian. Under Titus, by whom he was treated with distinguished favor, he became quæstor or ædile; was prætor unbecame questor or ædile; was prestor under Domitian (A.D. 88), and consul under Nerva (A.D. 97). In 78 he married the daughter of Cneius Julius Agricola, the celebrated statesman and general, whose life he afterwards wrote. He was several years absent from Rome on provincial business, and probably then made the acquaintance of the German peoples. After his return to Rome he lived in the closest intimacy with the younger Pliny, and had a very extensive practice in the profession of law, acquiring a high reputation as an orator. The ing a high reputation as an orator. time of his death is uncertain; but it probably took place after A.D. 117. We have four historical works from his pen: have four historical works from his pen: his Annals, in sixteen books (of which books seventh to tenth inclusive are lost), which contain an account of the principal events in Roman history from the death of Augustus (A.D. 14) to that of Nero (A.D. 68); his History (of which only four books and a part of the fifth are extant), which begins with the year 69 A.D., when Galba wore the purple, and ends with the accession of Vespasian (70); his Germany, an account of the ends with the accession of vespassau (70); his Germany, an account of the geography, manners, etc., of the country; and his Life of Agricola. The works of Tacitus have been pronounced, by the unanimous voice of his contemporaries and of posterity, to be masterpieces in their way. His style is exceedingly consists a much so as to make it often cise, so much so as to make it often difficult to gather his full meaning without great care. He had a wonderful insight into character, and could paint it with a master's hand. A high moral tone pervades all his writings, though he gives no clue to his religious belief.

Tack (tak), in navigation, the course of a ship in regard to the position of her sails and the angle at which the wind strikes them. Tacking is an oper-ation by which a ship is enabled to beat up against a wind by a series of zigzags, the sails being turned obliquely to the wind first on one side and then on the other.

Tackamahack. See Tacamahac.

Tacna (täk'nå), a town of N. Chile, in a plain on a river of same name, connected by rail with Arica. It

Tacoma (ta-ko'ma), a city and port werse rall which constitutes the uppermencement Bay, Puget Sound, 80 miles from the Pacific coast and 22 miles and 22 miles the upperment Bay and port most member of a ship's stern. washington, on Commencement Bay, Puget Sound, 80 miles from the Pacific coast and 23 miles s. by w. of Seattle. Its situation is one of Seattle. Its situation is one of great beauty, commanding a magnificent view of Mount Rainier. It has an excellent harbor, with docks and wharves several miles in length, and has a large minister to Austria in 1882-1884, and coean traffic; also extensive shipyards. The most member of a ship's stern.

Taft, ALPHONSO, jurist, born in Town-ing the country, send, Vermont, in 1810; was wide of the Cincinnati Superior Court, 1866-1872; appointed Secretary of War, March 8, 1876; and made attorney-general, May 22. He was United States minister to Austria in 1882-1884, and to Russia, in 1884-1885. He died May Lumber, shingles, and flour are very 21. cean traffic; also extensive shipyards. to Russia, in 1884-1885. He died May Lumber, shingles, and flour are very largely manufactured and there are four many other industries. There are four to many parts of the world. Pop. 83, in the Art Institute, Chicago. Among his works are The Solitude of the Soul. **743.**

Taconic Mountains (ta-kon'ik), a mountains in the United States, connecting the Green Mountains of Western Massachusetts with the highlands of the Hudson. The 'Taconic System,' in geol-ogy, was named from the characteristic strata of this range, a metamorphic rock, believed to be older than the Silurian

Tænia.

his works are The Solitude of the Soul, The Blind, Fountain of the Great Lakes. He is the author of History of American

Religious in the author of History of American Sculpture (1903).

Taft, WILLIAM HOWARD, twenty-seventh President of the United States, was born at Cincinnati, Ohio, September 15, 1857; son of Alphonso Taft. Admitted to the bar in 1880, he became judge of the Superior Court of Ohio Tactics (tak'tiks), the branch of milithe conduct of troops in battle. Naval lation to the handling of ships and tactics has the same significance in reprofessor in the law department of the lation to the handling of ships and University of Cincinnati, 1896-1900. In fleets. Strategy, on the other hand, refers to the movements leading up to a lation to the horizontal lation to the horizontal lation to the handling of ships and the latter year he was reade chairman of the Philippine Commission, and in 1890 Tacunga (ta-kun'ga), a town of ands. In 1903 he was appointed Secreprovince of Leon, at the foot of Cotopaxi. Pop. 15,000. Tadema. See Alma-Tadema.

Tadmor. See Palmyra.

Tadpole (tad'pōl), the name given to the larval or young state of special sessions of Congress, the passage of specy and other amphibians. frogs and other amphibians.

of a new tariff bill, the prosecution and movements in China worth about \$1.50, the the line of conservation and reform. He value of which varies considerably according to locality and the rate of excading to locality and the rate of excading. The tael is also a definite Republican party. See Progressive Party.

Taganrog (ta-gan-rok), a seaport of Russia, in the government of Ekaterinoslav, on the low cape on the

Taepings. See China.

Taffeta (taf'e-ta), or TAFFETY, was perial palace where Alexander I died in originally the name applied to all kinds of plain silks, but has now become a kind of generic name for plain silk, gros de Naples, gros des Indes, shot silk, glacé, and others.

Taffrail, originally the upper flat her time. She retired from the stage in part of a ship's stern, so 1847; but supported herself in London as

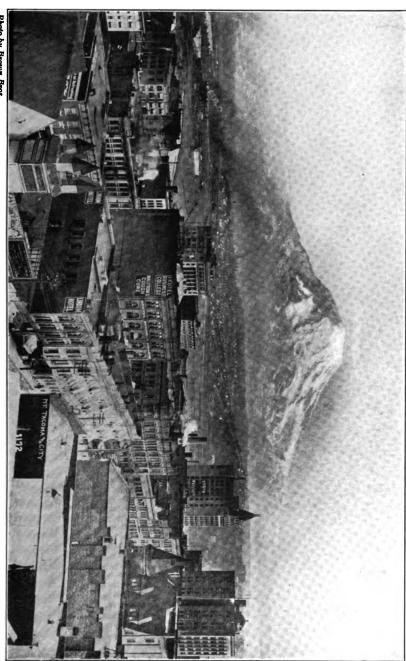


Photo by Brown Bros.

TACOMA, WASHINGTON

A bird's-eye view of the city, showing Mt. Rainier, also called Mt. Tacoma, one of the loftiest peaks in the United States, containing many glaciers.



Tagore, RABINDRANATH, a Hindu poet, born in 1860, known in the Occident chiefly through his own translations of his poems, though in India he is widely honored as a teacher and man of affairs. Tagore's works best known in English are Gitanjali (devotional), The Garden and The Crescent Moon.

Tagus (ta'gus; Spanish, Tajo; Portuguese, Tejo), the largest river of Spain and Portugal, issues from the mountains of Albaracin, on the frontier of New Castile and Aragon, flows northwest and southwest, and enters the Atlantic. It has a total length of 540 miles, and is navigable for 115 miles.

Tahiti (tá-hể/ti), the largest of the Society Islands, consisting of two peninsulas, connected by an isthmus two peninsulas, connected by an iethnus by the passing of the Public Worship 3 miles broad, and submerged at highwater; area, 412 square miles. It is Regulation Act of 1874.
water; area, 412 square miles. It is Tait, Peter Guther, physicist and highly tolerance, beautiful, and highly fertile; and produces sugar. Coconnut. bath Scatland in 1831; was educated at tile; and produces sugar, cocoanut, arrow-root, dye-woods, etc. Pop. 10,639. See Society Islands.

Tailor-bird (Orthotomus longicau-dus), a bird so named

Northern Siberia, extending Properties of Matter in 1886, and Dynamics in 1895. For his various matheof the Yenisei and Khatang Gulf, and containing Cape Chelyuskin, the most northerly land in Asia.

Taine (tān), HIPPOLYTE ADOLPHE, a medal in 1886. He died July 4, 1901.

Taine (Ardennes) in 1828, and educated at the Collège Bourbon and the Ecole trade in sugar and opium. Pop., includ-like the content of the treaty ports, with considerable at the Collège Bourbon and the Ecole trade in sugar and opium. Pop., including Takow, which almost forms one city Essau on Livu. was crowned by the Acad-Normale. In 1854 his first work, an Essay on Livy, was crowned by the Academy; in 1864 he was appointed professor in the School of Fine Arts in Paris; and in 1878 he was elected to a seat in the Academy. His History of English Literature, one of the best and most philosophical works on the subject, appeared in 1864 (four vols.); his Philosophy of Art in 1865; his Notes on England in 1872; and his Origin of Contemporary France in 1872, 84 the last a work of great rein 1875-84, the last a work of great research and value, in two sections, the first dealing with L'ancien Régime, the second with the Revolution. He died na), a town of Spain, in the province of Toledo, on the Tagus, 64 miles south-

inventing the radiophone, an instrument under Victor, Jourdan, and King Joseph,

a teacher of deportment. She died at for transmitting sounds to a distance Marseilles in 1884. through the agency of light. He took Tagore. RABINDBANATH, a Hindu poet, part in the 1874 expedition to the South Pacific to observe the transit of Venus. Was decorated by the French Academy in 1899.

Taiping, or TAEPING (ti-ping'). See China.

Tait (tat), AECHIBALD CAMPBELL, archbishop of Canterbury, son of Crauford Tait, writer to the signet, was born at Edinburgh in 1811; died in 1882. He was educated at Oxford, and there opposed the Tractarian principles. He was appointed headmaster of Rugby on the death of Dr. Arnold in 1842; dean of Carlisle in 1850; bishop of London in 1856; and archbishop of Canterbury in 1868. His primacy was marked by the disestablishment of the Irish Church, and

keith, Scotland, in 1831; was educated at Edinburgh and Peterhouse, Cambridge. In 1854 he was appointed professor of mathematics at Queen's College, Belfast, and in 1860 professor of natural philosophy of the professor of patents of the patents of th Tailor-bird (us), a bird so named from its curious habits of weaving or sewing together leaves in order to form author, with Professor Sir William a nest. It belongs to the sub-family of Thomson, of a textbook on Natural the Sylving or true warblers, and in-philosophy, and with the late Professor habits India and the Eastern Archipelago. Balfour Stewart of The Unseen Universe. Taimyr (timer), a peninsula of His Heat appeared in 1884, Light in 1884, Northern Siberia, extending Properties of Matter in 1885, and Dynamics in 1895. For his various mathematical and physical researches the Royal

ing Takow, which almost forms one city with it, 235,000. See Formosa.

Taj-Mahal (tazh - ma - hal'). See Agra.

Tajurah (tá-jö'rá), a seaport town on the African coast of the Gulf of Aden, on a bay of the same name. It is the outlet of trade from Shoa, and was ceded to France in 1887. Pop. about 2000.

Takow. See Taiwan.

Tainter (tan'ter), Charles Sumner, east of Madrid. It has a picturesque apinventor, born at Watertown, pearance, and various interesting build-Massachusetts, in 1854. He was the inventor of the graphophone, and aided in July 27 and 28, 1809, between the French

10,580.

Talbot (tal'but), a kind of hound for-merly in vogue, pure white in color, probably the original of the bloodhound.

See Photography. Talbotype.

Talc (talk), a magnesian mineral, consisting of broad, flat, smooth laming or plates, unctuous to the touch, laminæ or plates, unctuous to the touch, of a shining luster, translucent, and often transparent when in very thin plates. There are three principal varieties of tale, common, earthy, and indurated. Tale is a silicate of magnesium, with small quantities of potash, alumina, oxide of iron, and water. It is used in many parts of India and China as a substitute for window-glass. A variety of tale called French chalk (or steatite) is used for tracing lines on wood, cloth, etc., instead of chalk. See Potstone, Soapstone, Steatite.

ago, and has manufactures of ponchos. Pop. 42,766. The province has an area of 3664 sq. miles, and pop. 146,685.

Talcahuana (tăl-kā-wā'nō), a seaport of Chile, province

Talcanuana port of Chile, province Concepcion, with an arsenal, shipyards, etc. Pop. 13,499.

Talent (talent), the name of a weight and denomination of money

among the ancient Greeks, and also applied by Greek writers to various standard weights and denominations of money of different nations; the weight and value differing in the various nations and at various times. The Attic talent as a weight contained 60 Attic mine or 6000 Attic drachmæ, equal to 56 lbs. 11 oz. troy weight. As a denomination of silver money it was equal to \$1218.75. The great talent of the Romans is computed to be equal to \$496.66 and the little talent to \$375. A Hebrew weight and denomination of money, equivalent to 3000 shekels, also receives this name. As a weight it was equal to about 93 lbs. avoir.; as a denomination of silver it has been variously estimated at from \$1700 to \$1980.

Talfourd (tal'furd), Sir Thomas and poet, was born in 1795, and was brought up at Reading, where his father was a brewer. He was called to the bar in 1821, and in 1833 was made serjeant-at-law. In 1835 he was returned to par-liament for Reading, and in 1836 his tragedy of *Ion* (published the previous

and the British under Wellington, in year) was produced at Covent Garden, which the former were defeated. Pop. and achieved distinguished success. The tragedies subsequently produced by him were The Athenian Captive; Glencoe, or the Fate of the Macdonalds; and The Castilian, an historical tragedy. Besides his dramas he was the cathering tragedy. his dramas he was the author of a Life of Charles Lamb and of Vacation Rambles. In 1849 he was raised to the bench in the Court of Common Pleas, and re-ceived at the same time the honor of knighthood. He died suddenly in 1854 at Stafford, while delivering his charge to a grand-jury.

Taliacotian Operation (tal-i-a-kosh'yun).

See Rhinoplastic Operation.

Taliessin (tal'i-sin), a Welsh bard said to have flourished durof 1ron, and water. It is used in many parts of India and China as a substitute ing the twelfth or thirteenth century, and for window-glass. A variety of tale called French chalk (or steatite) is used for tracing lines on wood, cloth, etc., instead of chalk. See Poistone, Soapstone, Steatite.

Talca (täl'kå), a town of Chile, capital of the province of Talca, on the Claro, is connected by rail with Santiago, and has manufactures of ponchos.



Talipot Palm (Corypha umbraculifera).

are used for covering houses, for making are used for covering nouses, for making umbrellas and fans, and as a substitute for paper. When the tree has attained its full growth, the flower spike bursts from its envelope or spathe with a loud report. The flower spike is then as white as ivory, and occasionally 30 feet long. When its fruit is matured, the tree generally dies. erally dies.

Talisman (tal'is-man), a figure cast or cut in metal or stone,

and made, with certain superstitious ceremonies, at some particular moment of time, as when a certain star is at its culminating point, or when certain planets are in conjunction. The talisman thus prepared is supposed to exercise extraordinary influences over the bearer, particularly in averting disease. In a more extensive sense the word is used, like amulet, to denote any object of nature or art, the presence of which checks the power of spirits or demons, and defends the wearer from their malice. Relics, consecrated candles, rosaries, images of saints, etc., were employed as talismans in the middle ages; and at that time the knowledge of the virtues of talismans and amulets formed an important part of medical science.

Talitrus (tāl'i-trus). See Sandhopper.

Tallage (tal'ij), a sort of tax formerly levied by the English kings on towns and counties, as part of the revenues of the crown, being originally exacted probably in lieu of military service. It was abolished by statute of 1340.

Tallahassee (tal-a-has'se), a city, capital of the State of Florida and of Leon Co., 165 miles w. of of Mexico, being connected by rail with the seaport of St. Marks. It has cotton and cigar-making industries, and has the Florida State College, the Florida Normal and Industrial School (colored), and several libraries. Pop. 5018.

Tallard (tal-lar), CAMILLE DE LA
BAUME, DUC DE HOSTUN,
COMTE DE, Marshal of France, descended of an ancient family of Dauphiny, was born in 1652; died in 1728. He entered the army while young, and after serving under the Great Conde in Holland. was engaged under Turenne in Alsace in the brilliant campaigns of 1674 and 1675. He distinguished himself subsequently on various occasions, and in 1693 was made lieutenant-general; marshal in 1703. In 1704 he was taken prisoner at the battle

1704 he was taken prisoner at the battle of Blenheim, and was carried to England, where he remained seven years.

Talladega (tal-lâ-dê'gâ), a city, capital of Talladega Co., Alabama, 109 miles N. N. E. of Selma. It contains a State institution for the deaf, dumb and blind, and has large manufactures of cotton, fertilizers, etc. Pop. 5854. or BRUSH (tal-e-gal'la), or BRUSH ty for Autun. He sided with the poputrenus of rasorial birds, belonging to the family of Megapodiæ, or mound-birds. of tithes and the transference of church (See Megapodiæs.) The Tallegalla Lalands to the state gained him great poputation is the best-known species, and that larity. In 1790 he was elected president

usually designated by the distinctive name of 'brush turkey,' It inhabits Australia, where it is also known by the names 'wattled tallegalla' and 'New Holland vulture'— the latter name having reference to the naked vulturine head and neck. The male when full grown is colored of a blackish-brown above and below, with grayish tints on the back. The head and neck are covered with very small feathers of blackish hue, whilst a large wattle, colored bright or orange yellow, depends from the front of the neck. These birds are remarkable on account of the huge, conical 'egg-mound' which they form, several of them jointly, for the purpose of therein depositing their eggs, which are hatched by the heat of the decomposing mass of vegetable matter piled

Talleyrand-Périgord (tál-ā-rân-pā-rē-gōr), CHARLES MAURICE DE, Prince of Benevento, a famous French diplomatist, was born at Paris in 1754; died there in 1838. Though the eldest of three brothers he was, in consequence of lameness caused by an accident, deprived of his rights of primogeniture, and devoted, against his will, to the priesthood. His high birth and great ability procured him rapid ad-



thing is the best-known species, and that larity. In 1790 he was elected president

of the national assembly. When the civil constitution of the clergy was adopted he gave his adhesion to it, and ordained the first clergy on the new footing. For this he was excommunicated by a papal brief, and thereupon embraced the opportunity to renounce his episcopal functions (1791). In 1792 he was sent to tions (1791). In 1792 he was sent to London charged with diplomatic func-tions, and during his stay there was proscribed for alleged royalist intrigues. Forced to leave England by the provis-ions of the Alien Act, in 1794 he sailed for the United States, but returned to France in 1796. The following year he was appointed minister of foreign affairs; but being suspected of keeping up an un-derstanding with the agents of Louis XVIII, he was obliged to resign in July, 1799. He now devoted himself entirely to Bonaparte, whom he had early recognized as the master spirit of the time, and after Bonaparte's return from Egypt contributed greatly to the events of the 18th Brumaire (November 10, 1799), when the directory fell and the consulate began. He was then reappointed minister of for-eign affairs, and for the next few years was the executant of all Bonaparte's diplomatic schemes. After the establishment of the empire in 1804 he was appointed to the office of grand-chamberlain, and in 1806 was created Prince of Benevento. After the Peace of Tilsit in 1807 a coolness took place between him 1807 a coolness took place between nim and Napoleon, and became more and more marked. In 1808 he secretly joined a royalist committee. In 1814 he procured Napoleon's abdication, and afterwards exerted himself very effectually in reëstablishing Louis XVIII on the throne the appearance. He took part in the of his ancestors. He took part in the Congress of Vienna, and in 1815, when the allies again entered Paris, he became president of the council with the portfolio Euphorbiaces, one of the largest, the of foreign affairs; but as he objected to most beautiful, and the most widely sign the second Peace of Paris he gave in diffused of the plants found in China. his resignation. After this he retired his resignation. After this he retired into private life, in which he remained for fifteen years. When the revolution of July, 1830, broke out, he advised Louis Philippe to place himself at its head and to accept the throne. Declining the office of minister of foreign affairs, he proceeded to London as ambassador, and accept his coron by the formation and crowned his career by the formation of the Quadruple Alliance. He resigned in November, 1834, and quitted public life forever. His *Memoirs* were published in

at Paris in 1769, and first made himself

became one of the most popular men of the revolutionary party, and took part in most of the sanguinary proceedings which occurred during the ascendency of Robespierre. After the fall of Danton and his party, he perceived that he should become one of the next victims of Robespierre if he did not strike the first blow. pierre if he did not strike the first blow, and it was mainly by his influence that the latter with his friends was brought to the guillotine. He subsequently became a member of the Council of Five Hundred, but his influence gradually de-clined. In after years he was glad to ac-cept the office of French consul at Alicante. He died at Paris, in poverty and

obscurity, in 1820.

Tallis (tal'is). Thomas, author of some of the finest music in the cathedral service of the English Church, was born about 1515, and served in the chapel royal during the reigns of Henry VIII, Edward VI, Mary, and Elizabeth. VIII, Edward VI, Mary, and Elizabeth.
He died in 1585, and was buried in the
parish church at Greenwich.

Tallow (tal'o), the harder and less
fusible fat of animals, espe-

cially cattle and sheep, melted and separated from the fibrous matter mixed with them. Tallow is firm, brittle, and has a peculiar heavy odor. When pure it is white and nearly insipid; but the tallow of commerce has usually a yellowish tinge, which may be removed by exposure to light and air. Tallow is manufactured into candles and soap, and is extensively used in the dressing of leather, and in various processes of the arts. Vegetable tallow is contained in the seeds of various plants, one of the best known of which is the candle-berry (which see).
See also China Wax, and next article.

Tallow-tree (Stillingia sebifera), a
tree of the nat. order

From a remote period it has furnished the Chinese with the material out of which they make candles. The capsules and seeds are crushed together and boiled; the fatty matter is skimmed as it rises, and condenses on cooling. The tallow-tree has been introduced into the United States, and is almost naturalized in the maritime parts of Carolina. It has also been acclimatized by the French in Algeria. The tallow-tree of Malabar is Vateria indica.

1891.

Tally (tal-i-an), JEAN LAMBERT, a Tally (tal-i), a piece of wood on which notches or scores are cut, as the Paris in 1769 and tall-in the score and tall-in tal selling it was once customary for traders to have two sticks, or one stick cleft into known by publishing a revolutionary to have two sticks, or one stick cleft into journal called Ami du Citoyen. He soon two parts, and to mark with scores or

creditor keeping one stick, and the purchaser or debtor the other. Before the use of writing, or before writing became general, this or something like it was the usual method of keeping accounts. In the exchequer of England tallies were used till late in the eighteenth century. An exchequer tally was an account of a sum of money lent to the government, or of a sum for which the government would be responsible. The tally itself consisted of a squared rod of hazel or other sisted of a squared rod of nazer or other wood, having on one side notches, indicating the sum for which the tally was an acknowledgment. On two other sides opposite to each other, the amount of the sum, the name of the payer, and the date of the transaction, were written by an official called the writer of the tallies. This being done the rod was then cleft This being done the rod was then cleft longitudinally in such a manner that each piece retained one of the written sides, and one half of every notch cut in the tally. One of these parts, the counterstock, was kept in the exchequer, and the other, the stock, only issued. When the part issued was returned to the exchequer (usually in payment of taxes) the two parts were compared, as a check against fraudulent imitation. This ancient system was abolished by 25 Geo. III lxxxii. The size of the notches made on the tallies varied with the amount. The notch for £100 was the breadth of a thumb, for £1 the breadth of a barley-corn. A penny was indicated by a slight slit.

Tally System, a mode of selling upon credit, in which the purchaser agrees to pay for the purchase by fixed installments at a certain rate, and both seller and purchaser keep books in which the circumstances of the transaction and the payment of the several installments are entered, and which serve as a taily and counter-taily. This mode of doing business has lately increased enormously in all branches of trade.

Talma (tal-ma), François Joseph, a celebrated French tragedian, was the son of a Parisian dentist, and was born at Paris in 1763. In 1787 he made his début at the Comédie Française in the character of Séide in Voltaire's Mahomet. His greatest successes were achieved at the Theatre Français (after-

notches on each the number or quantity died in 1826. Talma was the greatest of goods delivered, or what was due bemodern tragic actor of France, and one tween debtor and creditor, the seller or of the earliest advocates of realism in scenery and costume.

Talmage (tal'maj), Thomas Dr. Witt, clergyman, born at Boundbrook, New Jersey, in 1832.
After holding several Dutch Reformed pastorates, he became pastor of the Central Presbyterian Church in Brooklyn in 1869, and of the First Presbyterian Church in Washington in 1896. He won

great popularity as a pulpit orator and lecturer, and his sermons were printed weekly for over thirty years in a large number of newspapers. For years he was editor of the Christian Herald, and

published a number of works on religious subjects. He died April 12, 1902.

Talmud (tal'mud), a Chaldaic word signifying 'doctrine,' and sometimes used to designate the whole teaching of the Jewish law, comprising all the writings included in what we call the Old Testament, as well as the oral law or Mishna, with its supplement or commentary the Gemara, but more frequently applied only to the Mishna and Gemara. The main body of the Talmud—in the second of these two senses—consists of minute directions as to sense the consists of minute directions as the consists of minute directions and directions are the consists of minute directions as the consists of minute directions as the consists of minute directions are the consists of minute directions as the consists of minute directions are the consists of minute directions as the consists of minute directions are the consists of minute directions and minute directions are the consists of minute directions and minute directions are the consists of minute directions and minute directions are the consists of minute directions and minute directions are the consists of minute directions and minute directions are the consists of minute directions and minute directions are the consists of minute directions and minute directions are the consists of minute directions and minute directions are the consists of minute directions and minute directions are the consists of minu consists of minute directions as to conduct. Its contents are hence very miscellaneous, and they are as varied in their character as in their subject. Much of it is taken up with regulations of the most puerile nature, and not a little with details only fitted to avoite discuss. In details only fitted to excite disgust. In other parts again there are passages containing the loftiest expression of religious feeling, passages which are said to be the source of almost all that is sub-lime in the liturgy of the Church of Rome, and those liturgies which have been mainly derived from it. Interspersed throughout the whole are numerous tales and fables, introduced for the sake of illustration. The Jews are carefully instructed in it, and its very language is sometimes quoted and acknowledged in the New Testament. The injunctions referred to in the sermon on the mount as having been 'said by them of old time' (properly, the elders) are all from the Mishna. The Gemara was originally an oral commentary of the Mishna, as the Mishna itself was originally an oral commentary of the Mikra, or writ-ten law. It consisted of the explanations and illustrations which the teachers of the Mishna were in the habit of giving in the course of their lessons. These oral wards Theatre de la Republique), which in the course of their lessons. These oral he and others founded in 1791. He encomments were handed down from age joyed the intimacy of Napoleon, and was to age, differing of course in different lother friend of Chénier, Danton, Camille calities, and gradually increasing in quantity the state and they were at last committed. the friend of Chénier, Danton, Camille calities, and gradually increasing in quan-Desmoulins, and other revolutionists. He tity; and they were at last committed

to writing in two forms, the one called only a few inches in length, presents a the Jerusalem and the other the Baby- wonderful resemblance to the lion. lonian Gemara, or, with the addition of Tamarind (tam'a-rind; Tamarindus the Mishna, which is common to both, indica), a large and beauthe Jerusalem and the Babylonian Talmud is the partial tree of the East and West Indies, and the Jerusalem Talmud is the nat. order Legumier and by much the smaller of the nose. It is cultitated. The Jerusalem Talmud is the nat. order Legumier and by much the smaller of the nose. It is cultitated in the sake of its reds. is a mixed Hebrew, but that of the Baby- the sake of its pods lonian Gemara is much less pure than (tamarinds). The the other; in the narrative portions, designed as popular illustrations of the signed as popular illustrations of the rinds are put into other parts, it comes near the Aramaic or casks, with layers vernacular dialect of the Eastern Jews. of sugar between The style is in both cases extremely contensed and difficult. The Mishna, with ing syrup poured its corresponding Gemara, is divided into over them, and are six orders or principal divisions. The called prepared subjects of these orders are agriculture, tamarinds. The festivals, women, damages, holy things, East Indian tama-and purifications. These orders are sub-rinds, which are divided into sixty-three tracts, to which the Babylonian Gemara adds five others, thus containing sixty-eight tracts in all. Other divisions of the Talmud are the Halaka, the doctrinal and logical por-tion; Hagada, the rhetorical or imagina-tive portion; and Cabala, the mystical

(ta-man'dū-a), Tamandua

Tamaqua (ta-ma'kwa'), a town of Schuylkill Co., Pennsylva-nia, 17 miles N. E. of Pottsville, and in an extensive coal-mining district. There are many collieries, iron foundries, and machine shops, and manufactures of ex-

Tamaricaceæ (tam-ar-i-kā'se-ē), a small nat. order of polypetalous exogens. The species are either shrubs or herbs, inhabiting chiefly the basin of the Mediterranean. They have minute alternate simple leaves and usually small white or pink flowers in terminal spikes. They are all more or less astringent, and their ashes after burning are remarkable for possessing a large quantity of sulphate of soda. See

Tamarin (tam'a-rin), the name of drum species, certain South American drum species, certain South American drum species, the less, and irritable little creatures, two of the smallest being the silky tamarin (Mi-Spanish and das rosalia) and the little lion monkey Italian peasants, (M. leonina), the latter of which, though as well as else-

(tamarinds). The West Indian tamarinds are put into most esteemed, are preserved without sugar. They are Tamarind (Tamarindus dried in the sun, or artificially with salt added.



indica).

tion; riagaus, and Cabala, the mystical portion, including theosophy and magic. Many translations of parts of the Talmud have appeared.

Talpa (tal'pà). See Mole.

Talus (tă'lus), in geology, a sloping south coast of England. It attains a heap of broken rocks and stones height of from 16 to 20 feet, has small flowers of any precipice, cliff, or rocky flowers of a bright rose color, and altographen has a very attractive appearance, gether has a very attractive appearance, which makes it very much sought after as an ornament for shrubberies and parks. Tamatave (täm-a-taw), the chief port on the eastern side of Madagascar. It was for a time capital of the island. Pop. about 6000.

Tamaulipas (tam-a-y-leypas), a state of Mexico, on the Gulf of Mexico, porth of Vers Cruz, area

of Mexico, north of Vera Cruz; area, 32,270 square miles. The coast is low, but in the interior, towards the south, the surface becomes finely diversified by mountain, hill, and valley. The soil is generally fertile. Cattle in vast numbers are reared on the pastures. The foreign trade is carried on chiefly at the ports of Tampico and Matamoros. The capital is Ciudad Victoria. Pop. 218,948.

Tambookieland. See Tembuland.

Tambookieland.

Tambourine (tam-by-rēn'), a musi-cal instrument of the among the

Tambourine.

where. It consists of a piece of parchment stretched over the top of a broad hoop, which is furnished with little bells.

Tambour-work (tam-bör'; French tambour, a drum), a species of embroidery on muslin or a species of embroadery on muslin or other thin material, worked on circular frames which resemble drum-heads. The practice of tambouring is rapidly dying out, being replaced by pattern-weaving, by which tambour-work can be closely imitated.

Tambov (tam-bof'), a government of Russla, south of Nijni-Novgorod and Vladimir, between the basins of the Oka and the Don; area, 25,676 sq. miles. It is one of the largest, most fertile, and most densely peopled provinces of Central Russia. More than two-thirds of the surface is arable. The principal crops are corn and hemp. Vast numbers of excellent horses, cattle, and numbers of excellent horses, cattle, and sheep are reared. The chief industrial establishments are distilleries, tallow-melting works, sugar works, and woolen mills. Pop. 3,205,200.— Tambov, the departure of steamers for various ports. capital, 263 miles southeast of Moscow, the departure of steamers for various ports. Among its places of interest are De Soto is built mostly of wood. It has a great trade in corn and cattle, and soap and tallow are largely made. Pop. 60,729.

The provided Hillsboro Co., on the Gulf Coast; a rising business center, the terminum of three railways, and the point of the point of steamers for various ports. Among its places of interest are De Soto interest are De Soto interest are large cigar factories and lumber mills and it is an important shipping. Tamerlane (tam-er-lan). See

Tamias (tam'i-as). See Squirrel.

Tamil (tam'il), the name of a race which inhabits South India and Ceylon. The Tamils belong to the Dravidian stock of the inhabitants of India. and are therefore to be regarded as among the original inhabitants who occupied the country before the Aryan invasion from the north, but they adopted the higher civilization of the Aryans. The Tamil language is spoken not only in South India and Ceylon, but also by a majority of the Indian settlers in places farther east, as Pegu and Penang. There is an extensives literature, the greater part of it in verse. Among the chief works are the Kural of Tiruvalluvar, an ethical poem, and the Tamil adaptation of the Sanskrit Ramayana.

Tamise (ta-mēz), a manufacturing town of Belgium, province of E. Flanders, on the Scheldt. Pop. 12,463.

Tam o'Shanter, the hero of Burns's poem of the same name; also a cap with a close-fitting rim tight-fitting woolen cap or a braid bonnet. miles in the rainy season.

Tammany (tam'a-ni), Society of, formed in New York city in 1789, as a It is sounded by sliding the fingers along counterweight to the so-called 'aristothe parchment or by striking it with cratic' Society of the Cincinnati; derivthe back of the hand or with the fist or ing its name from a noted friendly Delathe elbow.

Tambour-work (tam-bör'; French been canonized by the soldiers of the Revolution as the patron saint of Amer-Revolution as the patron saint of America. The grand sachem and 13 sachems were intended to typify the President and the governors of the 13 original states. It was organized for social and benevolent purposes, but always had a political character. Always essentially Democratic, it represented the distrust of Hamilton's aristocratic policy. It is the leading political mainspring of New the leading political mainspring of New York politics.

Tammy, Tamis, Tamine, or Taminy, a kind of woolen cloth highly glazed, used for making fine sieves em-ployed in cooking, which are also called tammies. It is also used under the names of lasting and durant for ladies' boots.

Tampa (tam'pa), a port of Florida, Hillsboro Co., on the Gulf Coast; a rising business center, the termills and it is an important shipping point for naval stores, fruits, fish, and cattle. It has become a favorite winter resort. Pop. 37,782; including suburbs, resort. 52.500.

Tampico (tam-pē'kō), a seaport town of Mexico, in the state of Tamaulipas, in the extreme south, 5 miles from the mouth of the Panuco. On account of a bar the harbor is not accessible for large vessels; nevertheless, the trade is considerable. Strong fibers used in place of bristles for brushes, are ex-

ported from there. Pop. 17,569.

Tamsui (täm-sö'ë), a town of China, island of Formosa, one of the treaty ports, with a trade in tea. Pop. about 100,000.

Tam-tam, or Tom-rom, a cylindrical drum used in the East Indies. It is beaten upon with the fingers, or with the open hand. Public no-tices, when proclaimed in the bazaars of Eastern towns, are generally accompanied by the tam-tam.

Tana (tä'nā), (1) a river in the extreme north of Norway, forming part of the boundary between it and Russia. (2) A river of E. Africa, within the British 'sphere of influence,' rising and large, flat top, usually with a knob the British 'sphere of influence,' rising or tassel in the center; in Scotland, a in Mount Kenia, navigable for about 100 Tanagers (tan'a-jerz), passerine birds, genus Tanagra, fam-ily Fringillidæ, or finches, distinguished passerine by the bill being of triangular shape at its base and arched towards its tip, and re-markable for their bright colors. They are chiefly found in the tropical parts of America.

class of tique ter-Tanagra Figurines, a class ra-cotta statuettes and reliefs, first found in 1893 in the necropolis of Tanagra, Greece, but since found elsewhere in Greece. They date from about 400 B.C., though some of them are prehistoric.

Tanais. See Don.

Tanais.

Tananarivo. See Antananarivo.

Tancred (tan'kred), son of the Marquis Odo the Good and Emma, the sister of Robert Guiscard, born in 1078, was one of the most famous heroes of the first Crusade. He distinguished himself at the siege of Nicæa (1097), at the battle of Dorylæum (July, 1097), at the capture of Jerusalem (July, 1099), and at Ascalon (August 12), and was appointed by Godfrey de Bouillon Prince of Galilee. He died in 1112, in his thirty-fifth year, of a wound received at Antioch. He is reprewound received at Antioch. He is represented by Tasso in the Jerusalem Delivered as the flower and pattern of chiv-

alry. (ta'ne), ROGER BROOKE, jurist, born in Calvert Co., Maryland, Taney born in Caivert Co., Maryland, in 1777. He was graduated from Dickinson College, was admitted to the bar in 1799, and elected to the Maryland Senate in 1816. In 1831 he became Attorney-General of the United States, and in 1836 was appointed to succeed John Marshall as Chief Justice of the United States Supreme Court, a position which he held until his death in 1864. The most fa-mous of his decisions is that in the Dred Scott case, denying freedom to a slave going into a free State, an incident used effectively in the antislavery movement.

Tanganyika (tän-gän-ye'kä), a lake of Central Africa, lying to the south of Lake Albert Nyanza. It extends from about 3° 25' to 8° 40' s. lat., and from 29° 20' to 32° 20' E. lon. It is 420 miles long, has an average breadth of about 30 miles, and is 2700 feet above the level of the sea. The basin in which it lies is inclosed by an almost continuous series of hills and mountains. It is fed by numerous rivers and streamlets, and discharges by the river Lukuga into the Congo. There are several London Mis-Congo. There are several London Missionary Society stations on Tanganyika, and en the eastern shore is the Arab

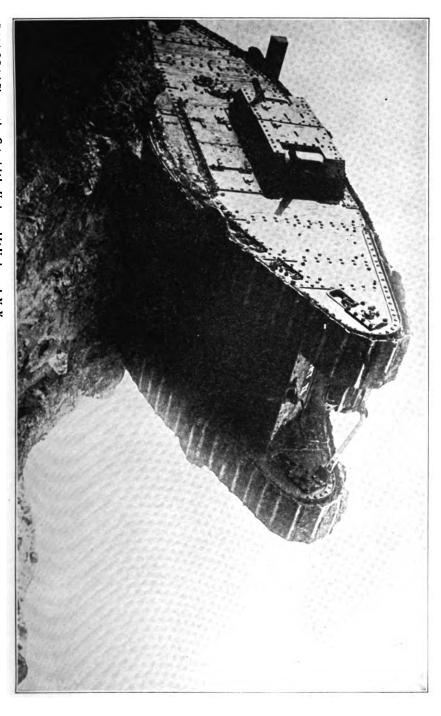
town of Ujiji. A carriage-road, 210 miles, runs to Nyassa. Tanganyika was discovered by Speke and Burton in 1858. Tangent (tan'jent), in geometry, a straight line which touches or meets a circle or curve in one point, and which being produced does not cut it; a straight line drawn at right angles to the diameter of a circle, from the extremity of it, as HA in figure, which being continued at A, would merely touch and not cut the circle. In trigonometry the tangent of an arc is a straight line touching the circle of which the arc is a part, at one extremity of the arc, and meeting the diameter pass-

ing through the other extremity. Thus AH is the tangent of the arc AB, and it is also said to be the tangent of the angle ACB, of which AB is the measure. The arc and its tangent bave always a certain

relation to each other; and when the one is given in parts of the radius, the other can always be computed. For trigonometrical purposes tangents for every arc from 0 degrees to 90 degrees, as well as sines, cosines, etc., have been calculated with reference to a radius of a certain length, and these or their logarithms formed into tables. In the higher geometry the word tangent is not limited to straight lines, but is also applied to curves in contact with other curves, and also to surfaces.

Tanghin (tang'gin; Tanghinia vene-nifera), a tree of Mada-gascar, nat. order Apocynaceæ, bear-ing a fruit the kernel of which, about the size of an almond, is highly poisonous. Trial by tanghin was formerly used in Madagascar as a test of the guilt or in-nocence of a suspected criminal. The person undergoing the ordeal was required to swallow a small portion of the kernel. If his stomach rejected it he was deemed innocent, but if he died, as happened in most cases, he was deemed to have deserved his fate and suffered the punishment of his crime.

Tangier (tan'jēr), a seaport of Morocco, on the Strait of Gibraltar. It stands on two heights near a spacious bay, and presents a very striking appearance from the sea, rising in the form of an amphitheater, and defended by walls and a castle. Tangier is almost destitute of manufactures. The harbor is a mere roadstead, but there is a large trade. In 1662 Tangier was annexed to the English crown as part of the dowry of the Infanta of Portugal, the wife of King Charles II, but in 1684 it was



Brilish Official Photograph. Copyright by Underwood & Underwood, N. Y. MONSTER BRITISH TANK POISED ON THE EDGE OF A GERMAN TRENCH

One of the latest and largest tanks plunging forward on its irresistible way to carry terror and destruction to the Hun. It was the work of tanks like this that con-tributed largely to the British victory at Cambrai.

trated a very large army for the reconquest of East Prussia.

General Samsonoff, who had been in command of the southern army, pressed on through Allenstein, with intent to reach the Vistula. To succeed in this it was necessary to pass through a belt of difficult country, abounding in lakes, marshes, and woods around Osterode,

Tannenberg, and Eylau.

It was here that Hindenburg with his intimate knowledge of the swampy land gave battle to the Russians. The Battle of Tannenberg lasted three days, and a quarter of a million men were in action on each side. On the 30th of August the Russian flank was turned, and the en-veloping movement was carried on during the night. On the 31st the collapse of the line began. As the Russians gave way under the converging pressure of front and flank attacks they found that it was a difficult matter to extricate them-selves from the wilderness of woods, lakes and marshes in which they had given bat-Three Russian generals fell in the final struggle: Samsonoff, Postitsch, and Martos. The Germans claimed that of the five army corps which formed the enemy's main battle line they destroyed three and a half. It was the most complete victory won by the Germans in the opening phase of the war and resulted in a precipitate evacuation of East Prussia by the invaders. Rennenkampf fought a heroic rearguard action, falling back by way of Gumbinnen, recrossing the frontier and retreating to the Niemen, where large reinforcements awaited.

Tanner, Henry Ossawa (1859-), an American painter, son of Benjamin Tucker Tanner, bishop of the African Methodist Episcopal Church. He was born at Pittsburgh, Pa., and began his studies at the Pennsylvania Academy of Fine Arts under Thomas Eakins; later a pupil of Jean Paul Laurens and Benjamin Constant of Paris. He specialized in religious subjects. He is represented in the Luxembourg ('Raising of Lazarus'), the Wilstach Collection, Philadelphia ('Annunciation'), Carnegie Institute ('Christ at the Home of Mary and Martha'), and the Chicago Art Institute ('The Two Disciples at the Tomb'). He is an Associate of the National Academy.

Tanner's Sumach. See Coriaria.

Tannhäuser (tan'hoi-zer), or Tanto which leather is applied. The larger HAUSER, in old German legend, a knight who gains admission process, as those of buffalces, bulls, oxen, into a hill called the Venusberg, in the and cows, are technically called hides; interior of which Venus holds her court, and who for a long time remains buried in sensual pleasures, but at last listens to preparing the hides and skins for tanning

the voice of the Virgin Mary, whom he hears calling upon him to return. The goddess allows him to depart, when he hastens to Rome to seek from the pope (Pope Urban) absolution for his sins. The pope, however, when he knows the extent of the knight's guilt, declares to him that it is as impossible for him to obtain pardon as it is for the wand which he holds in his hand to bud and bring forth green leaves. Despairing, the knight retires from the presence of the pointiff, and enters the Venusberg once more. Meanwhile the pope's wand actually begins to sprout, and the pope, taking this as a sign from God that there was still an opportunity of salvation for the knight, hastily sends messengers into all lands to seek for him. But Tannhäuser is never again seen. The Tannhäuser legend has been treated poetically by Tieck, and Richard Wagner has adopted it (with modifications) as the subject of one of his operas,

Tannic Acid (tan'ik), or Tannin, a peculiar acid which exists in every part of all species of oaks, especially in the bark, but is found in greatest quantity in gall-nuts. Tannic acid, when pure, is nearly white, and not at all crystalline. It is very soluble in water, and has a most astringent taste, without bitterness. It derives its name from its property of combining with the skins of animals and converting them into leather, or tanning them. It is the active principle in almost all astringent vegetables, and is used in medicine in preference to mineral astringents, because free from irritant and poisonous action. The name is generally applied to a mixture of sev-

eral substances.

Taning (tan'ing), the operation of converting the raw hides and skins of animals into leather by effecting a chemical combination between the gelatine of which they principally consist and the astringent vegetable principle called tannic acid or tannin. The object of the tanning process is to produce such a chemical change in skins as may render them unalterable by those agents which tend to decompose them in their natural state, and in connection with the subsequent operations of currying or dressing to bring them into a state of pliability and impermeability to water which may adapt them for the many useful purposes to which leather is applied. The larger and heavier skins subjected to the tanning process, as those of buffaloes, bulls, oxen, and cows, are technically called hides; while those of smaller animals, as calves, sheep, and goats, are called ekins. In

they are subjected to certain operations an old popular medicine. It is now culaiready described under *Leather*, after tivated in gardens mainly for the young which the tanning proper begins. The leaves, which are shredded down and emalready described under Leather, after which the tanning proper begins. The various substances used for tanning are oak, fir, mimosa, and hemlock bark, su-mach, myrobalans, divi-divi, valonia-nuts, cutch, kino, gambir, and oak-galls—all of which contain tannin. The impregnation of the hides with this tannin may be effected either by placing them between layers of bark (oak bark being the best) in a vat filled with water, or steeping them in a liquor containing a small at first, but steadily increasing propor-tion of tannin throughout a series of pits. This liquor usually consists of water in which the ground or crushed tanning material has been steeped. The raw hide takes about a year to prepare it for the best quality of leather. There is also a process called tawing, which is employed chiefly in the preparation of the skins of sheep, lambs, goats, and kids. In this process the skins are steeped in a bath of alum, salt, and other substances, and they are also sometimes soaked in fish-oil. The more delicate leathers are treated in this manner, those especially which are used for wash-leathers, kid gloves, etc. After the leather is tanned it is finished for use by the process of currying (which see). Various improvements have been attempted to be made in the art of tanning, such as the preparation of the skins by means of metallic solutions instead of by vegetable tan-liquor; the forced ab-sorption of the tan by applying pressure between cylinders; and the preparation of the skins by a chemical agent, so as to induce a quicker absorption of the tan. It has been found, however, that the slow process followed by the old tanners pro-duces leather far superior to that pro-duced by the new and more rapid methods, though a fair leather for certain purposes may be produced in five to ten ning, such as the preparation of the skins purposes may be produced in five to ten weeks.

Tanrec (tan'rek), or Tenmeo (Centestes), a genus of insectivorous mammals, resembling in outward appearance the European hedgehog, they being covered with bristles about an inch in length. These animals inhabit Mada-gascar. They hibernate like the European hedgehog, and live in burrows. which they excavate by means of their strong claws.

Tansy (tan'zi; Tanacetum vulgere), is well-known plant, being abundant throughout Europe and naturalized in the United States. It is a tall plant, with divided leaves and button-like

ployed to flavor puddings, cakes, etc.

Tanta (tän'tä), a town of Lower
Egypt, situated on the railway
about 50 miles N. of Cairo. It has many about 50 miles N. of Cairo. It has many large public buildings, besides a palace of the Khedive, and is celebrated in connection with the great Moslem saint Seyyidel-Bedawi, to whom a mosque is here erected. Tanta has three great annual fairs, which are held in January, April, and August, and at the latter 500,000 persons are said to converget from the sursons are said to congregate from the surrounding countries. Pop. (1907) 54,437.

Tantalum (tan'ta-lum), a rare metallic element discovered in the Swedish minerals tantalite and yttro-tantalite; chemical symbol Ta, atomic weight 182. It was long believed to be identical with niobium, but their separate identity has been established.

Tantalus (tan'ta-lus), in Greek mythology, a son of Zeus, and king of Phrygia, Lydia, Argos or Corinth, who was admitted to the table of the gods, but who had forfeited their favor either by betraying their secrets, stealing ambrosia from heaven, or presenting to them his murdered son Pelops as food. His punishment consisted in being placed in a lake whose waters receded from his lips when he attempted to drink, and of being tempted by delicious fruit overhead which withdrew when he attempted to eat. Moreover, a huge rock forever threatened to fall and crush him.

Tantalus, a genus of wading birds of the heron family. T. loculator is the wood-ibis of America, which frequents extensive swamps, where it feeds on serpents, young alligators, frogs, and other reptiles. The African tantalus (T. ibis) was long regarded as the ancient Egyptian ibis, but it is rare in Egypt, belonging chiefly to Senegal, and is much larger than the true ibis.

Tantras (tan'tras), a name of certain Sanskrit sacred books, each

of which has the form of a dialogue be-tween Siva and his wife. The tantras are much more recent productions than the Vedas, the oldest being long posterior even to the Christian era, although their believers regard them as a fifth Veda, of equal antiquity and higher authority. The Tantrikas, or followers of the tan-

tras, indulge in mystical and impure rites in honor of Siva.

Taoism, or TAOUISM (tã'ō-izm, tou'-izm), a religious system formed in China by Lao-tse. He taught heads of yellow flowers. Every part of formed in China by Lao-tse. He taught the plant is bitter, and it is considered as a comparatively pure morality, but in its tonic and anthelmintic, tansy-tea being later developments his doctrine is too

often associated with magical rites and tory.) The term tapestry is also apsuperstitious observances. See Lao-tze. plied to a variety of woven fabrics hav-Taormina (ta-or-me'na), a town, province of Messina, Sicily, on Monte Tauro, overlooking the Strait of Messina. Its chief interest is in the ancient theater, sepulchers, reservoirs, etc., which are still in good preservation. It is a favorite place of resort for travel-

ti is a favorite place of resort for travelers. Pop. 4351.

Taos (tă'os), the name of a district and town of New Mexico, about the Lepus Brasiliensis, the only 50 miles N. of Santa Fé, watered by the hare inhabiting South America. Rio de Taos, a tributary of the Rio Grande. Here is a fine example of the pueblo Indian architecture, of prehistoric date, yet still inhabited by a large number of Indians. This was the seat of the Annuloida, found in the mature state in first Tarritorial government was the residue. first Territorial government, was the residence of Kit Carson and Colonel Burt, and has now a town of about 500 inhabitants, a market-place for the Indian farmers surrounding.

Tapestry (tap'es-tri), a kind of woven hangings of wool and silk, often enriched with gold and silver,

plied to a variety of woven fabrics having a multiplicity of colors in their design, which, however, have no other characteristic of true tapestry. The name of tapestry carpet is given to a showy and cheap two-ply or ingrain carpet, the warp or weft being printed before weaving so as to produce the figure in the cloth.

Tapeti (tap'e-ti), the Brazilian hare, the Lepus Braziliensis, the only hare inhabiting South America.

the alimentary canal of warm-blooded vertebrates. Tape-worms are composed of a number of flattened joints or segments, the anterior of which, or head (which is the true animal), is furnished Tapajos (tâ-pâ-zhōs'), a river of Bra-with a circlet of hooks or suckers, which zil, which flows through the enable it to maintain its hold on the province of Para, and enters the Amazon after a northward course of nearly 1200 its host. The other segments, called proglottides, are simply generative organs budded off by the head, the oldest being furthest removed from it, and each containing when mature male and female organs. The tape-worm has neither mouth nor digestive organs, nutrition being effected by absorption through the skin. The length of the animal varies from a few involve to several wards. with worked designs, representing fig- organs. The tape-worm has neither ures of men, animals, landscapes, etc., mouth nor digestive organs, nutrition beand formerly much used for lining or ing effected by absorption through the covering the walls and furniture of apartskin. The length of the animal varies ments, churches, etc. Tapestry is made from a few inches to several yards. The ments, churches, etc. Tapestry is made from a few inches to several yarus. The by a process intermediate between weav- ova do not undergo development in the ing and embroidery, being worked in a animal in which the adult exists. They web with needles instead of a shuttle. require to be swallowed by some other Short lengths of thread of the special warm-blooded vertebrate, the ripe progcolors required for the design are worked lottides being expelled from the bowel in at the necessary places and fastened of the host with all their contained ova at the back of the texture. In Flanders, fertilized. The segments or proglottides restricted at the very which are decompose and liberate the ova which are whence the term devoted with uncommon skill.

The art of weaving tapestry was introduced into England near the end of Henry VIII's reign. During the reign of James I a manufactory was established at Mortlake, which continued till the beginning of the eighteenth century. Recently a royal school of tapestry has been established at Windsor, and sexcellent work has been down and the stablished at Mortlake and sexcellent work has been down and sexcellent work has been down and the stablished at Mortlake and sexcellent work has been down and sexcelle the beginning of the eighteenth century. Brain, where it surrounds itself with a Recently a royal school of tapestry has cyst, and develops a vesicle containing a been established at Windsor, and some fluid. It is now called a scoles or excellent work has been done by Mr. W. hydatid, and formerly was known as the Morris at Merton (Surrey). The first cystic worm. The scolex is incapable of manufacture of tapestry at Paris was set further development till swallowed and up under Henry IV, in 1606 or 1607, by received a second time into the alimenseveral artists whom that monarch interested from Flanders. But the most celethere it becomes the head of the true brated of all the European tapestry manufactures was that of the Gobelins, developed posteriorly by gemmation, and instituted under Louis XIV. (See we have the adult animal with which the Rauseum Tapasstry and Gobelins Manufac-Bayeus Tapestry and Gobelins Manufac- cycle begins. Eight true tape-worms occur in man, Tania solium, the cystic throughout Europe, and among them is form of which produces the measles of a gigantic species, T. giganteus, Cuvier, the pig, being the most common. An which in size must have nearly equaled other, T. mediocanellata, is developed the elephant. the pig, being the most common. Another, T. mediocanellata, is developed the elephant. from the scolex, which causes measles in Tapping (tap'ing), or PARACENTE'-the ox. The tape-worm of the dog, T. Tapping sis, a surgical operation serrata, is the adult form of the scolex commonly performed for dropsy, but also which produces staggers in sheep. T. for empyema, and for the relief of other tape-work and for the relief of other produces. which produces staggers in sheep. T. Echinococcus of the dog produces hydatids in man, through the development in man of its immature young. In all cases the only conclusive sign of tape-worm is the passage of one or part of one in the fæces. One mode of treatment for this disorder is, for an adult, a teaspoonful of the extract of male-fern. A few hours thereafter a strong dose of castor-oil should be taken.

Tapioca (tap-i-o'ka), a farinaceous substance prepared from cassava meal, which, while moist or damp, has been heated for the purpose of drying it on hot plates. By this treatment the starch-grains swell, many of them burst, and the whole agglomerates in small irregular masses or lumps. In

short fleshy proboscis; there are four toes to the fore-feet, and three to the hind ones. The common South Amerihind ones. The common South American tapir (Tapirus americanus) is the size of a small ass, with a brown skin, nearly naked. It inhabits forests, lives much in the water, conceals itself during the day, and feeds on vegetable sub-stances. There are several other Ameri-



Malay Tapir (Tapirus malayanus).

can species. The T. malayanus or indicus is found in the forests of Malacca and Sumatra. It is larger than the American species, and is a most conspicuous animal from the white back, rump, and belly contrasting so strongly with the deep sooty black of the rest of the body as, at a little distance, to give it the aspect of being numbed up in a white these black beautiful taning are transfer. sheet. Fossil tapirs are

morbid effusions in natural or accidental cavities of the body. It consists in piercing the wall of the cavity with an instrument, commonly a trocar or a bistoury. The fluid usually flows out, but it is sometimes necessary to use an instrument which acts as a syringe.

Taprobane (ta-prob'a-ne), the ancient name of Ceylon.

See Ceylon.

Tapti, or TAPTEE (täp'tē), a river in budda division of the Central Provinces, and after a course of about 460 miles falls by several mouths into the Gulf of Cambay, 20 miles below Surat and 30 miles south of the mouth of the

Nerbudda.

boiling water it swells up and forms a Taqua-nut (ta'kwa), the seed or nut viscous jelly-like mass. See Cassava.

Tapir (ta'per), the name of ungulate tree Phytelephas macrocarpa, known or hoofed animals forming the under the name of vegetable ivory. The family Tapiridæ. The nose resembles a fruit is as large as a man's head and contains numerous nuts of a somewhat triangular form, each as large as a hen's egg. When ripe they are exceedingly hard and white, resembling ivory very closely and being used for similar pur-

DOSES. Tar (tar), a thick, dark-colored, viscid product obtained by the destructive distillation of organic substances and bituminous minerals, as wood. coal, peat, shale, etc. Wood-tar, such as the Archangel, Stockholm, and American tars of commerce, is obtained by burning billets of wood slowly in a conical cavity at the bottom of which is a cast-iron pan into which the tar exudes. Wood-tar is also obtained as a by-product in the destructive distillation of wood for the manufacture of wood-vinegar (pyroligneous acid) and wood-spirit (methyl alcohol). It has an acid reaction, and contains various liquid matters, of which the principal are methyl-acetate, acetone, hydrocarbons of the benzene series, and a number of oxidized compounds, as carbolic acid. Paraffin, anthracene, anthracene, naphthalene, chrysene, etc., are found among its solid products. It possesses valuable antiseptic properties, owing to the creasote it contains, and is used extensively for coating and preserving timber, iron, and cordage. Coal-tar, which is largely obtained in gas manuscattered facture, is also valuable inasmuch as it is extensively employed in the production of dyes, etc. See Coal-tar and Aniline.

Tara (tá'ra), or Tabo, the native six-eight measure.

Tara (tar'an-tel'a), a swift, whirling Italian dance in six-eight measure.

Tarantism (tar'an-tel'a), a swift, whirling Italian dance in six-eight measure.

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Tarantism (tar'an-tel'a), a swift, whirling Italian dance in six-eight measure. esculent root, which, though pungent and acrid raw, becomes palatable when esculent root, which, though pungent and ascribed to the bite of the tarantula.

acrid raw, becomes palatable when the cooked. A pleasant flour is also made of the roots or tubers, and the leaves are used as spinach. The name is also given rocky peninsula at the northern extended to the filled Colladium esculenta, whose tremity of the gulf of same name. It is tuberous root and leaves are used in the same manner.

A province of form (Please part of the bite of the trantula.

or rhizome of which a flour was obtained

or rhizome of which a nour was obtained which formerly made a staple article of food for the natives of New Zealand.

Tarai (ta-ri'; 'moist land'), a moist and jungly tract of Northern India, running along the foot of the first range of the Himalayas for several wide with a breadth of from hundred miles, with a breadth of from 2 to 15, infested by wild beasts, and generally unhealthy. The name is given distinctively to a district in the Kumaun division of the Northwest Provinces, consisting of a strip of country of about 90 miles in length E. and W. along the foot of the Himalayas, and about 12 miles in breadth. Area, 938 square miles. Pop. 118,422.

Taranaki (tä-ra-nä'kē; formerly New Plymouth), a provincial district of New Zealand, on the west coast of North Island. Its coast-line extends to 130 miles, and it has an area of 3339 square miles. The coast is almost without indentations, and has no good natural harbors. Nearly three-fourths of this district is covered by valuable forests, and the rest is adapted for cattle rearing. There is a good coal-field on the banks of the Mokau, and the titaniferous ironsand, which lies from 2 to 5 feet deep along the sea-beach, is believed to be the purest iron ore known. The soil is excellent, and a moist climate and tempercellent, and a moist climate and temperate atmosphere render vegetation luxuriant. New Plymouth is the chief town, and has direct railway communication with Wellington and other parts of the colony. Mount Egmont, an extinct volcano, in the southwest, where the surface is most elevated, attains a height of 8270 feet, and is in many respects the most remarkable mountain in the colony. most remarkable mountain in the colony. Pop. 38,000.

Tarantass (tar-an-tas'), a large covered traveling carriage without springs, but balanced on long poles which serve the purpose, and without seats, much used in Russia.

ascribed to the bite of the tarantula.

Tara Fern, a species of fern (Pteris nary, and several hospitals. The manusculents) from the root factures include linen, cotton, velvet,



muslin and gloves. There is now a proposal for making Taranto a station of the Italian navy. The ancient Tarentum was founded by the Greeks in B.C. 708, and became a powerful city. It was captured by the Romans B.C. 272, and remained a notable Roman town until the downfall of the empire. Pop. 50.592 50,592.

Tarantula (ta-ran'tū-la), a kind of spider, the Lycosa tarantula, found in some of the warmer parts of Italy. When full grown it is about the size of a ehestnut, and is of a brown color. Its bite was at one time supposed to be depressions and the course supposed to be dangerous, and to cause a kind of dancing disease; it is now known not to be worse than the sting of a common wasp. In America the term is given to

wasp. In America the term is given to the large mygalid spiders.

Tarapacá (tä-rà-pà-kä'), a coast province of Northern Chile, containing deposits of niter and borax and silver mines; area, 18,131 square miles. Capital, Iquique. Pop. 101,105.

Tarare (tă-rār), a town of France, in the department of the Rhone, 20 miles northwest of Lyons. Silks, velvets, and muslins are made. Pop. 11,791.

Marseilles. It has interesting mediseval Pop. (1906) 5447. structures.

Taraxacin (ta-rak'a-sin), a bitter crystallizable principle bitter contained in the milky juice of the dande-hon (Leontodon Tarawacum), especially in the juice of the roots. It possesses tonic, aperient, and diuretic properties. Tarazona (tä-ra-thō'na), an episco-pal city of Spain, in the province of Saragossa, 57 miles w. N. w.

of the town of Saragossa, on the Queiles.

There is here an ancient episcopal palace and a cathedral, founded about the thirteenth century. Pop. 8790.

Tarbell (tarbel), IDA M., writer, born in Eric Co., Pennsylvania, in 1857; was associate editor of the Chautangan. 1883-91. and of McClaure's nia, in 1807; was associate editor of the Chautauquan, 1883-91, and of McClure's Magazine after 1894. She attracted attention by her vigorous arraignment of the Standard Oil Company and its methods, also wrote Lives of Napoleon, Lincoln, Madame Roland, etc.

Tarbes (tarb), a town of France, capital of the department of Hautes Pyrénées, situated 110 miles south of Bordeaux, on the left bank of the Adour. Its principal edifices are the cathedral, and the church of St. John (fourteenth century). The manufactures

(fourteenth century). The manufactures embrace leather, woolens, machinery, weapons, etc. Pop. 20,866.

Tarboosh (tarbösh), a red woolen skull-cap or fez, usually ornamented with a blue silk tassel, and worn by the Egyptians, Turks, and Arabs.

Tardigrada (tar-di-gra'da; 'slow steppers'), the name applied by Cuvier to the family of edenapplied by Cuvier to the family of edentate mammals, which includes the existing sloths and the extinct Megatherium. Tare (tar), the common name of different species of Vicia, a genus of leguminous plants, known also by the name of vetch. There are numerous species and varieties of tares or vetches, but that which is found best adapted for agricultural purposes is the common for agricultural purposes is the common tare (Vicia sativa), of which there are two principal varieties, the summer and winter tare. They afford excellent food for horses and cattle, and hence are extensively cultivated throughout Europe. (See Vetch.) The tare mentioned in Scripture (Mat. xiii, 36) is supposed to be the darnel (which see). V. sativa is found in fields in the United States.

Tarascon (ta-ras-kon), a town of weight of the cask, box, bag, or other Southern France, depart-package containing them. Tare is said ment of Bouches-du-Rhône, on the Rhone, to be real when the true weight of the opposite Beaucaire, 50 miles N. N. W. of package is known and allowed for, average when it is estimated from similar known cases, and customary when a uniform rate is deducted.

Tarentum (ta-ren'tum), a borough of Allegheny Co., Pennsylvania, on the Allegheny River, 21 miles N. E. of Pittsburgh. There are large plate and flint glass factories and steel mills, with various other industries, Pop. 7414. See Taranto. Tarentum.

Target (tar'get), (1) a shield or buckler of a small kind, such as those formerly in use among the Highlanders, which were circular in form, cut out of ox-hide, mounted on strong wood, strengthened by bosses, spikes, etc.. and often covered externally with a considerable amount of ornamental work.
(2) The mark set up

to be aimed at in archery, musketry, or artillery practice and the like. The targets used in rifle practice are generally square or ob-long metal plates, and are divided into three or more sections, called bull's eye, inner (or



counting from the center of the target to its edges; some targets have an additional division (called a magpie), situated between the outer and the inner. It is the marksman's aim to put his shots as near the central point as possible, as if he hits the bull's-eye there are counted in his

the bull's-eye there are counted in his favor 5 points, the center 4 points, the magple 3 points, and the outer 2 points, or some similar proportions.

Targum (târ'gum), a translation or paraphrase of the Hebrew Scriptures in the Aramaic or Chaldee language or dialect, which became necessary after the Babylonish captivity, when Hebrew began to die out as the popular Hebrew began to die out as the popular language. The Targum, long preserved by oral transmission, does not seem to have been committed to writing until the first centuries of the Christian era. The most ancient and valuable of the extant Targums are those ascribed to or called after Onkelos and Jonathan Ben Uzziel. All the Targums taken together form a paraphrase of the whole of the Old Testament, except Nehemiah, Ezra, and Daniel.

Tare, in commerce, a deduction made Tarifa (ta-re'fa), a maritime town of Spain, in Andalusia, 52 miles as equivalent to the real or approximate southeast of Cadiz, and the most south-

imported or exported, whether such duties are imposed by the government of a Tarn, a department of Southern country or agreed on by the governments of two countries holding commerce with commercial policy of the state by which training the state by which tis framed, and the details are constantly fluctuating. The tariff has long been a leading political problem in the United States, and has fluctuated with the dominance of one or the other great party, the Republicans favoring a high Pop. (1906) 330,533.

Tariff, protective of the manufacturing Tarn, a department of Southern of Southern of Southern frame, beginning at Alby, are navigable.

Tarn, France, named from the above river; area, 2218 sq. miles. The surface each other. The surface with sintersected by hills, which generally well as their sides, cereals and vines are well as their sides, cereals and vines are unitivated. The minerals include iron and coal, both of which are partially worked. Woolens, linens, hosiery, etc., are manufactured. The capital is Alby. Pop. (1906) 330,533. party, the Republicans favoring a night tariff, protective of the manufacturing Tarn-et-Garonne, a department of interests, the Democrats a low one, confined to revenue purposes. The opposition to a high tariff at first came from square miles. This department belongs with the department belongs it south to northwest, and re-New England, but was afterwards shifted to the South, becoming so strong by 1832 as to lead to an attempt on the part of South Carolina to secede from the Union. A lower tariff policy was then adopted, and there were several changes until 1861, when the high tariff of the war period was adopted. The Republican party being long afterward in the ascendency, the high tariff was continued until 1894, when the Democratic party was in power and passed a tariff bill much lowering the rates of duty. In 1897 they were again increased. During the succeeding years the feeling developed that they were too high and in 1909 a new bill was passed making many reductions yet leaving some leading articles in an unsatisfactory state. The policy of partial revision then came into favor, a permanent commission being appointed to study the several items subject to customs duties and recommend such changes as seemed desirable. At the end of 1911 this commission made an elaborate report on the wool industry, as a guide to the deliberations of Congress. The Democratic Congress passed a new tariff law in 1913, the main features of which were a longer free list. A Tariff Tarnowitz (tar'nō-vits), a town of Commission forms a part of the Revenue Bill passed by the House in 1916, and provides for a board of six members, appointed by the President, with the consent of the Senate, of which not more than three shall be of one political party. Its Tarnowitz (tar'nō-vits), a town of Silesia, not far from the Polish frontier, with mines of iron and lead. Taro (tar'nō), a plant of the genus three shall be of one political party. Its duty is to investigate the administration and fiscal effects of the tariff laws.

erly town in Europe. It is surrounded slope of Mount Lozère, near Florac, in by fortifications built by the Moors, and the department of Lozère; flows through contains a very ancient Moorish castle. the departments of Aveyron, Tarn, Pop. 11,730.

Haute-Garonne and Tarn-et-Garonne; contains a very ancient Moorish castle, the departments of Aveyron, Tarn, Pop. 11,730.

Haute-Garonne and Tarnet-Garonne; and finally joins the Garonne. Its whole or customs to be paid on goods course is 230 miles, of which about 100 imported or exported, whether such duties miles, beginning at Alby, are navigable.

to the basin of the Garonne, which traverses it south to northwest, and receives within it the accumulated wavers of the Tarn and Aveyron, which are both navigable. The arable land raises heavy crops of wheat, maize, hemp, tobacco, grapes and fruit of all kinds. The most important manufactures consist of common weekers aloth and committed the common weekers. sist of common woolen cloth and serge, linen goods, silk hosiery, cutlery, leather, etc. Montauban is the capital. Pop. (1906) 188,553.

(1906) 188,553.

Tarnopol (tar-no'pōl), a town of Galicia, Austria, on the left bank of the Sereth, 80 miles E. S. E. of Lemberg. It contains a Russian Catholic and a Greek Catholic church, castle, Tomit college, gymnasium, etc. The in-Jesuit college, gymnasium, etc. The inhabitants are chiefly employed in agriculture. Pop. 32,082.

Tarnow (tár'nöf), a town of Galicia,
Austria, on a height above
the right bank of the Biala, 48 miles
E. S. E. of Cracow. It is well built, is the
see of a bianch, avacague infigurary astry, gymnasium, synagogue, infirmary, and manufactures of linen and leather. Pop. 31,691.

Tarpan (tarpan), the wild horse of Tartary, belonging to one of Tarlatan (tár-la-tan), a thin and fine those races which are by some authorities used for ladies' ball dresses. It is cheap, size of an ordinary mule. The color is but does not stand washing.

Tarn (tärn), a river of Southern mane and tail. During the cold season France, which rises on the south the hair is long and soft, but in summer much of it is shed. They are sometimes captured by the Tartars, but are reduced with great difficulty to subjection.



Tarpan.

Tarpaulin (tar-pa'lin), canvas well coated with tar, and used to cover the hatchways, boats, etc., on shipboard, and also to protect agricultural produce, goods in transit, etc., from the effects of the weather.

Tarpeian Rock (tar-pe'an), a precipitous rock forming part of the Capitoline Hill at Rome over which persons convicted of treason to the state were hurled. It was so named, according to tradition, from Tarpeia, a vestal virgin of Rome, and daughter of the governor of the citadel on the Capitoline, who, covetous of the golden bracelets worn by the Sabine soldiery, opened the gate to them on the promise of receiving what they wore on their left arms. Once inside the gate they threw their shields upon her, instead of the bracelets. She was buried at the base of the Tarpeian Rock.

Tarpon (tar'pun), or Tarpum, the Megalops atlanticus, a herring-

Tarpon (tarpun), or Tarpum, the Megalops atlanticus, a herring-shaped fish found on the southern coasts of the United States and in the West Indies. It reaches a length of 5 or 6 feet, and from a hundred to several hundred pounds weight, and is of giant strength. Though too coarse ordinarily for food, it is a great attraction to anglers. Its scales, which are of great size, are now largely used in ornamental work.

Tarquinius (tar-kwin'i-us), LUCIUS, surnamed Priscus (the first or the elder), in Roman tradition the fifth king of Rome. The family of Tarquinius was said to have been of Greek extraction, his father, Demaratus, being a Corinthian who settled in Tarquinii, one of the chief cities of Etruria. Having removed with a large following to Rome, Tarquinius became the favorite and confidant of the Roman king, Ancus

Martius, and at his death was unanimously elected his successor. According to Livy he made war with success on the Latins and Sabines, from whom he took numerous towns. Tarquinius also distinguished his reign by the erection of the Cloaca Maxima, the Forum, the wall round the city, and, as is supposed, he commenced the Capitoline Temple. After a reign of about thirty-six years he was killed in B.C. 578 by assassins, who were employed by the sons of Ancus Martius.

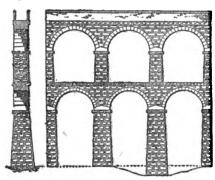
Tarquinius, Lucius, surnamed Superbus ('the proud'), the last of the legendary kings of Rome, was the son of Lucius Tarquinius Priscus. Tarquin, on reaching man's estate, murdered his father-in-law, King Servius Tullius (the date usually given for this event is B.C. 534), and assumed the regal dignity. He abolished the privileges conferred on the plebeians; banished or put to death the senators whom he suspected, never filled up the vacancies in the senate, and rarely consulted that body. He continued the great works of his father, and advanced the power of Rome abroad both by wars and alliances. By the marriage of his daughter with Octavius Mamilius of Tusculum, the most powerful of the Latin chiefs, and other political measures, he caused himself to be recognized as the head of the Latin confederacy. After a reign of nearly twenty-five years a conspiracy broke out by which he and his family were exiled from Rome (B.C. 510), an infamous action of his son Sextus being a chief cause of the outbreak. (See Lucretia.) He tried repeatedly, without success, to regain his power, and at length died at Cumme in 495 B.C.

Tarragon (tar a-gon; Artemisia Dracunculus), a strong erect perennial plant of the composite order, a native of Siberia, cultivated in gardens for flavoring dishes.

Tarragona (tär-a-gō'na), a seaport of Spain, capital of a province of its own name, on the Francoli, at its mouth in the Mediterranean, on a limestone rock. The chief building is the large cathedral, a fine Gothic building partly of the eleventh century. The town was founded by the Phænicians, and became of great importance under the Romans. In its environs are an ancient amphitheater, a circus, an aqueduct, etc. It was taken and sacked by the French under Suchet in 1811. It has a trade in corn, oil, wine, fruit, etc. Pop. 26,281.

Tarrasa (tär-rä'sà), a town of Spain, province of Barcelona, with

Pop. 15.956.



Aqueduct of Tarragona.

Tarrytown, a village of Westchester Co., New York, on the Hudson River, 25 miles N. of New York City. It has several manufacturing industries; but is largely residential. Pop. (with North Tarrytown) 11,000.

Tarshish (tar'shish), a place frequently mentioned in the Old Testament. It is now generally identified by biblical critics with the Tartessus of the Greek and Roman writers, a district in Southern Spain, near the mouth of the Guadalquivir, settled by the Phœnicians.

Tarsia-work (tar'si-a), a kind of mosaic woodwork marquetry much in favor in Italy in the fifteenth century. It was executed by inlaying pieces of wood of different colors and shades into panels of walnutwood, so as to represent landscapes, figures, fruits, flowers, etc. At Sorrento and other places the manufacture of wood-mosale, in modern times, has become celebrated.

(tar'si-us), a genus of quad-Tarsius rumanous mammals of the lemur family inhabiting the Eastern Archipelago. In this genus the bones of the tarsus are very much elongated, which in the tarsus are very much elongated, and the tarsus are very much elongated. which give the feet and hands a disproportionate length. Tarsius spectrum, the tarsier, seems to be the only species known. It is about the size of a squirrel, fawn-brown in color, with large ears, large eyes, and a long tufted tail. It is nocturnal in its habits, lives among trees, and feeds upon lizards.

(tar'sus), in anatomy, that Tarsus part of the foot which in man

manufactures of cottons and woolens, corresponds with the wrist of the upper limb or arm, and is composed of seven bones. (See Foot.) In insects tarsus is the last segment of the leg. It is divided into several joints, the last being generally terminated by a claw, which is sometimes single and sometimes double. In birds the tarsus is that part of the leg (or properly the foot) which extends from the toes to the first joint above; the shank.

Tarsus, an ancient city of Asia Minor, the capital of Cilicia, now in the province of Adana, in Asiatic Turkey. The Apostle Paul was born, and Julian the Apostate was buried there. Its in-habitants enjoyed the privileges of Roman citizens, and the city rose to such dis-tinction as to rival Athens, Antioch and Alexandria. It is situated on both banks

of the Cydnus, and has a considerable trade. Pop. about 25,000.

Tartan (tar'tan), a kind of vessel used in the Mediterranean, both for commercial and other purposes. It is furnished with a single mast on which is rigged a large lateen sail; and with a bowsprit and fore-sail. When the wind is aft a square sail is generally hoisted.

Tartan, a well-known species of cloth checkered or cross-barred with threads of various colors. It was originally made of wool or silk, and constituted the distinguishing badge of the Scottish Highland clans, each clan having its own peculiar pattern. An endless variety of fancy tartans are now manufactured, some of wool, others of silk, others of wool and cotton, or of silk and cotton.

(tar'tar), the substance called also argal or argol, deposited Tartar from wines incompletely fermented, and adhering to the sides of the casks in the form of a hard crust. When purified it forms cream of tartar. (See Argal, Cream of Tartar.) What is called tartar emetic is a double tartrate of potassium and antimony, an important com-pound used in medicine as an emetic, purgative, diaphoretic, sedative, febrifuge, and counter-irritant. Tartar of the teeth is an earthy-like substance which occasionally concretes upon the teeth, and is deposited from the saliva. It consists of salivary mucus, animal matter, and phosphate of lime.

Tartaric Acid (tar-tar'ik; C.H.O.), the acid of tartar. It exists in grape juice, in tamarinds, and several other fruits; but principally in bitartrate of potassium, or cream of is popularly known as the ankle, the tartar, from which it is usually obtained. front of which is called the instep. It It crystallizes in large rhombic prisms,

transparent and colorless, and very soluble in water. It is inodorous and very sour to the taste. A high temperature decomposes it, giving rise to several new products. The solution of tartaric acid acts with facility upon those metals which decompose water, as iron and zinc. There are five modifications of tartaric acid, characterized chiefly by the differences in the action exerted by them upon a ray of polarized light; such as dextro-ordinary tartaric acid, levo-tartaric acid, para-tartaric or racemic acid, meso-tar-taric acid, and meta-tartaric acid. Tar-taric acid is largely employed as a dis-charge in calico-printing, and for making soda-water powders and baking powders.

of Chinese Tartary on the Upper Amur. Though Tatar is the native form of their name, it has long been anglacized as Tartar, which is the form in common use, while their country is known as Tartary. The true Tartars formed part of the horde of Genghis Khan, when that conqueror carried his arms from the country known as Chinese Tartary to Europe, as well as to the successive hordes of similar origin who followed in their footsteps, and to the districts from which they came, or in which they set-tled; hence the names of Chinese Tar-

as far below Hades as earth is below heaven. It was closed by iron gates, and in it Jupiter imprisoned the rebel Titans. Later poets describe Tartarus as the place in which the spirits of the wicked receive their due punishment; and sometimes the name is used as synonymous with Hades,

include a large portion of Southeastern Russia. In a restricted sense it is iden-tical with Turkestan. It received its names from the Tartars or Tatars.

Tartrate (tar'trāt), a salt of tartaric acid. Some of the tartrates

are of considerable importance, such as tartar emetic and Rochelle salts. See Tartar, Rochelle Salts.

Tarudant (tā-rō-dānt'), a town of Morocco, at the southern foot of the Atlas, about 30 miles east from the Atlantic. Pop. about 8500.

Tashkent (tāsh-kent'), or TASH-KEND', a town of Asiatic Russia, in the government of Turkestan, formerly in the khanate of Khokand, on the Tchirshik. near its confiuence with Tartars (tartarz), or Tatars, a vague term with no ethnological significance, usually applied to certain roving tribes which inhabited the steppes of Central Asia. More specifically, however, Tatar or Ta-ta appears to have been the name of a tribe of Mongols who occupied about the ninth century a district of Chinese Tartary on the Upper Amur.

Though Tatar is the next of Turkestan, formerly in the khanate of Khokand, on the Tchirshik, near its confluence with Sir-Daria or Jaxartes, in a fertile oasis. The streets are very narrow, and the houses, composed of mud, are mean looking. The principal buildings are the castle, several large mosques, a bazaar, numerous colleges. Though Tatar is the next of the formula of the several large mosques, a bazaar, numerous colleges. ufactures are silk, cotton, gunpowder, iron, etc. The trade, carried on chiefly by caravans, is very extensive. Tashkent was taken possession of by Russia in 1865. Pop. (1912) 271,700.

Tasimeter (ta-sim'e-ter), an apparatus for measuring changes in length, temperature, etc., of bodies, by means of variations in the electrical conductivity of carbon, the result of pressure.

Tasmania (taz - mā'ni - a), formerly Van Diemen's Land, an island in the Southern Ocean, fully 100 tled; hence the names of Chinese Tarisland in the Southern Ocean, fully 100 tary, Independent Tartary, and European or Little Tartary, which comprised is separated by Bass Strait; greatest most of the Russian governments of length, 186 miles; mean breadth, 165 Orenburg, Astrakhan, Ekaterinoslav, the miles; area, 24,330 square miles, or including islands, 26,215. The island may Tartarus (tarta-rus), a deep and be roughly described as heart-shaped. The coasts, which are all much broken Homer and the earlier Greek mythology, and indented, have some excellent harbors. The islands belonging to Tasmania are heaven. It was closed by iron gates, and numerous, the principal being the Furnumerous, the principal being the Furneaux group, on the northeastern extremity. Tasmania is traversed by numerous mountain ranges, the chief sum-mits of which are Mount Humboldt, 5520 feet; Mount Wellington, 4195 feet; and Ben Lomond, 5002 feet. The prevailing Tartary (tar'ta-ri), a name formerly rocks are crystalline, consisting of basalt, applied to the wide band of country extending through Central Asia rivers are the Derwent, the Huon, the from the seas of Japan and Okhotsk in Arthur, and the Tamar. There are seventhe east to the Caspian on the west, and eral large lakes, Lake Westmoreland (45 including Manchuria, Mongolia, Turkessa, and all the south part of Russian is very mild. Mount Wellington is frequently covered with snow in the summer 24.05 inches. Much of the soil of Tasmania is well adapted for cultivation. Wheat, oats, barley, potatoes, pease, beans, and hops are largely cultivated, and the fruit includes grapes, cherries, plums, quinces, mulberries, peaches, apricots, walnuts, filberts, almonds, etc. Fruit-preserving forms an important in-dustry. Woodland was formerly general

and much of it still remains. Kangaroos and other herbivorous animals of the pouched kind are numerous. There are also two marsupial carnivorous animals called the Tasmanian wolf and the Tas-manian devil, both of which are destructive The to sheep. natural forests are chiefly of the eucalyptus or gum-tree, pine, and acacia tribe. Among the minerals are gold, silver, copper, iron, tin, freestone. coal. limestone, and roofing slate. Smelting - works have been erected at Hobart

for the iron which abounds in that dis-trict. The staple export from Tasmania is wool, and the other articles include gold, tin, timber, grain, fruit, hides, and bark. The frozen meat trade with Britain is large and important. Hobart, the capital, on a fine inlet of the south coast, and Launceston, on an inlet of the north, are the chief towns. Education is compulsory, and the higher education is un-der a council, which holds examinations and grants degrees.

Tasmania was discovered in 1642 by Abel Jansen Tasman, who named it after Van Diemen, the governor of the Dutch East Indies. It was visited by Cook in 1769, and during the next twenty years by various navigators. In 1797 Bass dis-

months; but at Hobart, in its immediate made in 1808 by a guard with a body of vicinity, snow never falls. The mean convicts, who settled at Restdown, but temperature throughout the year is about afterwards removed to the site now oc-55°4. The average rainfall is about cupied by Hobart. The development of the country made slow progress until the land was divided into small allotments and farming stock and government pensions reckoned as capital. Convict labor was supplied, and at a very moderate expense farms were cleared for cultivation. Sheep, cattle, and horses were introduced, and the raising of stock has always been carried on with great success. Until 1824 Tasmania

was a dependency of New South Wales, but in that year it was made an independent colony. It became one of the states of the Commonwealth of Australia in 1901. For a series of years the prosperity of the colony was re-tarded by the hostility of the natives and the depredations of escaped convicts, known by the name of bush-rangers. The aborigines have ceased to exist, in 1853 deportation was abolished, and about the same time the name of Tas-

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Hythe Br Storm Bay Co narvon I. C.Rau. C. Pillar Adelaide Tolkstone 2 HOBART ENGLISH MILES P 10 Whale Hd

Jerusalem

mania was officially adopted on the petition of the colonists. Pop. 181,100.

Tasmanian Devil. See Dasyure. Tasmanian Devil.

See Thylacine. Tasmanian Wolf.

Tasmanite (taz'man-īt), a translucent, reddish-brown fossil resin, occurring in Tasmania.

Tasmannia (taz-man'i-a), a genus of plants, consisting of Tasmanian and two Australian one Tasmanian and two Australian shrubs, nat. order Magnoliacese. The Tasmanian species, T. odorata, possesses aromatic qualities, particularly in its bark. Its fruit is used by the colonists for pepper.

Tassisudon (tas-se-sö-don'), capital of Bhutan State, and capital covered the strait which has been called after him. The first settlement was situated on the Godada River about 130 palace where the Deb Raja resides.

Tasso (tas'o), Bernardo, an Italian epic and lyric poet, father of the more famous Torquato, born of an ancient family at Bergamo in 1493; was educated with great care; entered the service of Guido Rangone, general of the pope, as a political emissary; and became secretary to the Prince of Salerno, whom he accompanied to Tunis. In 1539 he married Porria de Rossi and retired to Salerno. Sorrento. Subsequently he received the patronage of the Duke of Urbino, and in 1563 the Duke of Mantua appointed him

Tasso, Torquaro, an eminent Italian epic poet, son of the preceding, was born at Sorrento in 1544. He was early sent to the school of the Jesuits at Naples, and subsequently pursued his studies under his father's superintendence at Rome, Bergamo, Urbino, Pesaro, and Venice. At the age of sixteen he was sent to the University of Padua to and Venice. At the age of sixteen he was sent to the University of Padua to study law, but at this time, to the surgrise of his friends, he produced the mock-heroic poem La Secchia Rapita Rinaldo, an epic poem in twelve cantos. ('The Stolen Bucket'), founded on an The reputation of this poem procured for incident that gave rise to war between Torquato an invitation to the University the Modenese and Bolognese in the Torquato an invitation to the University the Modenese an of Bologna, which he accepted. Here he thirteenth century. displayed an aptitude for philosophy, and began to write his great poem of Gerusa-lemme Liberata ('Jerusalem Delivered'). While engaged on it he secured a patron in Cardinal Louis d'Este, to whom he had dedicated his Rinaldo. He was introduced by the cardinal to the court of Alfonso II of Ferrara. Here he remained from 1565 to 1571, when he accompanied the cardinal on an embassy from the pope to Charles IX of France. Having quarreled with his patron, Taxon re-Roumelia turned to Ferrara, and in 1573 brought Tatars. out the Aminta, a pastoral, which was represented at the court. In 1575 he completed his epic of Gerusalemme Liberata. About this time he became a prey to morbid fancies, believed that he was persistently calumniated at court, and systematically misrepresented to the here he made his escape, and traveled in used to be appended to the English Book diaguise to his native place, Sorrento, of Common Prayer.

miles N. w. of Goalpara. There is a where he stayed with his sister Cornelia. He again asked permission to return to Ferrara, a request which the duke coldly granted. But in his excited and jealous condition of mind Tasso found it impossible to reëstablish the old friendly rela-tionship at the court. He fled from Ferrara again, but again returned. So outrageous had his conduct now become that he was seized by the duke's orders and confined as a madman in the hospital of St. Anne at Ferrara. Here he remained from 1579 to 1586, until he was released at the solicitation of Vincent di patronage of the Duke of Urbino, and in released at the solicitation of Vincent di 1563 the Duke of Mantua appointed him Gonzaga. Broken in health and spirit, governor of Ostiglia, where he died in he retired to Mantua, and then to Naples. 1569. He published numerous lyric Finally, in 1595, he proceeded to Rome poems. but his chief work is the epic of at the request of the pope, who desired L'Amadigi, founded on the story of Amadigi, founded on the story of Amadigi, for the ceremony were being made. Tasso, wrote numerous poems but made. Tasso wrote numerous poems, but his fame rests chiefly on his Rime or lyrical poems, his Aminta, and his Gerusa-lemme Liberata (translated into English by Fairfax). His letters are also interesting.

Taste (tast), the sense by which we perceive the relish or savor of a thing. The organs of this special sense are the papillae, or processes on the surface of the tongue, and also certain parts within the cavity of the mouth and the throat, as the soft palate, the tonsils, and the upper part of the pharynx. See Tongue.

Tatar-Bazarjik (tā-tār'pā-zār-jēk'), Roumelia on the Maritza. Pop. 17,549. Tatars. See Tartars.

Tate (tāt), NAHUM, an English poet, was born in Dublin about the year 1652; received his education in Trinity College; went to London, where he engaged in literary pursuits; was appointed poet laureate; and died in the Mint, whither he had retired from his creditors, Inquisition. To such a pass, indeed, had whither he had retired from his creditors, this mania come in 1577 that the poet in 1715. He was the author of several drew his poignard upon one of the dodramatic pieces; assisted Dryden in the mestics of the Duchess of Urbino. He second part of Absalom and Achitophel; was immediately arrested, but was set at altered and arranged Shakespeare's King liberty after the days, configurate the second part of Absalom and Achitophel; liberty after two days' confinement. At Lear for the stage; and wrote, in conhis own request he returned to Ferrara, junction with Dr. Nicholas Brady, the to the convent of St. Francis; but from metrical version of the Psalms which

be initiated in the rites of various religions; and eventually embraced Christianity. Tatian became a disciple of Justin, after whose martyrdom he left Rome and journeyed into Mesopotamia, where he preached certain Gnostic and heretical doctrines. He seems to have disbelieved in the divinity of Christ, and his teaching inculcated abstinence from wine, from animal flesh, and from marriage, As a Christian apologist he wrote Oratio ad Gracos, which is still extant, and his Diatessaron seems to prove the existence of four gospels about the middle of the second century. See Achilles Ta-

Tatius, ACHILLES. Tatouay (tat'o-ā), a kind of armadillo (Dasypus tatouay, or Xenurus unicinctus) remarkable for the undefended state of its tail, which is devoid of the bony rings that inclose this member in the other armadillos, being only covered with brown hair

only covered with brown hair. Tatra (tä'trà). See Carpathian Moun-

Tatta (tá'tă), a town in Karachi District, Sind, on the Indus, about 50 miles east of Karachi. Tatta has

some manufactures of cotton and silk goods, but its commercial importance has greatly declined. Pop. 10,783.

Tattersall's (tat'er-salz), Knights-bridge Green, London, is the great metropolitan mart for horses, and headquarters of the turn removed in and headquarters of the turf, removed in 1865 from Grosvenor Place, where it was established by Richard Tattersall in 1773. A subscription room is open for betters on the turf, where they make and settle their bets,

Tattie (tat'të), in the East Indies, a thick mat or screen, usually

Tattoo (ta-to'), a beat of drum and bugle-call at night, giving notice to soldiers to repair to their quarters

in garrison or to their tents in camp.

Tattooing (ta-tō'ing), a practice common to several uncivilized nations, ancient and modern, and to some extent employed among civilized peoples. It consists in pricking the skin in a de-

Tatian (tā'shyan), a heresiarch of the sign, and introducing into the wounds second century, was born in colored liquids, gunpowder, or the like, so Assyria about 120, and died about 172. as to make it indelible. This practice is He was educated in Greek philosophy; very prevalent among the South Sea Istraveled extensively; caused himself to landers, among whom are used instruments edged with small teeth, somewhat resembling those of a fine comb. Degrees of rank are sometimes indicated by the greater or less surface of tattooed skin.

Tauchnitz (touh'nits). BERNHARD CHRISTIAN, BARON, a German publisher, born in 1816. His establishment at Leipzig, founded in 1837, is widely known from the collection of British authors issued from it, which numbers considerably over 2000 vols., and is con-

considerably over 2000 vols., and is continually increasing. Baron Tauchnits was appointed in 1872 British consul-general for Saxony. He died in 1895.

Taunton (tän'tun, tan'tun), a parliamentary borough, Somerset, England, on the Tone, 45 miles s. s. w. of Bristol. The principal buildings and institutions are the parish churches of St. James and St. Mary Marghalene: a West. James and St. Mary Magdalene; a Wesleyan and a Congregational College; the library, and the museum of the Somerset-shire Archæological and Natural History Society; an old market house; the castle; the Shire Hall; a hospital, etc. The town was long celebrated for woolen, and afterwards for silk manufactures, but its chief trade now is in agricultural produce. Taunton is of great antiquity, and was a principal residence of the West Saxon kings. Here Judge Jeffreys held the in-famous 'bloody assizes' in 1685. Pop. 21,188.

Taunton, a town, one of the capitals of Bristol Co., Massachusetts, on the Taunton River, 35 miles south of Boston. It is well built and contains a great number of handsome edifices. Its institutions include the Bristol Academy, organized in 1792, and a State insane asylum. Its manufactures are very extensive, embracing many large cotton and yarn mills, silverware factories,

and rastened upon a bamboo frame, which is hung at a door or window, and kept moist so as to cool the apartment.

Tatting (tat'ing), a kind of narrow or knitted from sewing-thread, with a shuttle-shaped instrument.

Stove foundries, and locomotive works; also manufactures of printing presses, uails, shoe buttons, etc. Pop. 34,259.

Taunus (tou'nos), a mountain range of Western Germany, mainly in the Prussian province of Hessen-Nassau, extending eastward from the shuttle-shaped instrument. in the Prussian province of Hessen-Nassau, extending eastward from the Rhine, north of the Main; highest sum-mit, Great Feldberg, 2886 feet. It is well wooded, and exhibits much picturesque scenery.

Taurida (ta'rē-da), a government in the south of Russia, bounded north by Ekaterinoslaf; east by the Sea of Azof; southeast, south, and west by the Black Sea, and northeast by the government of Kherson; area, 24,539

square miles. It is very irregular in shape and may be regarded as one large peninsula, subdivided into two minor the Ric peninsulas, one of which is the Crimea, and ha It is watered by the Dnieper; the north-ern peninsula consists almost entirely of 12,175. an extensive steppe, and the chief occupa-tion of the inhabitants, who consist of Russians, is cattle-breeding and agricul-ture. Pop. 1,634,700. The capital is north of Plymouth. It has a guildhall, Simferopol.

Taurus (ta'rus), the Bull, one of the twelve signs of the zodiac, which the sun enters about the 20th April. Taurus is also the second zodiacal constellation, containing, according to the British catalogue, 141 stars. Several of these are remarkable, as Aldebaran, of the first magnitude, in the eye; the Hyades, in the face; and the Pleiades, in the neck.

Taurus, a mountain chain in Asiatic Turkey, stretching for about 500 miles from the Euphrates to the Egean Sea, latterly running north of the Gulf of Adalia. In the east it takes the name of Ala Dagh, in the east it takes the name of Ala Dagh, in the west that of Bulghar Dagh. It descends steeply to the sea on the south; northwards it merges gradually into the plateau of Asia Minor. It is connected by the Alma-Dagh with the Alma-Dagh w Dagh with the chain of Lebanon; and by Anti-Taurus, with Ararat, Elburz and the Caucasus.

Tautog (ta'tog), a fish (Tautoga nigra or americana) found on the coast of New England, and valued for food. See Blackfish.

Tautphoeus (tout fe-ös), Baroness, novelist, daughter of James Montgomery, of Sathill, Ireland, born in 1807; died in 1893. She married a Hungarian nobleman and wrote novels in English, mainly of south Ger-man life. They include The Initials, Quits, and At Odds.

Tavernier (tå-ver-ne-ä), JEAN BARTISTE, Baron d'Aubonne, the son of a Dutch merchant settled in Paris, was born at Paris about 1605, and died at Moscow in 1689. Before his twenty-first year he had visited a considerable portion of Europe, and he repeatedly traveled through Turkey, Persia, India, and other Eastern countries, trading as a diamond mercuant. An adoption to the french and obtained a patent of nobility from the French king, he retired to his estate of Ambanne in the Genevese territories. He trading as a diamond merchant. In 1669, compiled, with the aid of French littérateurs, Nouvelle Relation de l'Intérieur du rates), taxes for the repair of roads and Serail du Grand Seigneur, Sis Voyages, bridges, etc. In the United States and and Reoueil de Plusieurs Relations, which elsewhere taxes on real estate form the have been often reprinted and translated. largest part of the local revenues, mu-

Tavira (ta-ve'ra), a seaport of Portugal, province of Algarve, on the Rio Sequa. The town is well built and has a considerable trade, especially connected with the sardine fisheries. Pop.

public library, etc., and some remains of a once magnificent abbey. Copper, tin, manganese, arsenic, and iron are found in the neighborhood. Sir Francis Drake was a native, and the town possesses a colossal statue of him. Pop. 4392.

Tavoy (tä-voi'), a district in the Tenasserim division of British Bur-

mah; area, 7150 square miles. The country is mountainous with thick forests and jungles, and the chief rivers are the Tavoy and the Tenasserim. The chief town and the headquarters of the deputycommissioner is Tavoy, situated about 30 commissioner is Tavoy, situated about 50 miles from the mouth of the river of the same name. Pop. 22,371.—There is also an Island of Tavoy, the largest and most northern of the extensive chain which fronts the Tenasserim coast. It is about 18 miles long and 2 broad, and on the castern side there is a well-selectered here. eastern side there is a well-sheltered harbor called Port Owen.

Tawing (ta'ing), the manufacture of sheep, lamb, and goat skins into white leather. See Tanning.

Tax (taks), a contribution levied by authority from people to defray the expenses of government or other public services. A tax may be a charge made by the national or state rulers on the incomes or property of individuals, or on the products consumed by them. A tax is said to be direct when it is demanded from the very persons who it is intended or desired should pay it, as, for example, a poll-tax, a land or property-tax, an in-come-tax, taxes for keeping man-servants, carriages, dogs, and the like. It is said to be indirect when it is demanded from one person in the expectation and inten-tion that he shall indemnify himself at the expense of another; as, for example, the taxes called customs, which are imposed on certain classes of imported goods, and those called excise duties, which are imposed on home manufactures or inland production. Taxes are also rates or sums imposed on individuals or their property for municipal, county, or other local purposes, such as police taxes, taxes for the support of the poor (poor-rates), taxes for the repair of roads and bridges, etc. In the United States and

nicipal revenues being almost entirely raised from this source. Adam Smith has laid down four principles of taxation, which have been generally accepted by political economists. These are: (1) The subjects of every state ought to contribute to the support of the government as nearly as possible in proportion to their respective abilities. (2) The tax ought to be certain, not arbitrary. (3) Every tax ought to be levied at the time or in the manner most convenient for the contributor. (4) Every tax ought to be so contribut to take out and keep out of the pockets of the people as little as possible over and above what it brings into the public treasury of the state. See also Income-tax, Inheritance-tax, Customs, Excise, etc.

Taxaceæ (taks-h'se-ē), a suborder of Coniferæ, sometimes regarded as a distinct order, comprising the yew-tree (Taxus) and other trees or shrubs which inhabit chiefly the temperate parts of Europe, Asia, Africa, and America.

Taxel (taks'el), the North American badger (Meles labradorica). Its teeth are of a more carnivorous character than those of the true badger, and it preys on such small animals as marmots. Its burrowing powers are remarkable, its hole often being 30 feet long.

Taxidermy (taks'i-der-mi), the art of preparing and preserving the skins of animals, and also of

Taxodium (taks-ō'di-um), a genus of plants, nat. order Coniferse. The T. distichum, or deciduous cypress, a common ornamental tree grown upon lawns, is a native of North Amer-

stuffing and mounting.



ica. The bark exudes a resin which is used by the negroes for dressing wounds, and the roots, which are hollow inside, are used for bee-hives.

Tay (tā), the longest river in Scotland, and the one that carries to the sea a greater volume of water than any other in the British islands. It rises on the north side of Ben Lui, near the borders of Argyleshire and Perthshire; is known in its earliest course as the Fillan, and enters Lock Tay, after being joined by the Lochy, as the Dochart; issues thence as the River Tay, at Perth widens out into the Firth of Tay, and finally enters the North Sea. Its length is about 120 miles, its greatest breadth in the estuary 3½ miles, and the area drained 2400 square miles. It is navigable as far as Perth, but Dundee is the chief port. The salmon fisheries are important.

Tay, Loch, a loch of Scotland, in the county of Perth, 15 miles long and about 1 mile broad; receiving at its southwest end the Lochy and the Dochart, and discharging at its northeast end at Kenmore by the Tay. It is 100 to 600 feet deep, and is well supplied with fish. On its northwest shores rises Ben Lawers.

Tay Bridge, a great railway bridge estuary of the Tay from Fifeshire to Forfarshire at Dundee. A bridge was built here in 1878, but much of it was blown down by a violent storm in 1879. It was replaced by a much more substantial one, opened in 1887. This is more than 2 miles long, contains 85 piers, carries a double line of rails on a steel floor, and has an average height, above high-water, of 77 feet under four of the spans in the navigable channel. The piers are formed of cylinders embedded in the river bottom, and filled with concrete, while the superstructure is made of brickwork and malleable iron, braced by various stays and arches.

Taygetus (ta-ig'e-tus), a mountain range of Southern Greece (the Morea). See Greece.

Taylor (tā'lor), a borough of Lackawanna Co., Pennsylvania, 3 miles s. w. of Scranton. It has silk mills. Pop. 9940.

Taylor, a town of Williamson Co., Texas, 36 miles N. E. of Austin. It has cotton gins, compress oil mills, and other industries. Pop. 7785.

Taylor (tā'lor), BAYARD, writer and traveler, was born at Kennett Square, Pennsylvania, in 1825. He learned the trade of a printer, contributed to various magazines, made a journey through Europe on foot in 1844-45, and on his return published Visios Afoot in Europe. This gained him a position on the staff of the New York

Tribune. He afterwards traveled extensively, and wrote works under the titles of Eldorado (1850); Central Africa (1854); The Lands of the Saracens (1854); The Lands of the Saracens (1854); Visits to India, China, and Japan (1855); Northern Travel (1858); was born in 1820, and graduated as a Crete and Russia (1859); Byways of Europe (1869); and Eyypt and Iceland (1874). He also published several novels, including Hannah Thurston, The Story of Kennett, and John Godfrey's The Alphabet, an Account of the Origin Fortunes, and a number of volumes of Origin of the Aryans (1883); etc.

Taylor, tician, born at Edmonton in 1685, was educated at Cambridge, and died in 1731. Chosen a fellow of the Royal Society, he became its secretary in 1714, an office which he retained four years. His chief works are: Methodus Incrementorum Directa et Inversa (London, 1715), and Linear Perspective Taylor, names in the Church of Eng-

don, 1715), and Linear Perspective (London, 1715). He was discoverer of the mathematical formula called Taylor's Theorem, of extensive application in the

higher mathematics.

Taylor, SIE HENRY, an English writer, born in 1800; died in 1886. At the age of fourteen he entered the nay; afterwards he became a clerk in the storekeeper-general's office; contributed to various periodicals, and undertook the editorship of the London Magazina, but soon afterwards accepted an appointment in the colonial office, where he remained for nearly fifty years. His contributions to literature are: Isaac Comenanus, a tragedy (1827); Philip oan Artevelde, a dramatic romance (1834); The Statesman, a series of essays (1836); Edwin the Fair, historical drama (1842); The Eve of the Conquest, and other poems (1845); Notes from Life (1847); Notes from Books (1849); The Virgin Widow, a comedy, afterwards named A Sicilian Summer (1850); and St. Clement's Eve, romantic drama (1862). He published an Autobiography in 1885.

Taylor, best Lovenbur Surfall, in the navy; afterwards he became a clerk

lished an Autobiography in 1885.

Taylor, Isaac, a voluminous writer, born at Lavenham, Suffolk, in 1786; died at Stanford Rivers in 1865. His life was passed without any noteworthy incident, and his published works include: Elements of Thought (London, 1823), The Natural History of Enthusiasm (1829), The Natural History of Enthusiasm (1829), The Natural History was appointed chaplain in ordinary to of Fancticism (1833), Spiritual Despotation (1835), Physical Theory of Another Life (1836), and various others.—His sister, JAME TAYLOR (1783-1824), pub-

He afterwards traveled extens-d wrote works under the titles tions of Q.Q., a series of essays; and, in rado (1850); Central Africa conjunction with her sister Ann, Origi-The Lands of the Saracens nal Poems and Hymns for Infant Minds. Visits to Infant Tennel (1888): was been in 1820 and graduated as

Taylor, JEREMY, one of the greatest names in the Church of England, was born in 1613 at Cambridge; died at Lisburne, Ireland, in 1667. He was educated at Perse's Free School in his native place; entered, in 1626, as a sizar in Caius College, where he graduated Master of Arts; and in 1636 obtained by the patronage of Archhishan. tained by the patronage of Archbishop Laud a fellowship of all Souls' College.



quently imprisoned for short periods. (ten vols. 1806-12), printed at the ex-Eventually he retired into Wales, where he was received by the Earl of Carbery, Taylor an annuity of £100, which he en-under whose protection he was allowed to exercise his ministry and keep a Taylor, Tom, born at Sunderland in school. Afterwards he removed to London, but in 1658 he accepted an invita-

Taylor, Thomas, the 'Platonist,' born in London in 1758; died at Walworth in 1835. He studied with a view to the dissenting ministry, but enview to the dissenting ministry, but entered a banking-house, when all his ing a popular favorite under his army
leisure was devoted to classical and title of 'Old Rough and Ready.' This
philosophical studies. He published, popularity brought him the Whig party
chiefly with the aid of patrons, about nomination for President in 1848 and
forty different works, the most remarkhe was elected in the following Novemable of which are Plato (five vols. 4to, ber. Though with little education and
1804), printed at the expense of the Duke no political experience, he showed good
of Norfolk, who kept almost the whole sense and judgment, but died in the
edition locked up till 1848; and Aristotle second year of his term, July 9, 1850.

Taylor an annuity of £100, which he enjoyed till his death.

Taylor, Tom, born at Sunderland in 1817; died in 1880. He received his education at Glasgow University and Trinity College, Cambridge; became professor for two years in University College, London; was called to the bar (1845), and went on the northern circuit: appointed in 1854, agreeschool. Afterwards he removed to London, but in 1658 he accepted an invitation from Lord Conway to reside at his seat in Ireland. Here he remained until the Restoration, when he was elevated to the Irish see of Down and Connor, with the administration of that of Dromore. He was also, in the same year, made a privy-councilor for Ireland, and chosen vice-chancellor of the University of Dublim. The greater part of his writings consist of sermons and devotional pieces, and upon the former rests his fame as a master of varied English prose.

Taylor, John, usually called the Gloucester about 1580, and died in 1654.

Taylor, was at the taking of Cadiz, under the Earl of Essex, in 1596, and was many years collector of the wine dues exacted by the lieutenant of the Tower of London. He afterwards kept a tavern, first at Oxford and then at Westminster. His pieces to the number of sixty-three were published in a folio volume in 1630, but he was the author of a great many more both in prose and verse. They are characterised by a certain rough vigor not free from vulgarity.

Taylor, PHILIP Meadows, born at 1870. From being a merchant's clerk in Bombay he entered the Nizam's army; received an appointment as administrator of the state of Shorapore; maintained order in the Berar district during the mutiny of 1887; and received the rank to of colonel, a companionship of the Star Taylor, the United States, born in colonel, a companionship of the Star Taylor, the United States, born in the state and a companionship of the Star Taylor, the United States, born in the state and a companionship of the Star Taylor, the United States, born in the state and a companionship of the Star Taylor, the United States, born in the Star and a companionship of the Star Taylor, the United States, born in the star and a companionship of the Star Taylor, the United States, born in the star and a companionship of the Star Taylor, the United States, born in the star and a companionship of the Star Taylor, the United States, born in the star and a compa

order in the Herar district during the (1828).

mutiny of 1857; and received the rank of colonel, a companionship of the Star of India, and a commissionership of the United States, born in of India, and a commissionership of the Western Deccan districts. He published entered the army in 1808, and rose to the Confessions of a Thug (1839), the rank of major; took command of Tippoo Sultaus (1840), Tara (1863), the United States forces at the outbreak Ralph Darnell (1865), Manual of the United States forces at the outbreak Ralph Darnell (1865), Manual of the Mexican war; repeatedly defeated History of India (1870), and A Noble Santa Anna in the battle of Buena Vista Thomas. Thomas, the 'Platonist' born (1847). This was the most spectacular (1847). This was the most spectacular battle of the war, Taylor winning the victory over much larger numbers, and it gave him a wide reputation, he becomTayra (ti'ra; Gelère berbers), a carplication, and is used to designate the nivorous animal allied to the group of peoples of which the Finns, the glutton, found in South America. In Esthonians, the Livonians, and Lapcolor it is black, save a large white patch on the breast.

Tea (Thea), a genus of plants, nat.

Tehad (chād), Chap, or Tsap, a large order Ternstremiaces (that to provide the carpellia belongs) comprising

Tchad (chäd), CHAD, or TSAD, a large fresh-water lake of Central Africa, in the Soudan, having the territories of Bornou, Kanem, and Bagirmi surrounding it; length, about 150 miles; breadth, about 100 miles; area, about 20,000 square miles, with a variable expanse according as it is the wet or dry season. Its principal feeder is the Shari from the south, and its shores are low and marshy. The lake (which has no outlet) swarms with turtles, fish, crocodiles, and hippopotami. It contains a number of small islands, which are densely peopled, as are also great part of its shores, especially on the west, where is the large town Kuka, capital of Bornou. of Bornou.

Tcherkask (cherkask), or Novo-Tcherkask, a town situated on the Don, and capital of the Don Cossack country, Russia. The town is well built, and has a cathedral, college, library, market place, etc. Pop. 52,005. (cher-kas'sē), a town, and capital of the Don Cossack country, Russia. The town is well built, and has a cathedral, college, library, market place, etc. Pop. 52,005. (cher-kas'sē), a town is the cossack country is the control of the population of t government of Kieff, Russia, situated on the Dnieper, 190 miles southeast of Kieff. It is built of wood, and has a considerable trade. Pop. 29,620.

Tchernigov (cher-ne'gov), Tcherni-GOFF, or Tchernigow, a government of Little Russia, situated a government of Little Russia, situated on the left bank of the Dnieper; area, 20,232 sq. miles. The country is chiefly an undulating plain, fertile for the most part, and watered by the Soj, the Desna, and the Dnieper. Agriculture and cattle-breeding are the chief employments; corn, linseed, timber, tobacco, and sugar are exported. Pop. 2,322,007.—TCHERNIGOV, the capital, is situated on the Desna, above of an archbishop has a It is the see of an archbishop, has a cathedral, a college, hospital, etc., and a considerable trade. Pop. 27,028.

Tchernozem (chem'o-sem), the name for a black soil in Russia of extraordinary fertility, covering at least 100,000,000 acres, from the Carpathians to the Ural Mountains, to the depth of from 4 to 20 feet, and yielding an almost unlimited succession of similar

crops without preparation. Tcherny. See Czerny.

races in the northwest of Russia. It tains, while the tannin, which is also has now acquired a more general appresent, acts as an astringent. If the

which the camellia belongs), comprising which the cameria belongs, comprising the species (T. sinensis or chinensis) which yields most of the tea of com-merce. By different modes of culture this species has diverged into two distinct varieties, entitled Thea viridis and Thea bokea. The former is a large hardy evergreen plant with spreading branches and thin leaves from 3 to 5 inches long; the latter is a smaller plant, and differs from the other in several particulars. From both, according to the process of rom both, according to the process or manufacture, black and green teas are procured. The tea plant is cultivated not only over a great part of China, but also in Japan, Tonquin, Cochin-China, Assam and other parts of India, and Ceylon. It has also been experimentally introduced into Carolina, Brazil, and Australia. Its growth is chiefly confined to hilly tracte; it is raised from seed to hilly tracts; it is raised from seed, and the rearing of it requires great skill and attention. In seven years the plant attains the height of 6 feet, and the leaves are plucked off carefully one by one four times a year. In their green condition they are placed in a hot pan over a small furnace, and then rubbed over a small furnace, and then rubbed lightly between the palms of the hands, or on a table. This process is repeated until the leaves become small, crisp, and curled. The black teas thus prepared include bohea, congou, souchong, and pekoe; the green teas, twankay, hysonskin, young hyson, hyson, imperial, and gunpowder. Green tea gets less of the fire than black tea. The broken leaves, stalks, and refuse of the tea are comnre than black tea. The broken leaves, stalks, and refuse of the tea are compressed into solid bricks, which are imported by the Russians into the greater part of Central Asia, where (besides being used as a sort of coinage) they are sometimes stewed with milk, salt, and butter. There is considerable adulteration in the teas sent from China to the tion in the teas sent from China to the European market, and they are often artificially colored with a mixture of Prussian blue, or of gypsum and indigo carefully mixed. The infusion of tealeaves in hot water yields a beverage which has little nutritive value, but it increases respiratory action, and seems to have a stimulative and restorative action on the nervous system. This is Tcherny. See Czerny.

tion on the nervous system. This is chiefly due to the essential oil and the theine (an alkaloid in its nature identical by the Russians to the Finnic with the caffeine in coffee) which it con-

water is boiling, an infusion of ten minutes is sufficient to extract all the theine, and repels the attacks of insects of all
and a longer period only adds to the
kinds. It is extensively used in shiptannin in the beverage, a result which building and for many other purposes.
is very hurtful to digestion. From historical sources we learn that tea was
Indian teak, is believed to be the prodused in China as a beverage in the sixth uce of Oldfieldia africana, nat. order
century, and two centuries after its use
Euphorbiacese.

Euphorbiacese. used in China as a beverage in the sixth century, and two centuries after its use had become common. In England we first find it mentioned about 1615 by an agent of the East India Company; in 1660 Pepys says in his diary, 'I did send for a cup of tea, a China drink, of which I never had drunk before'; and in 1664 the East India Company made a present to the king of 2 lbs. 2 oz. In the year 1678 the import of tea to Britain was 5000 lbs., but forty years after it reached 1,000,000 lbs. and is now more than 250,000,000. China, until recent years, held almost a monopoly in the production of tea, but now India and Ceylon have entered the market as important competitors, and the product important competitors, and the product of Japan is large. Britain is the principal tea consuming country in the world, coffee being less in favor there than in many other countries, the United States and Canada for example. Tea is also very largely used in Russia and in great part of Asia. The tax laid on tea and the effort to force the colonists to use it, was one of the chief instigating causes of

the American Revolution.

Teak (tek; Tectons grandis), a tree of the nat. order Verbenacese, a native of different parts of India, as well as of Burmah and of the islands from Ceylon to the Moluccas. It grows to an immense size, and is remarkable for



24 inches long, and from 6 to 18 broad. The wood, though porous, is strong and durable; it is easily seasoned and shrinks but little, and from containing a resin- ing to a degree.

Teal (tel), the common name for ducks of the genus Querquedila, the smallest and most beautiful of the Anatidee, or duck family. The common teal (Q. crecca) is an annual visitor to Britain, remaining in parts of Scotland all the year. North American species include the green-winged teal (Q. carolin-ensis) which is very like the common teal, and the blue-winged teal (Q.

teal, and the blue-winged teal (Q. discors), somewhat larger than the common teal, and easily domesticated.

Teasel (té'sel), the English name of several plants of the genus Dipsācus, nat. order Dipsaceæ, allied to the composite order. One species (D. sylvestris) grows wild in England, and in this country in hedges from Massachusetts to Indiana. Another species, the fuller's teasel (D. fullonum), by some regarded as a mere variety, is cultivated for the sake of the awns of the head, which are employed to raise the nap of woolen cloths. woolen cloths.

(te'beth), the tenth month of the Jewish ecclesiastical year, Tebeth beginning with the new moon in December and ending with the new moon in January.

Technical Education. The term techn i c a l education, properly speaking, includes the field of all instruction relating to the arts, sciences, professions, and trades; but in common use it is restricted to the field of the industrial arts, and more particu-larly to that instruction in which theory larly to that instruction in which theory rather than practice bears a preponderating part. The courses offered extend over four years and lead to the B.S. degree, one or two further years of study being required for professional degrees, viz., C.E. (civil engineer), E.E. (electrical engineer), etc. The courses which may generally be found are the following: engineering usually in all branches, chemengineering usuany in an orancies, chair istry, physics, architecture, mining and metallurgy. For the two last-named subjects special schools have been developed, Teak (Tectona grandis).

New Mexico, Montana, and Michigan. In addition to lectures and laboratory practical factors and laboratory practical factors. tice, in most technical schools practical experience, under actual conditions, is demanded from students before proceedconditions,

Technology which deals with the various industrial See Sesamum. arts. There are a number of schools of technology in the United States devoted Tees rises ne technology in the United States devoted rises near Cross Fell, in Cumberto the study of civil, electrical, mining, land, and marks the southern limit of and mechanical engineering and similar the county of Durham, to its mouth in subjects. Among these are the Massachuthe County of Durham, to its mouth in subjects. Among these are the Massachuthe North Sea, where it forms an estuary setts Institute of Technology, at Boston, Its whole course is between 70 and 80 the Stevens Institute of Technology, at miles. Hoboken, N. J., the Case School of Applied Science, at Cleveland, Ohio, the Towne Scientific School at the University jaws of vertebrate animals, and serving of Pennsylvania, Sibley College at Cornell, the Armour Institute at Chicago, the Sheffield and Lawrence Scientific Schools, destined for different offices. Sheffield and Lawrence Scientific Schools, at Yale and Harvard respectively, the School of Mines at Columbia, etc.

Teck, ALEXANDER, PRINCE OF, was born in Kensington Palace, London, April 14, 1874, third son of the Duke of Teck and Princess Mary Adelaide. He served with honor at Matabeleland in 1896, and in South Africa, 1899–1900. On May 7, 1914, he was appointed Governor-General of Canada.

ing plants, with usually pinnate leaves, and terminal panicles of dusky red or orange flowers. There are about 80 species, some of them as T. impetiginosa, medicinal.

gasteropodous mollusca, comprehending those species in which the gills are protected by a shell, or by the mantle, including the sea-hare and others.

Tecumseh (te-kum'seh), or Tecum-tha, chief of the Shawnee Indians, born in 1768. After taking part in numerous battles he joined his brother Elskwatawa in 1805 in trying to organize the Western Indians against the whites. During his absence his brother attacked General Harrison and was defeated at Tippecanoe, November 7, 1811. This put an end to Tecumseh's plans and in the war that followed he joined the British. He was killed at the battle of the Thames,

the opening phrase, To Down laudomus) of the well-known Latin

(tek-nol'ō-ji), that **Teel** (tēl), **TEEL-SEED**, an Indian name branch of knowledge for Sessmum Indicum and its seed.

Tees (tex), a river in England, which rises near Cross Fell, in Cumberland, and marks the southern limit of

as the instruments of mastication. The teeth of animals differ in shape, being destined for different offices. In man and the higher mammals two sets of teeth are developed, the early, milk, or deciduous teeth, and the permanent set. In fishes the teeth fall off and are renewed repeatedly in the course of their lives. Teeth do not belong to the skeleserved with honor at Matabeleland in ton, but to the skin or exoskeletal parts 1806, and in South Africa, 1899–1900. of the body, and are homologous with On May 7, 1914, he was appointed Governor-General of Canada.

Tecoma (te-ko'ma), a genus of plants, nat. order Bignoniacew. The tone are erect trees or shrubs or climbing plants, with usually pinnate leaves, or hursel part, and the fangs in plants, with usually pinnate leaves, or hursel part. or buried part. The four central teeth of each jaw having chisel-shaped crowns with sharp edges are called incisors; medicinal.

Tectibranchiata (tōk-ti-brank-i-ā'ta), a division of of these are two bicuspid teeth (præthose species in which the ciliar and heling these species in which the ciliar and heling the cili molar teeth, three on each side. (See Dental Formula.) The last of the permanent teeth to appear are the farthest back, grinding teeth, which, owing to their arrival between the seventeenth and twenty-fifth years, are called the wisdom teeth. Each tooth has a central cavity filled with a soft pulp containing blood-vessels and nerves; this cavity is surrounded by dentine, a hard substance composed of phosphate and carbonate of lime; outside the fang is a cement-like substance resembling bone; war that followed he joined the British. He was killed at the battle of the Thames, October 5, 1813.

Teddington (ted'ing-tun), a town of England, in the county of Middlesex, on the Thames, and about 13 miles 8. w. of London. Pop. 17,840. as it is called. When the enamel which the opening phrase, To derlying dentine is exposed and soon derlying dentine is exposed and soon breaks down. When the decay, passing inward, reaches the pulp which contains hymn usually ascribed to St. Ambrose inward, reaches the pulp which contains and St. Augustine, although it cannot be the blood-vessels and nerves it causes traced farther back than the end of the inflammation, aching, and suppuration. Any treatment of toothache, short of ex-Raman Catholic and Anglican churches. traction, is seldom satisfactory if the

sulp has been actually attacked; but lands of Anahuac, on the right bank of neuralgia is often mistaken for toothache. See Dentistry.

the Salado, and 125 miles southeast of the city of Mexico. Pop. 7139. ache. See Dentistry.
Tectotalism. See Temperance. Soci-

Teff (Eragrostis Abyssinica), a grain extensively cultivated in Abyssinia,

at the University of Lund, became in 1812 professor of Greek literature, and in 1824 was appointed bishop of Wexiö, where he died in 1846. Among his works may be mentioned his Frithiofs works may be mentioned his tribules Saga, an epic poem, repeatedly translated into English; his national song of the Gotha Lion; and The Children of the Lord's Supper, translated by Longfellow.

Tegucigalpa (ta-gö-se-gal'pa), the capital of Honduras, on the Rio Grande, about 3370 feet above the see surrounded by mountains with the sea, surrounded by mountains, with a venerable old church, a high school, and an active trade. Pop. about 35,000. Teguexin (tegeks'in; Tesus Teguexin), a species of lizard inhabiting tropical America. A full-grown specimen may exceed 5 feet in length, and they are able to swim with great case and

Teheran (te-her-an'), capital of Persia, in Irak Ajemi, towards the northeast of the province, 66 miles south of the Caspian Sea, at the southern has of Mount Elburg. It is 4 miles ern base of Mount Elburz. It is 4 miles in circuit, surrounded by a strong wall, in circuit, surrounded by a strong wall, flanked by numerous towers, with a broad dry ditch, and glacis. The city has six gates, from which the main streets lead to the bazaar in the center of the town. Since 1870 the city has been much improved, the streets being lighted with gas and laid with tramways. The principal edifice is the citadel-palace of the shah, which has considerable strength, but little architectural merit. During the summer months the court re-During the summer months the court removes (on account of the intolerable heat) to more agreeable quarters on the heights to the north, and a third of the inhabitants (including the European Telautograph (tel-au'tō-graf), a embassies) follow the royal example. The principal manufactures are carpets, silks, cottons, and articles in iron. Pop. (in winter) 280,000.

(tā-rē'), a state of Hindustan. See Garhwál. TEHRI is also Tehri a name for the state of Orchha (which

co, at the southern extremity of the high- (Mydaus meliceps).

Tehuantepec (tā - wan -tā - pek'), a town of Mexico, in the state of Oaxaca, 14 miles above the mouth of a river of the same name, fallhaving seeds about the size of those of ing into the Pacific Ocean. On account millet.

Tegnér (teng-nār'), ESAIAS, a Swedused for navigation. Pop., mostly Insk poet, born in 1782, studied is poet, born in 1882, studied in south side of the Issurvive of Tenders the Injuryity of Lund became in south side of the Issurvive of Tenders in the Injuryity of Tenders in th south side of the ISTHMUS OF TEHUAN-TEPEC, the narrowest part of N. America, TEPEC, the narrowest part of N. America, having the GULF OF TEHUANTEPEC on the Pacific side, the Bay of Campeachy on the Atlantic side; width, about 115 miles. There have been various schemes for constructing a canal or a ship railway across the isthmus, the most recent of the letter sort being that of an American of the latter sort being that of an American engineer named Eads. See Ship Railway. A railroad now crosses the Isthmus and a large and valuable trade has developed. It is expected to com-pete with the Panama Canal when fin-ished, as furnishing a much shorter Atlantic-Pacific route from northern ports.

A full-grown reignmouth (tan'muth), a seaport in length, and market-town of receimen may exceed 5 feet in length, and they are able to swim with great ease and rapidity.

Teheran (te-her-an'), capital of Perby a wooden bridge 1671 feet in length. The northeast of the province, 66 miles west Teignmouth and the northeast of the province, 66 miles west Teignmouth. East Teignmouth and the Caspian Sea, at the south-which is the more modern, is almost enterphene of Mount Elburg It is a miles they are not the more modern, is almost enterphene of the south-which is the more modern, is almost enterphene. tirely appropriated as a watering-place. West Teignmouth, the port and principal seat of business, has a safe and commodious harbor. The fisheries employ a considerable number of the inhabitants.
Pop. (1911) 9221.

Teinds (tends), the Scotch law term for tenths or tithes of the fruits of the land. In the majority of instances the teinds now belong to the owners of the land formerly paying them, to the crown, or other proprietors, they being charged in all cases with the payment of the parish minister's stipend.

Telamon. See Attantes.

vented by Professor Elisha Gray, based on a novel system of transmission, whereby a fac simile reproduction of the handwriting of the sender of a message is effected. See Telegraph.

Teledu (tel'e-dö), a Javanese carnivorous quadruped, family Musorous quadruped, family Musorous programmed.

see), and for its capital, an ill-built town with a pop. of 33,871.

Tehuacan (tā-wā-kān'), a town in the state of Puebla, Meximus at the southern extensity of the kink and like it, when provoked, capable of diffusing a the southern extensity of the kink and like it, when provoked, capable of diffusing a the southern extensity of the kink and like it, when provoked, capable of diffusing a the southern extensity of the kink and like it, when provoked, capable of diffusing a the southern extensity of the kink and like it, when provoked is the southern extensity of the kink and like it, when provoked is the southern extensity of the sout

Telegraph (tel'e-graf), a general name for any instrument or apparatus for conveying intelligence beyond the limits of distance at which the voice is audible, the idea of speed being also implied. Thus the name used to be given to a semaphore or other appliances for signaling, which are now designated as signaling apparatus. The



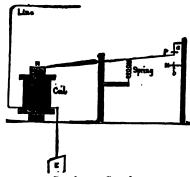
Single-needle Instrument.

word telegraph has come to be restricted word telegraph has come to be restricted in its application to the electric telegraph, which from its power of rapidly conveying elaborate communications to the greatest distances has completely outrivaled all others. The electric telegraph, as comprising the entire system of apparatus for transmitting intelligence by electricity, consists essentially (1) of a battery or other source of electric power; (2) of a line-wire or conductor for conveying the electric current from one station to another: (3) of the apparatus veying the electric current from one sta-tion to another; (3) of the apparatus for transmitting, interrupting, and if necessary reversing the current at pleas-ure; and (4) of the indicator or signal-ing instrument. The line-wires for overhead lines are usually of iron, protected from atmospheric influence by galvanizing or by being varnished with boiled linseed-oil, a coating of tar, or other means, and are supported upon posts, to which they are attached by in-sulators. (See *Insulator*.) In under-ground lines the wires are insulated by ground lines the wires are insulated by a gutta-percha or other non-conducting covering, and inclosed in iron or lead pipes. The battery and line-wire are common to all telegraphic systems; it is in the method of producing tact with a brass rod, indicates the mesthe signals that the great variation sage by the length of the strokes proexists; but in all of them advantage has duced. This is shown in the illustration, which shows the arrangement by which been taken of one or another of the three following properties of the current: (1)

(3) its power of producing chemical decomposition.

The needle-telegraph of Cooke and Wheatstone is an application of the first of these properties. This, the earliest form of telegraphic instrument, originally employed five needles, each worked by two wires. The number was subsequently reduced to two, and now only one wire is used. This hangs vertically, but can move to right or left between two stops. The signals are formed by combinations of the deflections in the two directions. These are variously combined to represent the letters of the alphabet, the Morse code being used. The needle-telegraph was never adopted out of England, and even here the Morse has been generally substituted for it.

The electro-magnetic instrument of Professor Morse is an application of the second of the above properties. By means of an electro-magnet, an armature which is attracted when the magnet is temporarily magnetized, a lever moved by the armature, and a style which moves with the lever, this instrument impresses a message in dots and dashes on a riba message in dots and dashes on a no-bon of moving paper, and by it forty words may be sent in a minute. This 'dot and dash' system which was in-vented by Morse is now in very general use. A modification of this instrument, called a sounder, in which the lever makes audible sounds by coming in con-



which shows the arrangement, by which the hammer-head H is attracted, and the its power of producing the deflection of arm HP is brought into contact with a magnetic needle, as in the galvan- the pin a. Upon the cessation of the ometer (which see); (2) its power of current the spring brings down the arm temporarily magnetizing soft iron; and upon the pin b. Frequently the Morse is simultaneously a recorder and sounder. It being necessary that this instrument should produce sharp and distinct impressions, and the current being weak for stages over 50 miles, a relay, or subsidiary electro-magnetic circuit, is added to it in the case of longer distances. The transmitting instrument is a lever, which, on being pressed, permits the current from the battery to flow into the line-wire during the time the contact is made. Both on account of its intrinsic merits and for the sake of uniformity the Morse is the most extensively used system, being that in use in America and on the continent of Europe, and being also largely em-

of Europe, and being also largely em-ployed in Britain. Hughes' printing telegraph is the instrument chiefly used by the submarine telegraph companies. It works with one the speed of the Morse system, with the advantage that the message is printed in the ordinary Roman type. The machine is rather complicated, but its principle can be assily understood. ciple can be easily understood. A wheel having type engraved on its rim is made to revolve at a known rate; a strip of paper, as in the case of the Morse, is drawn off a drum over a roller which lies under the rim of the revolving typewheel; by means of the current the roller with the paper is raised against the type-wheel as the proper letter passes, and in this way the despatch is printed. The operator works on a keyboard much like that of a piano. Chemical telegraphs work on the principle that an iron wire pressing against a paper prepared with cyanide of potassium or other substance will, while a current is passing between the wire and the paper, produce a dark streak of Prussian blue or other mark, and when the current is inter-rupted the streak of pigment is inter-rupted. Bonelli's telegraph is worked by means of five wires. The message is set up in brass types in one line; the let-ters are common block letters; five styles, like the teeth of a comb, press against the raised portions of the type, and as the line of type is drawn through each style sends a current along its wire to a corresponding style pressing against prepared paper at the distant station, making a mark on the paper there corresponding to the raised portion of type which sends the current. The chief objection to Bonelli's telegraph is the five

and foil or other conducting material pasted this on a cylinder which is made to revolve at a certain rate; a style presses against the surface, and is moved up or down the surface, and is moved up or down the cylinder at a certain rate so as to describe a helical line; a current passes between the cylinder and style except when the non-conducting writing comes between them; at the distant station a similar cylinder covered with paper pre-pared with cyanide of potassium revolves at the same rate as the first cylinder; and its style being connected with the and its style being connected with the first style by means of the telegraph wire makes a mark of Prussian blue, which is a continuous helix, except when the current is interrupted at the first style. In this way a copy of the mes-sage in the handwriting of the sender is sage in the handwriting of the sender is produced at a distant station. Bain's automatic telegraph is Bonelli's telegraph, wherein by adopting the Morse alphabet one wire is sufficient; and the type is simply a strip of paper with dots and dashes punched in it. In addition to the delicate mirror or reflecting galvanometer, which Sir W. Thomson invented in connection with the Atlantic telegraph, that distinguished electrician telegraph, that distinguished electrician invented a self-recording instrument, consisting of a light coil of wire, very delicately suspended in a magnetic field, delicately suspended in a magnetic field, the motions of which coil, when a current is passed through it, are the means by which messages are recorded. The coil is attached to a very light glass siphon in the shape of an exceedingly fine capillary tube, through which ink from a reservoir is drawn by electric attraction. the reservoir and the moving namer ribbon upon which the ink falls paper ribbon upon which the ink falls being oppositely electrified. The expaper ribbon upon which the ink falls being oppositely electrified. The extremity of the siphon is not in contact with, but only very near the paper. When there is no current the ink traces a straight line; when the current is assing the marks or deviations constituting the letters are produced. The delicacy and rapidity of this instrument are even greater than those of the mirror ralyanometer, and the siphon recorder

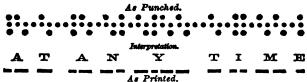
like the teeth of a comb, press against galvanometer, and the siphon recorder the raised portions of the type, and as the line of type is drawn through each style sends a current along its wire to showed that signals might be sent through a corresponding style pressing against prepared paper at the distant station, making a mark on the paper there corresponding to the raised portion of type showed that signals might be sent through a wire stretched across the Thames by prepared paper at the distant station, discharging a Leyden-jar through it. In 1753 there appeared in the Scots sponding to the raised portion of type Magazine a letter signed C. M., in which sends the current. The chief objection to Bonelli's telegraph is the five electric discharges is put forward. Lesage, 1774, erected at Geneva a tele-Autographic telegraphs are chemical graph line consisting of twenty-four telegraphs, and consist of a message written with a pen dipped in some non-conducting substance on a surface of tin-

posed in the same year to replace the electroscopes by spangled panes exhibit-ing the letters themselves. Volta's dis-covery of the galvanic pile, and Oersted's covery of the galvanic pile, and Oersted's discovery of electro-magnetism, by supplying electricity of a kind more easily retained on the conducting wires, afforded much greater facilities for transmitting signals to a distance. Ampère, in 1820, proposed to utilize Oersted's discovery by employing twenty-four needles to be deflected by currents sent through the same number of wires; and Baron Schilling exhibited in Russia, in 1832, a telegraph model in which the signals appear to have been given by the deflections of a single needle. Weber and Gauss carried out this plan in 1833 by leading two wires from the observatory of Göttingen to the Physical Cabinet, a distance of about 9000 feet. The signal consisted in small deflections of a bar-magnet suspended horizontally of a bar-magnet suspended horizontally The principle involved is the synchronous with a mirror attached, on the plan since adopted in Thomson's mirror galvanomends of a line. The difficulty to be met eter. At their request the subject was is that of maintaining perfect syncarnestly taken up by Professor Steinchronism. This system differs in princi-

Wheatstone and Cooke on the London and Birmingham and Great Western rail-ways. The wires, which were buried in the earth, were five in number, each acting on a separate needle, but the expensiveness of this plan soon led to its being given up, the double-needle, and finally the single-needle, system replac-

ing it.

This historical sketch may be completed by a statement of the more recent inventions of importance in tele-graphic science. The first great improvement after the general introduction of the Morse system came in the multiple or synchronous system, which was first suggested as early as 1852. The early forms of this system proved unsatisfactory, but Delany's later invention, introduced about 1885, supplied a practical multiplex telegraph, by which several messages could be sent simultaneously.



Wheatstone's Automatic System.

heil of Munich, whose inventions conple from that of duplex telegraphy, detributed more perhaps than those of any veloped by a number of inventors, and other single individual to render electric now in general use in America and Eutelegraphs commercially practicable. He was the first to ascertain that earth connections might be made to supersede the use of a return wire. He also invented a convenient telegraphic alphabet, in which, as in most of the codes since employed, the different letters of the alphabet are represented by different combinations of two elementary signals. His currents were magneto-electric, like those of Weber and Gauss. The attraction of an electro-magnet on a movable armature furnishes the means of signaling which is the foundation of Morse's telegraphic system, introduced in 1844, and notable for its convenient alphabet, and notable for its convenient appraiset, now in use in all parts of the world. About the year 1837 electric telegraphs were first developed as commercial speculations in three different countries. Steinhell's system was experimented with at Munich, Morse's in America, and Wheatstone and Cooke's in England. The first telegraphs ever constructed for commercial use were laid down by

now in general use in America and Europe. Edison's quadruplex system, introduced in 1884, is an improvement upon the duplex. In this two keys are provided in the sending circuit, and two relays, each having a coil in both the line-circuit and compensation-circuit. One key reverses the current, and the other brings into the circuit three times as much battery power, which permits of the two extra workings. A variety of other printing telegraphs have supplemented that of Hughes, including the Phelps and House machine, the Rogers, Gray's telautograph, and various others. In the Gray instrument two wires are used and written messages are reproduced. The writing instrument may be an ordinary pencil, the pen of the receiver being a glass tube, carrying its ink capillarily. The duplication of the motions of the pencil at the transmitter is performed by current impulses conother brings into the circuit three times is performed by current impulses con-trolled by the shortening or lengthening of two silk cords to which the pencil is attached. By a complex mechanism the

impulses at the transmitter are so duplicated at the receiver as to cause two aluminum arms to shift the receiving pen along positions similar to those as-sumed by the sending pencil and the silk cords, so that the record at the receiver is always a fac simile of that at the the doctrine which asserts that all things transmitter, whether words, figures, signs, or sketches are made. The transmission of drawings can be made by this and several other instruments.

In the printing telegraph of recent invention the message is prepared by a species of typewriting machine, which punches holes in a paper tape, which tape is fed automatically through a transmitter, having minute levers which make connections through the holes in the tape and send corresponding impulses over the wire. The speed of this instrument depends on the rapidity with which the typewriter can be worked, as the the typewriter can be worked, as the tape can be sent through the transmitter at almost any speed. Two hundred or more words a minute can be sent. Despite the rapidity of these methods, however, the simple Morse system still holds its own, all more rapid ones suffering from some degree of complication. An interesting development of telegraphy is that of sending messages from moving trains. This is done by induction from an instrument in the train to an external wire. The cost and little need of this system has prevented it from coming into use. For the most recent and one of the most interesting discoveries in telegraphy see Wireless Telegraphy.

See Submarine Telegraph Cable. Cable.

Telegraph-plant (Desmodium gyrans), an Indian leguminous plant, with small lateral leaflets, which display a strange spontaneous motion, especially in a warm, moist atmosphere. They jerk up and down as if signaling, as many as 180 times in a minute, and also retains. Telegraph-plant (Desmodium times in a minute, and also rotate on their axes.

Telemachus (te-lem'a-kus), a son of Ulysses and Penelope, who is reputed to have gone through many adventures in search of his father after the close of the Trojan war. He is the hero of a French prose epic by

is the nero of the feelon (1699).

Fénelon (1699).

The mater (tel-em'e-ter), a device for distances; a Telemeter (tel-em e-tel), a deline measuring distances; a distance-meter. The simplest forms consist of telescopes containing parallel wires accurately spaced, or there may be two telescopes at stations of known distance apart, the difference in the angles of observation affording a basis for calculating the distance of the object observed. ting telephone which depends upon the

This principle has been developed in the modern range-finder. Acoustic telemeters record the time between the flash of a

gun and the hearing of the report.

Teleology (tel-e-ol'ō-ji), the science or doctrine of final causes; which exist were produced by an intelligent being for the end which they fulfill.

Teleosaurus (tel-e-o-sa'rus), a genus of fossil crocodiles, occurring in the lower Jurassic rocks. They are found with marine fossils, and seem to have been especially fitted for an aquatic life.

Teleostei (tel-e-os'te-i), a large and important sub-class of the class of fishes, distinguished primarily by the usually bony nature of the skeleton as compared with the cartilaginous skeletons of some other sub-classes. Almost all our common fishes are included in this order. See Ichthyology.

Telepathy (tel-ep'a-thi), thought transference from mind to mind through intermediate space. This word was coined about 1886 by the Society for Psychical Research to indicate the supposed cause of various phenomena observed. These were very numerous and varied, and sufficed to convince many members of the Society that such a power existed, they maintaining that the facts observed by them admitted of no other explanation. These facts consisted of drawings made by a sensitive when surrounded by others, who concen-trated their thoughts on the object to be drawn; the successes far surpassing those likely to be due to chance. dition were communications received mentally from a distance, occasionally a very great one, conveying some intelligence of a personal character that was afterwards corroborated. Many maintain that the phenomena known as spirit communica-tions are telepathic in their origin, and to sustain this give a great expansion to the power of thought transmission.

Telephone (tel'e-fon), an instrument for transmitting the human voice or other sounds by means of electricity and telegraph wires. About the year 1860 the idea that sound-produc-ing vibrations could be transmitted through a wire by means of electricity began to be recognized by several men of science. Reis of Frankfort invented an apparatus which could reproduce at a distant station the pitch of a musical sound by means of a discontinuous current along a telegraph wire. A great step in advance was made in 1876, when Prof. Graham Bell discovered an articula-

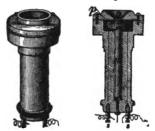
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OPERATING ROOM OF A TELEPHONE EXCHANGE This is a typical branch in which the telephone business of 4,900 subscribers is handled swiftly and with remarkable accuracy.

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by means of which the very quality of a note, and therefore conversation itself, could be reproduced at a distant station. could be reproduced at a distant station. Elisha Gray had made a similar invention at the same time, and Bell and Gray applied for a patent on the same day, Feb. 14, 1876. Bell's application came first and the patent was granted him. The telephone was first shown in public at the Centennial Exposition of 1876, at Philadelphia. Several varieties of telephonic apparatus are now in use for of telephonic apparatus are now in use for inter-communication between distant places. The Bell telephone in its common form is shown in the accompanying cut. A strong ordinary bar-magnet me has round one of its ends a coil of fine silk-covered wire in metallic communication with the two terminals ss. One of the terminals communicates through a telegraph wire with one of the terminals of the coil of a precisely similar instru-ment at the other station, the remaining pair of terminals being connected



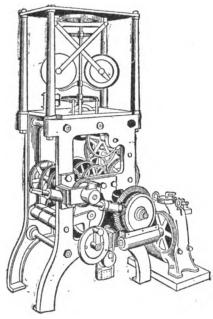
Bell Telephone Receiver.

through the earth, or through a return wire. Just in front of the extremity of the magnet there is a thin plate of iron p, and in front of this again there is the mouth-piece of a speaking-tube o. By this last the sounds to be transmitted are collected and concentrated, and falling on the metal plate cause it to vibrate. These vibrations in their turn excite undulating electric currents which correspond exactly with the vibrations; that is, with the original sounds. The electric currents being transmitted to the receiving telephone cause corresponding vibrations in the plate or disc in it, and these reproduce to the ear the original counds. A telephone invented by Edison sounds. A telephone invented by Edison is based upon the variation of resistance to the electric current of carbon with variation of pressure. The microphone, in the invention of which both Edison

principle of the undulating current, and everywhere employed. The telephone is now an established institution through-out Europe and America. Copper wire is generally employed in the lines in preference to iron, on account of its superior power of electric conduction. Telephone exchanges exist in all the principal towns, subscribers to which have their houses or places of business in direct communicaplaces of business in direct communica-tion with each other. Long distance lines are also rapidly joining city to city, lines between New York and Chicago having been years in existence, while greater distances have been covered both in America and Europe. In the United States the telephone has made greater strides than in any other country. There is scarcely a village or small town but has its telephone exchange, while in the has its telephone exchange, while in the large cities there are many thousands in use. Throughout the country they may be found in many farm-houses and serve to reduce the isolation of the farmer's household. There are at present more than 22,000,000 miles of telephone wire in use in the United States and 37,000,000 in the band of the states and 37,000,000 in the states are states and 37,000,000 in the states and 37,000,000 in the states are states are states and 37,000,000 in the states are states are states are states are states and 37,000,000 in the states are st relephote (tere-fot), an instrument for telegraphing images of objects by the agency of electricity acting on selenium, the electrical resistance of which varies greatly with increase or diminution of light. It was invented in

London in 1891.

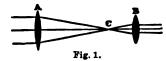
Telescope, an optical instrument es-sentially consisting of a set of lenses fixed in a tube or a number of sliding tubes, by which distant objects are brought within the range of distinct, or more distinct vision. The law of action by which the telescope assists human vision is twofold, and that under all the varieties of its construction. A distant object viewed by the unaided eye is placed in the circumference of a large circle, having the eye for its center, and consequently the angle under which it is seen is measured by the minute por-tion of the circumference which it occupies. Now, when the distance is great, it is found that this angle is too small to convey to the retina any sensible impression — all the light proceeding from the object is too weak to affect the optic nerve. This limit to distinct vision re-sults from the small aperture or pupil of the eye. The telescope substitutes its large object lens or reflector for the human eye, and consequently receives a quantity of light proportioned to its area or surface; hence a distant point, inappreciable by the eye alone, is rendered visible by the aid of the telescope. The and Berliver claim priority, is the basis visible by the aid of the telescope. The of the carbon telephone. It has not rays of light, after transmission or recome into use, the Bell principle being flection, converge to a point as they at first proceeded from a point, and thus an image of the object is formed which, when viewed by the eye-piece or lens, is more or less magnified. The telescope therefore assists the eye in these two ways: it gathers up additional light, and it magnifies the object; that is to say, its image. The refracting telescope is constructed of lenses alone, which, by successive refractions, produce the desired effect. This instrument was formerly very cumbersome and inconvenient, inasmuch as its length had to be increased considerably with every accession of



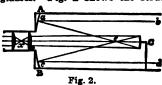
Oriving-clock of the 26-inch Equatorial Telescope of the U.S. Naval Observatory at Washington.

power; but the substitution of achromatic for ordinary lenses has rendered it more portable and convenient. The reflecting telescope is composed of specula or concave reflectors (see Speculum) aided by a refracting eye-piece. To this instrument we owe some of the most wondrous discoveries in astronomical science. The names of Newton, Gregory, Herschel, and Lord Rosse are connected with its history. The following diagrams exhibit the principles of construction and action in both sorts of tele-

scopes. In fig. 1, which illustrates the refracting telescope in its simplest form, A and B are two lenses of different focal lengths. Rays of light from a distant object falling upon the object-glass A are converged to a focus at C. The eyeglass B, placed at its focal distance from the point of convergence, gathers up the diverging rays and carries them parallel to the eye, magnifying the image formed at C. (See Optics.) The magnifying power of the instrument is as AC: CB,



or as the focal length of one lens to that of the other. In this construction the object is seen inverted or turned upside down, and hence it is unsuitable for terrestrial purposes. To render the image erect, and thus show it in its natural position, a more complicated eye-piece, consisting of two additional lenses, is necessary. Another refracting telescope, consisting of two lenses in its simplest form, is called the Galilean telescope. It differs from the former in having a concave lens for its eye-glass, which lens is placed nearer the object-glass than the focus of this lens, producing an image which is not inverted. This kind of telescope is the one used in opera-glasses and field-glasses. Fig. 2 shows the structure



of the reflecting telescope as constructed by Dr. Gregory. AB is a large speculum perforated in the center; upon this fall the rays b, a and d, c, which are reflected to convergence at e. A smaller speculum, c, takes up the diverging rays and reflects them, slightly converging, through the aperture o, where they are received by a lens, and, after transmission, they intersect at x, and proceed to the eyeglass, whence they emerge parallel. The magnifying power of this instrument is great for its length. In the telescope invented by Sir William Herschel there is no second speculum, and no perforation in the center of the larger one placed at the bottom of the tube. The latter is fixed in an inclined position so that the image

where it is viewed directly by an eye-changed his original occupation for that piece, without greatly interfering with the of civil engineer, and was intrusted with light. This arrangement, in the case of the construction of the Ellesmere Canal. large reflectors, is imposed by their great In the years 1803 and 1804 the parliaweight and difficult management. Were mentary commissioners for making roads weight and difficult management. Were mentary commissioners for making roads it otherwise the ordinary construction and building bridges in the Highlands of would be preferred, the inclination of the Scotland, and also those for making the speculum being a disadvantage. Chro-Caledonian Canal, appointed Telford their matic aberration, which arises from the engineer, and thus an immense amount of different refrangibilities of the different work was carried out by him. Above colored rays, and leads to the formation, thirty harbors were built or improved by the sense of a sense of a bim some of which as at Aberdeen and colored rays, and leads to the formation, thirty harbors were built or improved by by a lens, of a separate image of a him, some of which, as at Aberdeen and bright object for each colored ray, is remedied by achromatizing the lens, that is, by constructing it of two or more lenses of different kinds of glass, so that the colors, separated by one, shall be reunited metropolis. Besides the 900 miles of by the others. (See Achromatic.) The most powerful refracting telescope yet made is that in the Yerkes Observatory, Wisconsin, which has an object-glass 40 inches in diameter. Next in size is the 36-inch telescope at the Lick Observatory, California. The Rosse telescope is the largest reflecting telescope, its lens being largest reflecting telescope, its lens being 6 feet in diameter. The Carnegie reflector, now making, will have a 100-inch lens. Telescopium (teleskõp'i-um), a small southern constellation, was introduced by Louis de Lecaille in 1751 after extended observations. He placed the Telescopium between Argania Societations. tween Ara and Sagittarius. The constellation is now obsolete.

Telescribe (tel'e-scrib) ment for recording telephone conversa-tions, perfected by Thomas A. Edison in A phonograph record takes down recording apparatus being started or stopped by pressing a button. The chief use of the telescribe is in fixing exactly important business agreements by tele-roads laid in Scotland he engineered a started of scotland he engineered a started of scotland he engineered a scotland be engineered as through the more insection. phone; in case of dispute its decision will be final as to what was said by the per-

formed by reflection falls near the lower through whom he was appointed surveyor side of the tube at its open end or mouth, of public works for Salop. He then exwhere it is viewed directly by an eye- changed his original occupation for that



system of roads through the more inaccessible parts of Wales, which involved Telescriptor (tele-skrip'tor), a form sion bridge across the Menai Straits, bewith keyboard transmitter and an automatic receiver of the revolving type-wheel pattern. The operator strikes the keys reactly as if he were writing on a typewiter, and the words come out on a strip not paper that unrolls before him, while straits of that kingdom. He died in 1834, and was at the same time the message is being interred in Westminster Abbey.

Telford Thomas engineer bear in the erection of the magnificent suspension bridge across the Menai Straits, begins in 1820, and the Conway bridge, begins in 1822. He employed a system of road-making since known as the Telford. In 1806 he was employed by the Swedish exactly as if he were writing on a type-sortenent to lay out a system of inland writer, and the words come out on a strip not that kingdom. He died in 1834, and was at the same time the message is being interred in Westminster Abbey.

Tell. See Algeria.

other end of the line.

Telford, Thomas, engineer, born in Tell, William, a famous peasant hero of Switzerland, reputed to have shire; became a mason and worked at his done some daring and wonderful feats in trade in Edinburgh, which in 1782 he his resistance to the tyranny of the Ausquitted for London. Here he was betrian governor Gessler, but now proved friended by Sir William Pultney, to have been a mythical personage. He

is said to have belonged to the canton of Uri, and to have united with others belonging to this canton and to those of Unterwalden and Schwyz in resisting the Austrians. In particular, having refused to do homage to Gessler's hat, set upon a pole, he was seized and condemned to death, but was granted his life on condition of shooting with an arrow an apple placed on the head of his own son. This he did successfully, admitting at the same time that a second arrow he had was intended for Gessler in case of failure. He was therefore still kept a prisoner; but while being conveyed over the Lake of Lucerne he managed to leap ashore, and soon after, having lain in wait for Gessler, he killed him.

Tell-el-Kebir (tel-e-ke-ber), a village of Egypt, where the British troops under Wolseley defeated those of Arabi Pasha, September 13, 1882.

Teller (tel'er), HENRY MOORE, statesman, was born at Granger, New York, in 1830; died in 1914. He was a lawyer in Illinois and Colorado and was a major-general of Colorado militia in the Civil War. In 1876 he was elected to the United States Senate; appointed secretary of the interior in 1882, and in 1885 and 1891 again elected senator. He withdrew from the Republican party in 1896 and was reëlected in 1897 as an Independent Free-silver Republican, and as a Democrat in 1993.

Tellicherry (tel-i-cher'i), a seaport of Hindustan, in the presidency of Madras, a healthy and picturesque town, built upon a group of wooded hills, with a citadel or castle in excellent preservation. It is a mart for sandalwood, coffee, etc.

Tellurium (tel-lūr'i-um), a metal first recognized as a distinct element in 1798. Symbol Te, atomic weight 127.5, specific gravity 6.27. It is a brittle, silvery-white element, melting at 452°C. and boiling at 478°C. Occasionally found native, but is very rare, and is mostly obtained in combination with other elements. It combines directly with hydrogen to produce telluretted hydrogen, a highly poisonous gas. There are two chlorides, the dichloride and the tetrachloride. Bromides and iodides are known. With oxygen it forms the dioxide and the trioxide, and a monoxide has been described. Two acids exist, tellurous acid and telluric acid. No well-defined normal salts in which tellurium acts as a metallic radical are known. Tellurium is found in Transylvania and other parts of Hungary, in the Altai gilver mines and in North America.

Telpherage (tel'fer-ij), a system for the automatic transport of goods by means of electricity devised by Fleeming Jenkin in 1881. It consists of a line of steel rods or cables suspended from brackets or posts, 70 feet apart, and serving at once as a supporter of weights and a conductor of electricity. Buckets or other receptacles are hung from the line by a wheel or pair of wheels, and a small electrical motor, hanging below the line, supplies the power. Trains of buckets filled with goods may be conveyed at one time, or they may be carried forward in a continuous stream. The system was developed in conjunction with Professors Ayrton and Perry.

Telshi (tyel'shē), a town of Russia, in the government of Kovno, 150 miles N.W. of Vilna. It has a population of 7700.

Telugu (te-lû'gu), or Telinga, one of the languages of India, belonging to the Dravidian group, and spoken in southern India by about twenty-one milions of people. The Telugu are the most numerous branch of the Dravidian race, but are less enterprising than the Tamils. The language is allied in roots to the Tamil language, but differs considerably otherwise.

Tembuland (tem'bö-land), a district of the Transkeian Territories in eastern South Africa, which are bounded by Cape Colony, Basutoland, and Natal. Tembuland has an excellent climate and a fertile soil, which is well suited for pastoral and agricultural purposes. The coast regions are adapted to the growth of sugar, cotton, and coffee. The minerals include coal and copper. Pop. 231,151.

Temesvar (tem'esh-vār), a town of Hungary, in the Temes Banat, on the river Bega and the Bega Canal, 75 miles N.N.E. of Belgrade. It is strongly fortified, and is for the most part well built, with spacious streets and squares. The principal buildings are the Greek Orthodox cathedral and other churches, the government offices, townhouse, theater, various schools and colleges, arsenal, civil and military hospitals. The manufactures consist of woolens, silks, paper, tobacco, etc. Held by the Turks from 1552 to 1716, Temesvar was retaken by Prince Eugene. Pop. 72,555.

Temnikov (tyem-nyi-kov'), a town in Tambov, on the Moksha. Pop. 5737.

Tempē (tem'pē). VALE of, a beautiful valley of northern Greece, in Thessaly, on the Peneus, much celebrated

by the ancient poets, having Mount was first enacted. Some other states

movement by the establishment in Boston on a more extensive plan of the American Society for the Promotion of Temperance, the first annual report of which announced the formation of thirty, and the second of 220 auxiliary associations. By 1831 more than 2200 societies, embracing 170,000 members, were in correspondence with the parent society. Reports of the movement in American ciety. Reports of the movement in America soon began to have an effect on the other side of the Atlantic. In August, 1829, a society was formed in Ireland, and before a year had passed sixty or-ganizations, with 3500 members, were in existence. In 1838 a great impetus to the movement was given by the Rev. Theobald Mathew, a Roman Catholic priest, who succeeded in less than two years in persuading 1,800,000 of his countrymen to renounce the use of ardent countrymen to renounce the use of ardent spirits. The first temperance society in Scotland was established at Maryhill, near Glasgow, in October, 1829, and the Greenock and Glasgow and West of Scotland Temperance societies were constituted soon afterwards. On the 14th of June, 1830, the first temperance society in England was founded at Bradford, and by the close of the wear there were and by the close of the year there were in existence some thirty associations, numbering about 10,000 members. These societies went no further than the resolve to abstain from ardent spirits, the use of fermented liquors in moderation being permitted. But the principle of total abstinence soon followed. In 1832 the war against intoxicating liquors of all kinds was opened in England by Joseph Livesey of Preston, and by 1838 the total abstinence or testotal party had triabstinence, or teetotal, party had tri-umphed all along the line, the old tem-perate or moderation party having gradu-ally disappeared. Of late years many of the advocates of total abstinence have sought to enforce their views by legisla-tive measures, as exemplified in the cele-brated Maine Liquor Law (for the supthe state in which a prohibitory law ent colors which the steel assumes. Thus 4-10

by the ancient poets, having Mount Olympus on the north and Mount Ossa on the south.

Tempera. See Distemper.

Temperance Societies. The first ansociation for the purpose of influencing public opinion in order to check the evil of intemperance was a society formed at Moreau. New York, in 1808. It was followed in 1813 by the Massachusetts Society for the Suppression of Intemperance. In 1826 a new impulse was given to the movement by the establishment in Boston on a more extensive plan of the American Society for the Promotion of Temperance, the first annual report of gress has been made in the temperance which announced the formation of thirty, cause and nine more states have been cause and nine more states have been added to the list. These include Arizona, Arkansas, Colorado, Idaho, Iowa, Oregon, Virginia, Washington and West Virginia. Among the important developments in the temperance movement are the organizations known as the Independent Order of Good Templars and the Anti-Saloon League. (See these titles.) The Woman's Christian Temperance Union. long under the presidency of Frances E. Willard, has been an influential Society. Temperature (tem'per-a-tūr) may be expressed as the state of a body with regard to heat, or to its power of communicating heat to other bodies. It often refers to the atmospheric heat of a locality at a particular time. When we speak of a body having a 'high' or a 'low' temperature it is implied that the condition of heat in the body may be compared with the thermometer. See Thermometer.

See Temperature of Animals.

Tempering (tem'per-ing), in metal-lurgy, the process of giv-ing to metals, principally iron and steel, the requisite degree of hardness or softness, especially the process of giving to steel the necessary hardness for cutting, stamping, and other purposes. If hested and suddenly cooled below a certain deand suddenly cooled below a certain de-gree it becomes as soft as iron; if heated beyond that degree, it becomes very hard and brittle. The process essentially con-sists in plunging the steel when red-hot into cold water or other liquid to give an excess of hardness, and then gradually reheating it until the hardness is reheating it until the hardness is reduced or brought down to the required degree. The excellence of all steel-cutbrated Maine Liquor Law (for the sup-pression of the manufacture and sale of temper given to them. Different deof intoxicating beverages), so called from grees of temper are indicated by differ-

material it varies with the state of the body in regard to temperature and other circumstances. The resistance offered to tearing is called absolute tenacity, that offered to crushing, retroactive tenacity. The tenacity of wood is much greater in the direction of the length of its fibers than in the transverse direction. With the direction of the length of its nbers than in the transverse direction. With regard to metals the processes of forging and wire-drawing increase their tenacity in the longitudinal direction; and mixed metals have, in general, greater tenacity than those which are simple.

Tenail (te'nāl), Tenaille, in fortification, an out-work or rampart

raised in the main ditch immediately in front of the curtain, between two bastions, in its simplest form having two faces constituting a reëntering angle.

Tenant (ten'ant), in law, one who occupies, or has temporary possession of lands or tenements, the titles of which are in another, the landlord. A tenant-at-will is one who occupies lands or tenements for no fixed term other than the will of the landlord. A tenant in common is one who holds lands or tenements along with another or other persons. Each share in the estate is distinct in title, and on the death of a tenant his share goes to his heirs or executors. A tenant for life is one who has possession of a freehold estate or interest, the duration of which is determined by the life of the tenant or another. other. An estate for life is generally created by deed, but it may originate by the operation of law, as the widow's estate in dower, and the husband's estate by courtesy on the death of his wife. See Landlord and Tenant.

Tenant-right, a term specifically applied to an Irish custom, long prevalent in Ulster, either ensuring a permanence of tenure in the same occupant without liability to any other increase of rent than may be sanctioned by the general sentiments of the community, or entitling the tenant of a community, or entitling the tenant of a farm to receive purchase-money amount-ing to so many years' rent, on its being transferred to another tenant; the tenant having also a claim to the value of permanent improvements effected by him. In course of time the advantages of tenant-right granted to the Ulster farmers were claimed by the farmers in the other provinces of Ireland, and the customer than the customer and the customer tom spread to a considerable extent. At last, under the management of Gladstone and Bright, the Landlord and Tenant Act of 1870 was passed. By it the Ulster tenant-right and other corresponding customs received the force of attains a length of from 10 to 12 inches.

in different materials, and in the same law; and the outgoing tenant became en-material it varies with the state of the titled to compensation from the proprietor to an amount varying according to circumstances. The act contained other provisions giving compensation for improvements, but as it did not succeed in doing away with all grievances a fresh bill was prepared and passed under the name of the Land Law Act, 1881, which established a land commission to revise rents, and to fix them for fifteen years. This measure has been amended by subsequent acts. See Ireland.

Tenasserim (ten-as'er-im), a maritime division of Bur-(te'nāl), TENAILLE, in 101111-cation, an out-work or rampart mah, about 500 miles in length, and the main ditch immediately in from 40 to 80 in breadth, with an area of 46,730 square miles. The eastern boundary of the district is formed by a range of mountains from 3000 to 5000 feet in height. The coast is for the most part rocky, and off the southern part of it the sea is studded by the innumerable islands, large and small, of the Mergui Archipelago. There are several good harbors, formed by the mouths of the rivers. Tenasserim is a hilly and densely wooded region, with here and there tracts of arable land. It passed into the hands of the British at the close of the first Burmese war in 1826. Pop. 1,159,558. Tenby (ten'bi), a municipal borough and seaport of Wales, in the county of Pembroke, on the west side of Carmarthen Bay, on the point and northeast margin of a rocky peninsula. It has a fine old church and several other buildings of note, including the Welsh Memorial to the late Prince Consort, and carries on a considerable trade in figh carries on a considerable trade in fish and oysters. It is besides a bathing-place, celebrated for its fine sands, beautiful scenery, and agreeable climate. The old walls of the town are still to some aytent preserved. Page 4282

some extent preserved. Pop. 4362.

Tench, a teleostean fish, belonging to the carp family and genus Tinca, of which T. vulgāris (the common tench) is the type. It inhabits most of



The color is generally a greenish-olive above, a light tint predominating below. tt is very sluggish, apparently inhabiting bottom-waters, and feeding on refuse vegetable matter. It is very tenacious of life, and may be conveyed alive in damp weeds for long distances. The flesh is somewhat coarse and insipid. Tender (ten'der), in law, an offer of compensation or damages made in a money action. To make a tender valid the money must be actually produced. A tender made to one of several joint claimants is held as made to all. A tender of money for any payment is legal, and is called a *legal tender*, if made in current coin of the United States: in silver coins less than \$1, not states: In silver coins less than \$1, not exceeding \$10; in gold and silver coins, for any amount; in United States bank notes, except for duties on imports and interest on the public debt.

Tender (naval), a small vessel appointed to attend a larger one, and employed for her service in procuring stores, etc. In railways a tender is

carrying the fuel, water, etc.

Tendon (ten'dun), the name given to the 'sinews' by means of which muscles are inserted upon bones. They consist of bundles of white fibrous inelastic and very strong tissue disposed in bands, and separated by areolar or connective tissue.

Tendotome (ten'dō-tōm), in surgery, a subcutaneous knife, having a small oblanceolate blade on the end of a long stem, and used for sever-wine ing deep-seated tendons without making 008. a large incision or dissecting down to

the spot.

Tendrac (ten'drak), in zoölogy, a s m a l l insectivorous mammal, from Madagascar. It is about two-thirds the size of the common hedgehog. Tendril, in botany, a curling and twining thread-like process by which a plant clings to another body for the purpose of support. It may be a modification of the midrib, as in the pea; a prolongation of a leaf, as in Nepenthes; or a modification of the inflorescence, as in the vine. They have been divided into stem tendrils and leaf

old authors capreolus and clavicula.

Tenebrio (te-nē'bri-ō), a genus of beetles, the type of the family Tenebrionidæ. The larvæ of one stores, etc.

Tenedos (ten'e-dos), an island of became highly popular, was appointed Asiatic Turkey, on the west court painter to the archduke Leopold

coast of Asia Minor, 15 miles southwest of the Dardanelles, about 6 miles long and 3 miles broad. The channel which separates it from the mainland is 3 miles broad. The interior of the island is very fertile, and is remarkable for the excellence of its wines. Corn, cotton, and fruits are also produced. On the eastern side of the island, near the sea, is the town of Tenedos. Pop. about 4000. On

ti is the little seaport of Tenedos.

Teneriffe (ten-ér-if'), TENERIFFA, the largest of the Canary
Islands (which see), is of an irregularly triangular form, and has an area of about 782 square miles. It is of volcanic formation, composed principally of enormous masses and cones of trachyte, lava, and basalt, which culminate in the Peak of Teneriffe, 12,182 feet high. The coast consists of an almost uninterrupted series of lofty cliffs, and the only good harbor is that of Santa Cruz, the capital, on the northeast. The most remarkable feature of the interior is the celebrated Peak, the summit of which forms a crater half a carriage attached to the locomotive for a league in circuit, and from which is obtained one of the most magnificent views in the world. Two eruptions have taken place since the colonization of the island by the Spaniards in 1496, namely, in 1706 and 1798, and at all times the internal activity of the volcano is indicated by frequent streams of hot vapor. The principal productions are maize, wheat, potatoes, pulse, almonds, oranges, guavas, apples, honey, wax, silk, cochineal, and wine. Cochineal, tobacco, and wine are the chief exports. Pop. 138,-

Tenesmus (te-nes'mus), in medicine, a continual inclination to void the contents of the bowels, accompanied by straining, but without any discharge. It is a common symptom in dysentery, stricture of the urethra, etc. Teniers (ten'e-erz), DAVID, the name of two celebrated artists of the Flemish school, father and son, both natives of Antwerp, in which city the elder was born in 1582. Having studied pea; a prolongation of a leaf, as in under Rubens, he spent six years in Nepenthes; or a modification of the in-Rome. On his return he occupied himself florescence, as in the vine. They have principally in the delineation of fairs, been divided into stem tendrils and leaf rustic sports, and drinking parties, which tendrils. Called also cirrhus, and by the exhibited with such truth, humor, and originality, that he may be considered the founder of a style of painting which his tenebrio beetles, the type of the fam-ily Tenebrionide. The larvæ of one His pictures are mostly small. He died species (T. molitor) are the destructive in 1649.— His son was born in 1610, and meal-worms which infest granaries, flour-stores, etc. William, governor of the Netherlands, and gave lessons in painting to Don John of Austria. He specially excelled in outdoor scenes, thoug many of his interiors are masterpieces of color and composition. His general subjects were composition. His general subjects were fairs, markets, merry-makings, guard-rooms, taverns, etc., and his pictures, which number over 700, are found in all the important public and private galleries of Europe. His etchings are also highly esteemed. He died at Brussels in 1690.

Tenimber Islands. See Timor Laut.

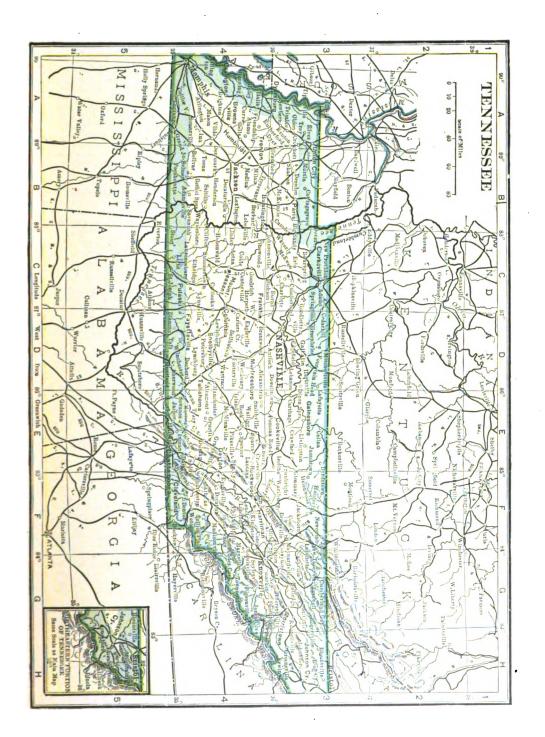
Tennant (ten'ant), WILIAM, a Scottish poet of some note, born at Anstruther, Fifeshire, in 1784, studied for some time at the University of St. Andrews, and becoming a good oriental linguist, was in 1835 appointed to the chair of oriental languages in St. Mary's

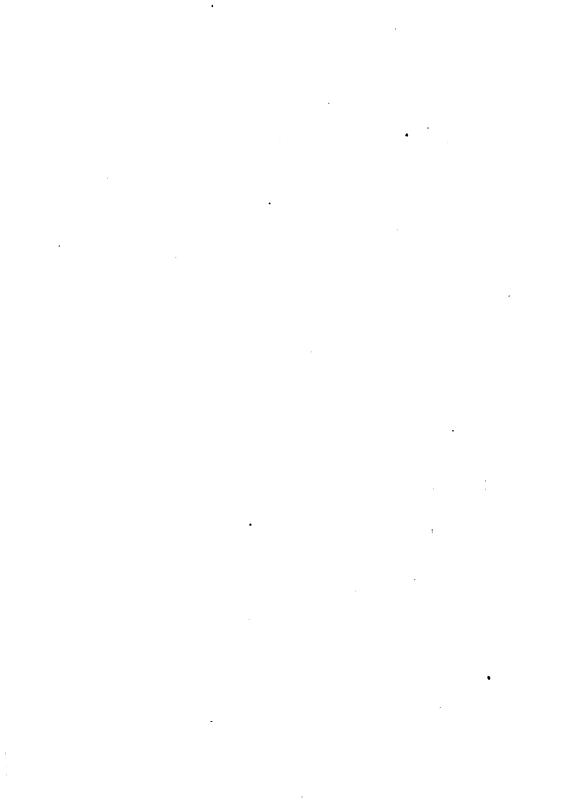
Belfast in 1794, and educated at Trinity College, Dublin. From 1845 to 1850 he was civil secretary to the government of Ceylon; in 1852 he was secretary to the Poor-law Board; and from 1852 to 1867 he held the post of secretary to the Board of Trade, on retiring from which he re-ceived a baronetcy. He was the author of several books of travel and other works, the most important being a valuable account of Ceylon (1859, two vols.). He died in 1869.

Tennessee (ten-es-se'), a south-cen-tral State of the American Union, bounded on the north by Kentucky and Virginia, east by North Carotucky and Virginia, east by North Carolina, south by Georgia, Alabama, and Mississippi, and west by Arkansas and Missouri; area, 42,022 square miles. Tennessee is popularly divided into three sections. East Tennessee, an extensive valley, and agriculturally one of the most important sections of the State, stretches from the eastern boundary to the middle of the Cumberland table land, which has an expense elevation of 2000 feet

ing the great elliptical basin of nearly 5000 square miles, known as the 'Garden of Tennessee.' West Tennessee extends from the Tennessee River to the Mississippi, the bottom lands along the latter stream being a low, flat, alluvial plain, covered with forests and with many lakes and swamps. The Unaka Mountains, a section of the Great Smoky range of the Appalachian chain, run along the eastern frontier, and have an average elevation of 5000 feet above the sea. The Mississippi, with the Tennessee and the Cumberland, drains three-fourths of the State. The two latter are navigable for a considerable distance, and other rivers with numerous tributaries supply taries supply valuable water power. The climate is very healthy, the mean temperature of winter being 37.8°, and of summer 74.4°. West Tennessee is chair of oriental languages in St. Mary's College, St. Andrews, dying in 1854. extremely fertile and produces corn and His chief production is Anster (that is, cotton abundantly. Middle Tennessee anstruther) Fair, a humorous poem of is generally fertile, also the valleys of Scottish life in the same stanza as Byron's Don Juan, which it preceded, being published in 1812. Besides Anster ton, wheat and oats; and cotton, wheat and oats; and cotton, ton, tobacco, hay and forage are extensively cultivated. The rearing and other poems and some dramas. None of them, however, attained any success. Grammars of the Syriac and Chaldee tongues were also published by him.

Tennent, Bir James Emerson, states area. The wool clip is large and excellent and much attention is paid to fine Belfast in 1794, and educated at Trinity breeds of horses. The most valuable lent and much attention is paid to fine breeds of horses. The most valuable minerals are coal and phosphate, which are very abundant, the coal deposits underlying 5100 square miles. Gold, silver, copper and zinc are also found, and there is a small output of iron ore and lime. Tennessee is rich in fine marbles, lime-stone, and other building stones. There is some output of clay, barytes and metal-lic paints, and considerable bauxite. Pe-troleum, sulphur, chalybeate and salt springs are plentiful. The lumbering interest is very great, and the lumber and timber industries lead all others. Other manufactures are flour and gristmill products, foundry and machine shop products, cars and general shop construction, oil, cottonseed and cake, etc. Besides the facilities for traffic afforded by the navigable streams, internal communication is further provided for by an extensive syssections. East Tennessee, an extensive further provided for by an extensive systemley, and agriculturally one of the most important sections of the State, stretches from the eastern boundary to the middle of the Cumberland table land, which has an average elevation of 2000 feet above the sea, and abounds in coal, iron, and other minerals. Middle Tennessee extends from the dividing line on the extends from the dividing line on the first settlements in this State were table land to the lower Tennessee River, made shortly before the Revolution, and and is a region of fertile terraces, includ-





Tennessee, a river formed by the union of two streams in the eastern part of the State of Tennessee, flows southwest, passes through the by many to contain much that distinnorthern part of Alabama, then flows guishes the true poet. Its success at least
north through the western part of was sufficient to encourage the poet to
Tennessee and Kentucky, and enters the
Ohio, of which it is the largest tributary, peared in 1833, and contained such poems
about 10 miles below the confluence of
the Cumberland. Length, 1200 miles. A of Art, Enone, The Lady of Shalott, and
streat dam was completed on the Tennes. At this time he sustained a great great dam was completed on the Tennessee River in 1913, and a power plant with 60,000 horsepower opened at Hale's Bar, a few miles from Chattanooga. The dam, which is 1200 feet in length, with an average height of 52 feet, holds up a lake 30 miles long, and lets pass a larger volume of water then passes over any

don in 1820. He was almost entirely self-taught, and his first picture was exhibited while he was little more than a boy. He painted one of the frescoes in the House of Parliament in 1845; in 1851 became connected as an illustrator with Punch; and he also illustrated many books, including Æsop's Fables, Ingoldsby Legends, Alice's Adventures in Wonderland, etc. He died in 1914.

of Franklin, which existed until 1788. Cambridge, where in 1829 he won the In 1796 it was admitted to the Union as chancellor's medal by a poem in blank the State of Tennessee. It joined the verse entitled *Timbuctoo*. As early as Southern Confederacy in 1861, though a great majority of the inhabitants of with his brother Charles, *Poems by Two* East Tennessee were Unionists. Pop. (1910) 2,184,789.

Southern Confederacy in 1861, though a great majority of the inhabitants of with his brother Charles, *Poems by Two* (1910) 2,184,789. a volume entitled Poems, chiefly Lyrical. It was not received with any great favor by the public, although it was recognized others. At this time he sustained a great loss in the death of his friend Arthur Hallam, and this, with the severe criticism which his last volume received in Blackwood's Magazine and the Quarterly Review, may have occasioned his long silence. It was not till 1842 that he are in a proposed to the public with a selection. volume of water than passes over any again appealed to the public with a selection of his poems in two volumes, and States. The power house and lock are equally gigantic. equally gigantic.

Tenniel (ten'yel), John, a famous tion. The collection then issued included Morte d'Arthur, Locksley Hall, don in 1820. He was almost entirely The May Queen, and The Two Voices, self-taught, and his first picture was exhibited while he was little more than a acknowledged antitled him to anyther the self-taught. bibited while he was little more than a acknowledged, entitled him to rank very boy. He painted one of the frescoes in the House of Parliament in 1845; in was more than sustained by the works 1851 became connected as an illustrated many books, including Æsop's Fables, Impollably Legends, Alice's Adventures in that immediately followed. These were: The Princess, a Medley (1847); In Memoriam (1850), written in memory of his friend Arthur Hallam; and the Ode on the Death of the Duke of Wellington (1852). The latter was his first great poem after receiving the laureate ship (1850) upon the death of Wordsworth, and caused to rebound beyond a persons striking it alternately with a racket, the object being to keep the ball in motion as long as possible without followed in 1855; Idylls of the King In motion as long as possible without followed in 1855; Idylls of the King In the thirteenth century, and continued to the Songs of the Wrens, in 1870; and of rackets is a descendant of tennis. Ment of the Last Tournator of rackets is a descendant of tennis. acknowledged, entitled him to rank very of rackets is a descendant of tennis. ment, completing the series of poems (See Rackets.) Lawn Tennis is a re-known as the Idylls of the King. In cent modification of the game. See 1855 the University of Oxford conferred cent modification of the game. See 1855 the University of Oxford conferred on Tennyson (ten'i-sun), Alfred, Lord, C.L., and in 1869 the fellows of Trinity College, Cambridge, elected him an honton Tennyson, rector of Somersby, in conferred on Tennyson the honorary degree of D. C.L., and in 1869 the fellows of Trinity college, Cambridge, elected him an honorary fellow. So long ago as 1833 he Lincolnshire, was bern at the same place, had had printed for private circulation August 6, 1800. He received his early a poem entitled The Lover's Tale; in education from his father, attended Louth Grammar School, and in due a sequel entitled The Golden Supper. Course proceeded to Trinity College, In the following year appeared Ballads and other Poems. Among his later compositions are the dramas, Queen Mary (1875), Harold (1876), and The Cup. The latter was successfully produced by Mr. Irving at the Lyceum Theatre in 1881, as had also been Queen Mary. The Falcon, another drama, was produced by Mr. and Mrs. Kendal in 1882, and The Promise of May was brought out at the Globe Theatre the same year. The Cup and The Falcon were published as a single volume in 1884, and in the as a single volume in 1884, and in the same year appeared the historical drama of Beoket. In 1885 appeared Tiresias and other Pooms; in 1886 Locksley Hall: and other Poems; in 1886 Locksley Hall: Sisty Years After, which also included The Promise of May; and in 1889 Demeter and other Poems, this last volume containing work of as high a quality as any of his previous writings. Tennyson was raised to the peerage in 1884 as Baron Tennyson of Aldworth, Sussex, and Freshwater, Isle of Wight. Few writers have developed so rare a Few writers have developed so rare a mastery of English as a poetic instrument, and his works have a high rank in the and his works have a high rank in the literature of the nineteenth century. He died October 6, 1892.—His brother CHARLES (born 1808; died 1879) assumed the name of Turner by royal license on succeeding to property at the death of his grandmother. He published, in conjunction with his brother, Poems by Two Brothers (Louth, 1827), now a great bibliographical rarity. He became Tenuirostres (ten-ū-i-ros'trēz; slender-beaked), one of the great bibliographical rarity. He became vicar of Grasby, Lincolnshire, in 1835, and published Sonnets (1864), Small four sections into Tableaux (1868), and Sonnets, Lyrics, and Translations (1873).

Tenor (ten'ur; in Italian, tenore), in music, is the more delicate of music, is the more delicate of This group, repaired by the humming-birds,

the two adult male voices, and its com-pass generally extends from C in the bass humming-birds, to G or A in the treble. The qualities creepers, sun-

of the tenor render it suitable to the birds, hoopoes, expression of tender and delicate etc., is character-tion of four parts, for mixed voices, ally elongated the tenor forms the second middle part, deeper than the alto, but higher than the bass; but in a song of the four male voices the tenor, as the first voice, leads the chief melody, and as the second is the higher middle voice. The clef of this voice is the C clef, placed

being counted by the number of pins that are caused to fall. Tenrec. See Tanrec.

Tent, a portable dwelling-place, formed usually in the simplest manner, of canvas, for instance, stretched with cords upon poles. Tents are much used for private purposes and everywhere for army shelter. The soldiers' tents in the United States army have ridged tops,

United States army have ridged tops, while those of the British army are circular, supported by a vertical pole in the center 10 feet high.

Tentacle (ten'ta-kl), in soology, an elongated appendage proceeding from the head or cephalic extremity of many of the lower animals, and used as an instrument of exploration and prehension. Thus the arms of the sea-anemone, the prehensile process. the sea-anemone, the prehensile processes of the cirripeds and annelids, the cephalic feet of the cephalopods, the barbs of fishes, are termed tentacles.

Tentaculites (ten-tak'd-lits), a genus of fossil shells, found abundantly in Siberian and Devonian strata. Some writers regard them as tubicular annelids, while others refer them to the pteropods. Tenthre'do. See Saw-fice.

Tenthre'do.

which the order Insessores of ally elongated bill, which usu-HEADS OF TENUIROSTRES. ally tapers to a step h Humping-hird

ally tapers to a s. sun-bit (Nectarina point.

Graphic (Trochius recurvivostris).

Tenures. See c. European Nuthatch (Sitta Buropea).

Tenure of. The clef of this voice is the C clef, placed upon the fourth line of the staff, as here shown.

Tenpins, a common game in the ancient temples of Mexico, of which there are extensive remains. They were the older English game of ninepins. The pyramids, built terrace-wise, with the pins (round pieces of wood) are set upthe older English game of ninepins. The pyramids, built terrace-wise, with the pins (round pieces of wood) are set upright in triangular form at the end of summit. They were constructed of earth, a long level platform, and are bowled faced with brick, and many still remain down by round bowls of varied size rolled in a more or less perfect state. The down the length of the platform, the game principal existing specimens are those



Teos (te'os), or Trios, anciently a town on the coast of Ionia, in Asia Minor, opposite Samos, the birthplace of the poet Anacreon.

antly situated in a valley between the Erzgebirge and Mittelgebirge, with a castle and fine park and gardens. It has celebrated thermal baths. The springs, seventeen in number, have a temperature varying from 99°.5 to 108°.5 and are efficacious in cases of gout and rheumatism. The bathing establishment is very complete, and during June and July the whole town is filled with visitors. Pop. 24,420.

See Tarai and Himálaya. Terai.

Teramo (ta'ra-mō), a town of South-ern Italy, capital of the prov-ince of same name, in an angle formed by the confluence of the Tordino and It is the see of a bishop, and has an old, though modernized, cathedral and remains of Roman baths and theater. Pop. 10,508.

Teraphim (ter'a-fim), household deities or images, reverenced by the ancient Hebrews. They seem to have been either wholly or in part of human form and of small size, were regarded as penates or household gods, and in some shape or other used as domestic oracles. They are mentioned several times in the Old Testament.

Teratology (ter-a-tol'o-ji), the division of physiological and anatomical science devoted to the investigation of abnormalities in the structure of animals and plants, and to the determination of the exact nature of the deviation from a normal type of struc-

Terbium (terbi-um), was the name given to a supposed earthmetal now found to be nearly identical

of Cholula, near Mexico, and of Palenstudies at Haarlem, and afterwards que, in Yucatan. See Cholula and visited Germany, Italy, Spain, England, and France. On the meeting of the Teos (te'os), or Teios, anciently a peace congress at Münster in 1646 he painted the assembled plenipotentiaries, which is now in the National Gallery, London. He subsequently visited Madrid, Tepic (tā-pēk'), a town of Mexico, in the state of Jalisco, pleasantly to Overyssel, married, and became burgo-situated and rendered peculiarly attractive by terraced gardens and shady promenades. It has manufactures of remarkable for elegance. He excelled in woolens and sugar, and mines in the neighborhood. Pop. 15,488.

Teplitz (tāp'litz), or Töplitz, a town of Northerr Bohemia, pleas-of Northe

Terce (ters), is a legal life-rent amounting to one-third of her deceased husband's landed estates recognized by the law of Scotland in favor of a widow who has not accepted of any special provision.

Terceira (ter-sā'ē-ra), an island of the Atlantic, one of the Azores; greatest length, 20 miles; average breadth, 13 miles; area, 223 square age breadth, 13 miles; area, 223 square miles. The soil possesses great natural fertility, and heavy crops of grain, pulse, etc., and abundance of oranges, lemons, and other fruits are produced. The capital is Angra. Pop. 48,770.

Terebinth (terebinth), the common name for various resinous exudations, both of a fluid and solid nature, such as turnentine, frankincense

ture, such as turpentine, frankincense and Burgundy pitch, Canada balsam, etc. The volatile oil of various of these resins is called oil of terebinth, or oil of turpentine. Terebinth is also a name for the turpentine-tree (which see).

Terebratula (ter-ē-brat'ū-la), a genus of deep-sea brachio-

pod bivalve molluscs found moored to rocks, shells, etc. One of the valves is perforated to permit the passage of a fleshy peduncle, by means of which the animal attaches itself. There are few living species, but the fossil ones are numerous, and are found most abundantly in the secondary and tertiary formations. Teredo (te-re'do). See Ship-worm.

Terek (tyā'rek), a Russian river which descends from Mount Kasbek, on the north side of the Caucasus, and flows into the Caspian by a number of branches; total course, about 300 miles. Terence (ter'ens), in full PUBLIUS TERENTIUS AFER (that is, metal now found to be nearly identical with erbium, and which has been resolved into several elements.

Terburg (ter'burg), or Terborch, and genre painter, born at Zwolle, near Overyssel, about 1617. His father, a good education. His master having historical painter, gave him his first lessons in painting. He continued his sumed the name of his benefactor, and

Terrier (ter'i-er), the name originally given to any variety of dog that dug or burrowed in the ground in pursuit of its quarry. Its present use is restricted to small or moderately small dogs of a number of breeds. The type of the class is the fox terrier (q, v). Terriers vary in size from the toy black and tan, and Yorkshire, very small breeds, to the Airedale (q. v.), the largest and heaviest of the class. The bull terrier, as its name implies, is a cross between the bulldog and the smooth-coated white terrier of early time. It is a quick, agile and powerful dog, of unfailing courage, and has been much used by the sporting fraternity as a pit dog, that is, a dog used to find the protection of the course. fraternity as a pit dog, that is, a dog used for fighting when matched against one of its own breed. The Boston terrier is an American breed, originated about 1870. It arose from breeding a brindle three-quarter English bulldog which had one-quarter terrier, and a pure white terrier of stocky build and low on the legs. A further breeding and colorion of the transfer of the transf further breeding and selection of this type as developed by the above cross, resulted in the standard Boston terrier, whose characteristics are a screw tail, a white blaze on the face and on chest and feet, a fine short and bright coat, and a deep. broad chest. It is a good tempered, courageous dog. There are many other breeds of terriers, as the Scotch, the Skye, the Bedlington, the Welsh and the Irish (q. v.), a very popular breed.

Territory (ter'i-tor-i), a section of the national domain not yet admitted to statehood. It has a governor, appointed by the President, with a legislature of certain limited powers. At present there are two-Alaska and Hawaii.

Terror (ter'er), REIGN of, the term usually applied to the period of the French revolutionary government from the appointment of the revolutionary tribunal and the committee of public safety (April 6, 1793) to the fall of Robespierre (July 27, 1794). See France (History).

Terry (ter'ri), ALFRED Howe, soldier, born at Hartford, Connecticut, in 1827. He engaged in the Civil war as a colonel of volunteers; became a briga-dier-general in 1862. He commanded a division in the army under Grant in the summer of 1864; became a major-general in the regular army, retiring in 1888. He died Dec. 16, 1890.

Terrestrial Magnetism. See Magnetism. She appeared on the stage in a child's part in 1856, and continued acting until 1864, when she married and left the stage. She returned in 1867, and in 1888 appeared at the Lyceum Theater with Henry Irving, with whom she afterwards remained, making several tours in wards remained, making several tours in the United States. Among her best parts are Portia, Pauline, and Ophelia, she playing the last to Irving's Hamlet. Terschelling (ter-skel'ing), an island of the Nether-lands, 10 miles off the coast of Friesland, between the islands of Vilaland and

between the islands of Vlieland and Ameland. It is about 15 miles long by 3 broad, is flat and sandy, and exposed in some parts to inundation. The inhabitants are chiefly pilots and fishermen. Page 2008 men. Pop. 3685.

Tertian Fever. See Ague.

Tertiary Formation. See Geology.

Tertullian (ter-tul'yan), in full QUINTUS SEPTIMIUS FLO-RENS TERTULLIANUS, the earliest Latin father of the church whose works are extant, flourished chiefly during the reigns of Septimius Severus and Caracalla (A. D. 193-217), became a presbyter, and continued orthodox till he had reached middle age, when he went over to the Montanists (see Montanus), and wrote several books in their defense. His most celebrated work is the Apologia, a formal defense of Christianity addressed to the Roman magistrates. Among other works whose period is not known is Adversus Hermogenem, in which Ter-tullian maintains the doctrine of the creation of the world out of nothing as opposed to the eternity of matter per se. The works of Tertullian display great learning, much imagination, and a keen wit, but their style is bad. They are chiefly valuable for the light they throw on the doctrine and discipline of the church in the age in which he lived. Tesho-lama. See Lamaism.

Tesla (tes'la), NIKOLA, born at Smiljau, Servia, in 1857. Becoming a skilled electrician, he came to the United States in 1884 and in 1885 entered the Edison works at Menlo Park, New Jersey. He subsequently set up an establishment of his own in New York. He has made important inventions in lighting and other uses of electricity. His most valuable device is his oscillator, a combination of dynamo and engine.

Tessellated Pavement, a pave-ment of Terry, Ellen Alice, actress, born at rich mosaic work, made of squares of Coventry, England, in 1848. marbles, bricks, or tiles, in shape and

disposition resembling dice, and known as tessere.

Tesserograph (tes'ser-ō-graf). the name applied to a machine for printing railway tickets as needed, invented by Robert Piscicelli Taeggi, an Italian engineer. One of these machines first in use in Italy printed any one of 400 different kinds of tickets at a cost of about one five-hundredths of a cent each.

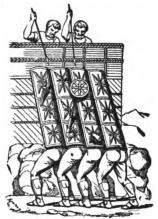
Test Acts, include all statutes which require persons holding public offices to profess certain religious beliefs. In England, from the time of the Reformation onwards, a large number of such acts were passed in favor of the Established Church. The various test acts were for the most part repealed in 1829.

Testament. See Will.

Testing (test'ing), the process of extesting amining various substances by means of chemical reagents, with the view of discovering their composition. The term testing is usually confined to such examinations as seek to determine what chemical elements or groups of elements are contained in any substance, without inquiring as to the quantity of these elements. Testing is carried out cither by the application of chemical reactions to solid substances, or by the application of reagents in solution to a solution of the substance under examination. Test-papers, soaked in solutions of solutions of the substance under examination. Test-papers, soaked in solutions of fossil representatives (Orthoceras, Amonites, etc.) are abundant. See Nonalkalies, and, in some instances, of special chemical compounds. The most common

Testudo, among the ancient Romans a cover or screen which a body of troops formed with their oblong shields or targets, by holding them over their heads when standing close to each other. This cover somewhat resembled the back of a tortoise, and served to shelter the men from missiles thrown from above. The name was also given to a structure movable on wheels or roll-

Tetanus (tet'a-nus), a spasmodic rigidity of the whole body, such as frequently results from wounds. The affection occurs more often in warm climates than in cold. If the lower jaw is drawn to the upper with such force that they cannot be separated the disorder is called lock-jaw (trismus). Tetanus frequently terminates fatally.



Roman Testudo, from Trajan's Pillar.

Tête-du-pont (tāt-du-pon), in forti-fication, a work that defends the head or entrance of a bridge

alkalies, and, in some instances, of special chemical compounds. The most common test-papers are litmus and turmeric papers.

Testudo (tes'tū-dō). See Tortoise.

among the ancient Romans It is one of the five regular solids.

Testudo, a cover or screen which a cover or Tetra'o. See Grouse.

> Tetrarch (tet'rark), a title which originally signified the governor of the fourth part of a country. By the Romans the title was used to designate a tributary ruler inferior in dignity to a king.
>
> Tetrastyle (tet'ra-stil), in ancient architecture, having or consisting of four columns, or having a

portico consisting of four columns.

Tetuan (tet-6-an'), a town of Morocco, on the northern coast of Africa, 33 miles southeast of Tangier. It is about 1 mile from the Mediterranean, is surrounded by walls and defended by a castle, and carries on an active trade. The environs are extensively

planted with vineyards and gardens. Pop. 25,000.

(tet'zel), Johann, a man Tetzel whose name has become prominent in connection with the Reformation, was born about 1470, at Leipzig, where was born about 1210, at Leipzig, where he studied theology. He entered the order of the Dominicans, and in 1502 was appointed by the Roman see a preacher of indulgences, and carried on for fifteen years a successful propaganda of them. It was his preaching in Saxony of the indulgence in behalf of the naturally in Propaganda of St. Detay's in Propaganda. Saxony of the induspence in behalf of the rebuilding of St. Peter's in Rome that roused Luther to revolt. Though many of the sayings attributed to him by his critics are fictitious, yet there is little doubt that he often indulged in frivolity and went farther in his promises than the teaching of his church authorized him to go. The best Roman Catholic historians condemn him for exaggeration, Tetrel died of the plague in 1519, in the Dominican convent at Leipzig. See Luther.

Teuthis. See Squid.

Teutoburg Forest (toi-to-börg'), or TEUTOBURGER WALD, a hilly district of Germany, in Westphalia, where Arminius defeated the Roman general Varus, A.D. 9. See Arminius.

Teutones (tū'tun-ēs), a tribe of Germany, which, with the Cimbri, invaded Gaul in B.C. 113. In B.C. 102 they were defeated with great slaughter near Aque Sextise (Aix in the department of Bouches du Rhône) by the Roman general Marius. A tribe of the same name is mentioned by Pliny and others as inhabiting a district north and others as inhabiting a district north

inhabitants of Upper and Middle Germany and those of Switzerland and Austria. (2) The Low Germans, including the Frisians, the Plattdeutsch, the Dutch, the Flemings and the English descended from the Saxons, Angles, etc., who settled in Britain. (3) The Scandinavians, including the Norwegians, Swedes, Danes and Icelanders. See Philology, Indo-European Languages.

Tewfik Pasha (tu'fik pa-sha'), Ma-HOMMED, Khedive of Egypt, eldest son of Khedive Ismail, was born in 1852, and succeeded to the viceroyalty by decree of the sultan, August 8, 1879, upon the forced abdication of his

1879, upon the forced abdication of his father. He was the sixth ruler of Egypt in the dynasty of Mahommed Ali Pasha. He died January 7, 1892. See Egypt.

Tewkesbury (tüks'be-ri), a market-town and municipal borough of England, in Gloucestershire, at the conflux of the Severn and Avon. The parish church is a noble pile of building in the Norman style, and one of the largest in England. It is part of the monastery of Tewkesbury. Pop. the monastery of Tewkesbury. Pop. (1911) 5287.

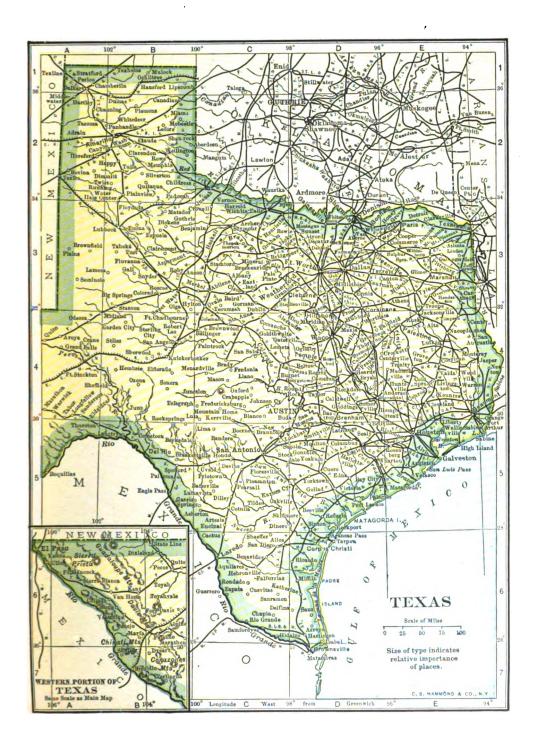
(teks-ar-kan'a), a town of Bowie Co., Texas, ad-Texarkana jacent to a town of the same name, capital of Miller Co., Arkansas. The two towns form a single municipality. It has car and engine works, cotton-seed

It has car and engine works, cotton-seed oil mills, manufactures of lumber, furniture, etc. Pop. of Texarkana, Texas, 9790; of Texarkana, Arkansas, 5655.

Texas (teks'as), the most southwesterly of the Gulf States of the American Union, is bounded N. by New Mexico, Oklahoma, and Arkansas, E. by Oklahoma, Arkansas and Louisiana, W. by New Mexico, S. W. by Mexico, and S. E. by and others as innabiting a district north of the Elbe, which appears to have been New Mexico, s. w. by Mexico, and s. E. by the original settlement of the Teutones before their invasion of Gaul. See Teutonic Peoples.

Teutonic Knights (tū-ton'ik nits), a military religious order of knights, established to-southeast, subside into hills and undulating the clean of the treatist century in pains succeeded on approaching the ward the close of the twelfth century, ing plains, succeeded, on approaching the initiation of the Templars and Hospitallers. It was composed chiefly of These extend inland from 20 to 80 miles, Tautons or Germans who marched to the are traversed by numerous rivers, and Holy Land in the Crusades, and was consist for the most part of rich prairie established in that country for charitation or forest land. The hilly region behind they acquired Poland and Prussia, and they acquired Poland and Prussia, and they long held sway over a great extent of territory in this part of Europe. The of the country gives all the rivers a more order began to decline in the fifteenth century, and was finally abolished by Napoleon in 1809.

Tautonic Paoples a term now an entire first to southerst boundary of the State. The Red Piver forms the State. The Red Piver forms the State. The Red Piver forms the State. Teutonic Peoples, a term now ap-River forms the greater part of the north-High Germans, including the German rivers are the Colorado, the Brasos, the



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boundary between Texas and Louisiana. by the Spanish in The great timber region of the state lies won its independence Texas became one between the Sabine and the Trinity a of the Mexican states. Several colonies region generally level and sandy in the of American citzens, invited by the south, with extensive pine forests, but Mexicans, settled in the eastern section, rolling and fertile in the north. Between and gradually increased in numbers. The Trinity and the Colorado prairie land extends, timbered along the streams, but government, and in 1836 declared itself in the north there is an extensive forest, independent. Santa Anna attempted to extending through Central and Western and taken prisoner at the battle of San and taken prisoner at the battle of extends, timbered along the streams, but in the north there is an extensive forest, extending through Central and Western Texas to the Red River and called the 'Cross Timbers.' The timber area embraces about 42,000,000 acres, 25,000,000 being in nines. The pecan tree, a valubraces about 42,000,000 acres, 20,000,000 being in pines. The pecan tree, a valuable nut-bearing tree, is widely distributed and yields largely. Western Texas is chiefly prairie. A long chain of lagoons stretches along the Gulf of Mexico. The soil of Texas is, on the whole, extremely fertile. The stable products are tremely fertile. The staple products are cotton and maize, both of which are largely cultivated. In the lower or coast largely chicivated. In the lower or coast region, the sugar-cane and rice also grow luxuriantly. Wheat grows chiefly in the north and center. Rye, oats, barley, to-bacco and sweet and white potatoes are grown to some extent, and both in the elevated and the lower levels fruits in almost and less variety are abundant almost endless variety are abundant. Texas leads the states in cotton production, yielding one-fifth of the world's crop. Sea-island cotton is grown in the south. Thousands of acres are under irrigation from flowing acres are under irrigation. rigation from flowing artesian wells, mainly in the southwest. The pastures mainly in the southwest. The pastures are often covered with the richest grasses, and the rearing of cattle, sheep and swine is carried on very advantageously. The minerals include copper, of which there are large deposits; argentiferous galena, which is also abundant; coal, including a field of lignite about 6000 sq. miles in area; iron, occurring in very large quantities; asphaltum, which occurs abundant; salt, obtained from rich salt springs; petroleum, of recent discovery and now very largely produced; saltpeter, marble, alate, potter and fire-clay, and fertilizers in great abundance. The manufactures of Texas, which increased 300 per cent. in the period from 1890 to 1910, depend largely for their raw materials upon the stock-raising, agriculting and mineral products of the state, and have been greatly stimulated by the 1910, depend largely for their raw macterials upon the stock-raising, agricultural and mineral products of the state, the East India Company. At the age of and have been greatly stimulated by the rapid increase in the production of these for his education, and was placed at the materials. Galveston, an important comercial center in the state, is one of the Charterhouse School, London, afterwards mercial center in the state, is one of the continuing his studies at Cambridge largest ports of entry in the South, and He left the university without taking a Sabine is also a port of growing promedge; and, being well provided for, he inence. These avenues of transportation chose the profession of an artist. He afford excellent opportunities for interspent several years in France, Germany state, domestic, coastwise and foreign and Italy, staying at Weimar, Rome

Trinity, and the Sabine, which, during commerce. The first permanent settle-the greater part of its course, is the ment in Texas was made at San Antonio boundary between Texas and Louisiana. by the Spanish in 1718. After Mexico and taken prisoner at the battle of San Jacinto by General Houston. Texas now managed its own affairs as an independ-ent republic till 1845, when it became one of the United States, and thus gave rise to a war which proved disastrous to Mexico. It joined the Confederates dur-ing the Civil War, and was the last state to submit. It was under military control till 1870, when it was restored to the Union. Austin is the capital, and other chief towns are Galveston, San Antonio, Houston, Dallas, Fort Worth, Waco, etc. Its growth has been rapid. Pop. 3,896,-542.

Texel (teks'el), an island of the province of North Holland, 14 miles in length and 6 in its greatest breadth, situated at the entrance of the Zuyder Zee, and separated from North Holland by the narrow channel of Mars-Diep. the harrow channel of Mars-Diep. The island furnishes excellent pasture for sheep, and it is noted for cheese made from sheep's milk. It is well secured with dikes of prodigious strength and height. Pop. 5854.

Tezcoco (tes-kō'kō), or Texcoco, a town of Mexico, in the desagrant at Marico, or the sestern shore.

and Paris, but gradually became convinced that art was not his vocation, and having meanwhile lost his fortune, he resolved to turn his attention to literature. His first appearance in this sphere was as a journalist. Under the name of George Fitz-Boodle, Esq., or of Michael Angelo Titmarsh, he contributed Angelo Titmarsh, he contributed to Frazer's Magazine tales, criticisms, verses, etc., which were marked by great knowledge of the world, keen irony, or playful humor. It was in this magazine that The Great Hoggarty Diamond, Yellowplush Papers, and Barry Lyndon appeared. In 1840 he published separately the Paris Sketch-book, in 1841 the Second Papers of Nagaleon and the Chemick Funeral of Napoleon and the Chronicle of the Drum, and in 1843 the Irish



William Makepeace Thackeray.

Sketch-book. None of these writings, however, attained to any great popularity. In 1841 Punch was started, and his contributions to that periodical, among others Jeames' Diary, and the Snob Papers, were very successful. In 1846-48 his novel of Vanity Fair was published in monthly parts, with illustrations by himself: and long before its published in monthly parts, with illustrations by himself; and long before its completion its author was unanimously placed in the first rank of British novelists. His next novel was the *History of Pendennis*, completed in 1850. In 1851 he delivered a course of lectures in London on the *English Humorists of the Eighteenth Century*, which was repeated in Scotland and America and published in Eighteenth Century, which was repeated later Brazil. He died April 28, 1871. in Scotland and America, and published in 1853. Another novel, The History of Cluding sonatas, studies, a concerto, seventers followed by The Newcomes (1855), and eral nocturnes, and other small pieces. Was followed by The Newcomes (1855). Thaler (tä'ler), a silver coin formerly in use in Germany, of to Esmond; Lovel the Widower, The Adventures of Philip, and Denis Duvol, which was left unfinished at his death. In 1855-56 he delivered a series of lectures in the United States—The Four Greece, and the founder of the Ionian

Georges, and afterwards in England and Scotland. In 1859 he became editor of the Cornhill Magazine, in which his later novels and the remarkable Roundabout Papers appeared, but he retired from that post in 1862. He wrote a good deal of verse, half-humorous, half-pathetic, and often wholly extravagant, but all characterized by grace and spontaneity. He undoubtedly ranks as the classical English humorist and satirist of the Victorian reign, and one of the greatest novelian reign, and one of the greatest novelists, essayists, and critics in the literature. A collection of letters by Thackeray was published in 1887.—His daughter, Anne Isabella (Mrs. Richmond Ritchie), born in 1838, inherited much of her father's literary talent. Her first story appeared in Cornhill in 1860, and was called Little Scholars in the London Schools. It was followed by the Story of Elizabeth in 1867. Old Kensington, which followed soon after, is probably the work by which she will be best known. Among her other works are Blue known. Among her other works are Blue Beard's Keys, Toilers and Spinsters, Miss Angel and Mrs. Dymond.

Thais (thais), an Athenian courte-san, famous for wit and beauty, who was in Asia with Alexander the Great, and is said—on doubtful authority - to have induced him to burn the palace of Persepolis.

Thalamifloræ (thal-a-mi - flo'rē), a class of exogenous or dicotyledonous plants in which the petals are distinct and inserted with the stamens on the thalamus or receptacle.

Thalberg (thilberh), Steismund, a celebrated pianist, was born in Geneva in 1812, received his first instruction on the planoforte in Vienna, and already as a boy was famous as a performer. Towards the end of 1835 he went to Paris, where he at once estab-lished his fame. He subsequently visited England, the Netherlands, Russia and Italy, being everywhere received with the greatest enthusiasm. During the years from 1865 to 1868 he visited Brasil and the United States, and after several years' retirement on an estate he had purchased near Naples, he once more visited Paris and London (1802), and later Brazil. He died April 28, 1871.

school, was born about 640 B.C. He is of cells. Thallogens include algae, charwhere he received instructions from the Thallus (thal'us), in botany, a solid priests. from whom he probably acquired Thallus (as of cells, or cellular tispriests, from whom he probably acquired mass of a knowledge of geometry. After his resue without turn his reputation for learning and wis- woody fiber, conturn his reputation for learning and wisdom became so great that he was sisting of one or
reckoned among the seven wise men, and
his sayings were held in the highest considered by the ancients. He died about of a flat stratum
s.c. 548. His philosophical doctrines or expansion, or
were taught orally, and preserved only in the form of
by oral tradition, until some of the later a lobe, leaf, or
Greek philosophers, particularly Aristotle,
frond, and formcommitted them to writing. He considered water, or rather fluidity, the
elemental principle of all things. His
philosophical doctrines are, however, but
imperfectly understood.

woody fiber, conmore layers, ususly in the form of a flat stratum
of the form of
prome of the later a lobe, leaf, or
frond, and forming the substance
of the thallogens.

Thames(temz),
the most impor-

imperfectly understood.

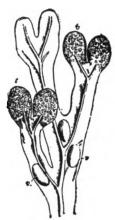
Thalia (tha-li'a), one of the nine
Muses. She was the patron of comedy, and is usually represented with the comic mask and the shepherd's crook in her hand. One of the Graces was also called Thalia.

Thallium (thal'i-um; from Gr. thal-los, a green twig), a metal discovered by Crookes in 1861, in a dediscovered by Crookes in 1861, in a deposit from a sulphuric acid manufactory in the Harz. In its physical properties thallium resembles lead, but is slightly heavier, somewhat softer, and may be scratched by the finger-nail. It fuses under a red heat, and is soluble in the ordinary mineral acids. In color it resembles silver, but is less brilliantly white. Its specific gravity varies from 11.8 to 11.9, according to the mechanical 11.8 to 11.9, according to the mechanical treatment to which it has been subjected. The tenacity of the metal is less than that of lead; it is possessed of very considerable malleability. Thallium and its salts impart an intense green color to a non-luminous flame; when a flame so colored is examined by the spectroscope one very brilliant green band is noticed, somewhat more refrangible than the sodium line D. (See Spectrum.) The dium line D. (See Spectrum.) The salts of thallium are exceedingly poisonous. The symbol adopted for this metal is Tl, and the atomic weight 203.64. With oxygen it forms two compounds, Tl,O, Tl,O,. Small quantities of thallium appear to be widely distributed in nature, the metal frequently occurring in iron and copper pyrites, in native sulphur,

Thallogens (thal'o-jens), one of the primary divisions of the vegetable kingdom, comprehending those cryptogamous plants which are extremely

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the most important river of Great Britain, is usually said rise about three miles southwest of Cirencester in Gloucestershire, near a bridge over the Thames over the Thames Thallus of Fucus Ves and Severn iculosus. t, t, Fructifica Canal, called tion. v, v, Air blad Thameshead ders.



v, v, Air blad-

Bridge, but is more properly formed by the Isis, Churn, Coine and Leach, which have their sources on the east side of the Cotswold Hills, and unite near Lechlade, where it becomes navigable for barges. Thence it flows E., past Oxford and Abingdon to Reading, after which its course is mostly E, with great bendings and windings, to its output in the North Sea, passing through London in its course. Below through London in its course. Below London it flows eastward to the Nore, a broad estuary, its mouth being about 60 miles below the capital. Its total course is estimated at 250 miles. It pursues a winding way through London, with an average width of about 1000 feet. The Basin of the Thames has an area of 5400 square miles, and belongs entirely to the square miles, and belongs entirely to the upper part of the Secondary and to the Tertiary formations. The depth of the river in the fair way above Greenwich to London Bridge is 12 to 13 feet, while its tides have a mean range of 17 feet and an extreme rise of 22 feet. (See also London.) By means of numerous canals immediate access in given from its heats immediate access in given from its heats. immediate access is given from its basin to those of all the great rivers of England.

Thana (ta'na), Tanna, chief town of a district of the same name, simple in their structure, and possess a district of the same name, nothing like the green leaves of phanerspamous plants. They have no woody Bombay city. It is a favorite residence aber properly so called, being mere masses with the Bombay officials. Pop. 16,011. Thane (than), a title of honor among Hampshire, in 1835; died in 1894. She the Anglo-Saxons. In Engressided for years on the Isle of Shoals, land a freeman not noble was raised to and wrote Among the Isles of Shoals, the rank of a thane by acquiring a certain Drift Wood, Poems for Children, etc. portion of land—five hides for a lesser thane—by making three sea-voyages, or by receiving holy orders. Every thane had the right of voting in the witenage—in Boston in 1840. He was a pupil of had the right of voting in the witenage—in Boston in 1840. He was a pupil of had the right of voting in the witenage—in Boston in 1840. He was a pupil of had the right of voting in the witenage—in Boston in 1840. He was a pupil of had the right of the shring were be mentioned The Virgin, The Virgin Entoned is discussed. With the growth of the throned and Caritas.

Theatines (the'a-tins), an order of thanes (those in the personal service of the solution of the king and the solution of the king and the solution of the After the Norman conquest thanes and barons were classed together. In the reign of Henry II the title fell into disuse. In Scotland the thanes were a class of non-military tenants of the crown, and the title was in use till the end of the fifteenth century.

Thanet (than'et), ISLE OF, a district of England in the county of Kent, at the mouth of the Thames, separated from the mainland by the river Stour on the south and the rivulet Nethergong on the west, with an area of 41 sq.

Thanksgiving Day, an annual of thanksgiving for the mercies of the clos-ing year, originating in New England in 1621, after the first harvest at the Plymouth settlement. It slowly spread to the other colonies, and since 1863, when President Lincoln issued a proclamation recommending its national observance, his example has been followed by succeeding presidents, the last Thursday of No-vember being chosen as Thanksgiving Day and kept as a holiday throughout the Union.

Thann (tan), Germany, in Alsace, has a fine Gothic church with a spire of open work 328 feet high, and has manufactures of woolens, cottons, etc.

Pop. 7901.

Thar and Parkar (tur, pär'kur), a district in the east of Sind, British India. It is divided into two districts, the 'Pat' or plain of the Eastern Nara, and the 'Thar' or desert. Area, 12,729 sq. miles. Chief town, Umarkot or Amarkote, the birthplace of Akbar. Pon. 4924. place of Akbar. Pop. 4924.

Thase (thä'sō), the ancient Thases, an island in the Egean Sea, a few miles south of the Macedonian coast,

themselves to preach against neverties, attend the sick and criminals, and not to possess property or ask for alms. The order formerly flourished in France, Spain, and Portugal, but is now chiefly confined to the Italian provinces.

Theater (the a-ter; Greek, theatron), an edifice appropriated to the representation of dermatic spectacles.

the representation of dramatic spectacles. Among the Greeks and Romans theaters were the chief public edifices next to the temples, and in point of magnitude they surpassed the most spacious of the temples, having in some instances accommodation for as many as from 10,000 to 40,000 spectators. The Greek and Ro-man theaters very closely resembled each other in their general form and principal parts. The building was of a semicircu-



Theater of Segesta, Sicily — restored.

lar form, resembling the half of an amphitheater, and was not covered by a roof. In Greece the semicircular area was often scooped out in the side of a hill, but Roman theaters were built on the level. The seats of the spectators were all concentric, being arranged in tiers up the semicircular slope. The stage or place for the players was in front of the seats, belonging to Turkey.

CELIA, an American poet, born in New rose a high wall resembling the façade of Theater Thebes

a building, this being intended to represent any building in front of which the action was supposed to take place. This was called in Greek skene (L. scena), the stage being called proskenion (L. pros-cenium). The semicircular space between the stage and the lowest seats of the spectators was called orchestra, and was appropriated by the Greeks to the chorus and musicians, and by the Romans to the senators. Scenery, in the modern sense of the word, was not employed except in a very rude form, but the stage machinery seems in many cases to have the property and in particular there been elaborate; and in particular there was a well-known machine or contrivance of some sort from which deries made their entrance as if from the sky. A good existing example of an ancient theater is that of Segesta in Sicily.

Between the decline of the ancient and the rise of the modern drama there is a long interval, in which the nearest aplong interval, in which the nearest approach to theatrical entertainments is found in miracle plays, mysteries, and interludes. These performances took place in churches, convents, halls, etc., or in the open air. In 1548 the Confraternity of the Trinity opened a theater in Paris, in which they performed secular pieces. The first theater erected in Italy access to have been that of Florence, built seems to have been that of Florence, built in 1581, but the first building that approaches the modern style was one constructed at Parma in 1618. In England there were organized companies of actors as far back as the time of Edward IV, but as there were no regular playhouses the performances took place in tennis-courts, inn-yards, and private houses. The London Theater was built before 1576, and the Curtain in Shoreditch and the play-houses in Blackfriars and Whitefriars date from about the same time. Shakes-peare's plays were brought out at the house in Blackfriars and at the Globe on the Bankside, both of which belonged to the same company, to whom James I granted a patent in 1603. The Globe was a six-sided wooden structure, partly open at the top and partly thatched. Movable scenery was first used on the public stage by Davenant in 1662, and about the same time this manager introduced women to play female characters, hitherto taken by boys and men. Modern theaters are all boys and men. Modern theaters are an of Rameses 111, on the other of left bank very much alike in their internal construction. The house is divided into two both for the grandeur of their architecture distinct portions, the auditorium and the stage, the former for the spectators, the sculptures. (For plan of former see latter for the actors and scenery, which is often of the most elaborate and realistatues of Amenoph III, one of them tic kind. The floor of the auditorium known as the vocal statue of Memnen is always sloped down from the back of (which see). In the interior of the the house to the stage; several tiers of mountains which rise behind are found very much alike in their internal con-struction. The house is divided into two distinct portions, the auditorium and the

galleries or balconies run in a semicircular or horseshoe form round the house. The seats in the galleries rise terracewise from the front, so as to allow the persons in the back rows to see on to the stage over the heads of those before them. Immediately in front of the stage is a space occupied by the orchestra. Part of the stage flooring is movable, either as traps through which actors or furniture ascend or descend, or in long narrow pieces which are drawn off at each side of the stage to allow the passage of the rising scenes. Within recent years there have been great improvements in the art of stage setting, for the production of naturalistic effects, and the stage of to-day presents an extraordinary advance over that of the past centuries.

The hear (thebs), an ancient central of

Thebes (thebz), an ancient capital of Egypt, in Upper Egypt, on both sides of the Nile, about 300 miles s. s. E. of Cairo, now represented by the four villages of Luxor, Karnak, Medinet Habu and Kurneh, as well as by magnif-icent ruins which extend about 9 miles along the river. When Thebes was founded is not known; the period of its greatest prosperity reaches from 1500 to 1000 B.C. The ruins comprise magnificent temples, rock-cut tombs, obelisks decorated with beautiful sculptures. long avenues of sphinxes, and colossal statues. The largest of the temples is that at Karnak, which is about 11 mile in circumference. The great hall of the temple (or hall of columns'; see Egypt, section Architecture), the most magnificent in Egypt, measures 329 feet by 170, and the roof was originally supported by 134 gi-gantic columns, of which 12 forming the central avenue are 62 feet high and 11 feet 6 inches in diameter, the others, which are in rows on either side, being fully 42 feet in height and 28 in circumference. Within the temple courts are several obelisks of red granite; one—the largest obelisk known—is 108 feet 10 inches high and 8 feet square. Above Karnak are the village and temple of Luxor, the latter at one time connected with Karnak by an avenue of sphinxes (some of which still remain) about a mile long. The Memnonium or temple of Rameses III, and the temple and palace of Rameses III, on the other or left bank of the river are objects of great interest.

the tombs of the kings of Thebes, excavated in the rock, the most remarkable being that of Sethi I, discovered by Belzoni, and containing fine sculptures and paintings.

Thebes, a city of ancient Greece, the principal city of Bæotia, the birthplace of Pindar, Epaminondas, and Pelopidas, was situated about midway between the Corinthian Gulf and the Eubæan Sea. Cadmus is said to have founded it in 1500 B.c. It lost much of its influence in Greece through its perfidious leagues with the Persians. Under the brilliant leadership of Epaminondas and Pelopidas it became the leading state in Greece, but its supremacy departed when the former fell at the battle of Mantinea (B.C. 302). From this time the city never recovered its former importance, and gradually disappeared from history. The modern Thebes or Thiva is an unimportant town of some 3000 inhabitants.

Theca (the ka), in botany, the sporecase of ferns, mosses, etc.

Theft. See Larceny.

Theine (the'in). See Caffeine.

Theism (the izm), the belief or acknowledgment of the existence of God, as opposed to Atheism. See Deism.

Theiss (tIs), a river of Hungary, formed in the east of the kingdom by the junction of the Black and the White Theiss, both descending from the Carpathians and flowing into the Danube about 20 miles above Belgrade; length, about 800 miles. It is the second river in Hungary, being inferior only to the Danube, with which, for about 100 miles, the

lower part of its course is almost parallel. Its principal tributary is the Maros from the east.

Themis (them'dess of law and
justice among the
Greeks, was the
daughter of Urānus and Gē
(Heaven and
Earth); according to some, of
Helios, or the
Sun.

Themistocles

(the-mis'tu-klēz), an Athenian commander, born in



Themistocles.

514 B.C. On the second invasion of Greece by Xerxes, Themistocles succeeded by bribery in obtaining the command of the Athenian fleet, and in the battle of Salamis which followed (B.C. 480), the Persian fleet was almost totally destroyed, and Greece was saved. The chief glory of the victory is due to Themistocles. Subsequently he was accused of having enriched himself by unjust means, and of being privy to designs for the betrayal of Greece to the Persians. Fearing the vengeance of his countrymen, he, after many vicissitudes, took refuge at the Persian court. The Persian throne was then (465 B.C.) occupied by Artaxerxes Longimanus, to whom Themistocles procured access, and whose favor he gained by his address and talents, so that he was treated with the greatest distinction. He died in 449, according to some accounts by his own hand.

Theobald (the u-bald: often pronounced tib'ald), LEWIS.

an English writer, born about 1690. was
brought up to the profession of the law,
but early turned his attention to literature, and wrote some plays, now quite forgotten. Pope was meanly jealous of him,
and ridiculed him in his Dunciad. Theobald, however, had his revenge, his edition of Shakespere (1733) completely
supplanting Pope's. He did great service to literature by this painstaking
work, many of his emendations having
been adopted by subsequent editors. He
died in 1744.

Theobroma (the-o-bro'ma). See Ca-

Theocracy (the-ok'ra-si), that government of which the chief is, or is believed to be, God himself, the priests being the promulgators and expounders of the divine commands. The most notable theocratic government of all times is that established by Moses among the Israelites.

Theocritus (the-ok'ri-tus), a Greek poet, born at Syracuse, who flourished about B.C. 280. We have under his name thirty idyls, or pastoral poems, of which, however, several are probably by other authors. Most of his idyls have a dramatic form, and consist of the alternate responses of musical shepherds. His language is strong and harmonious, and his poetical ability high, his bucolic poems being regarded as masterpleces of their kind.

Theodolite (the-od'u-lit), a surveying instrument for measuring horizontal and vertical angles by means of a telescope, the movements of which can be accurately marked. This instrument is variously constructed, but

Theodoric Theodora

its main characteristics continue un-altered in all forms. Its chief features are the telescope, a graduated vertical circle to which it is attached, two concentric horizontal circular plates which turn freely on each other, and two spirit-levels on the upper plate to secure exact horizontality, the whole being on a tripod stand. The lower plate contains the divi-sions of the circle round its edge, and the upper or vernier plate has two vernier divisions diametrically opposite. The opposite. The



Theodolite.

plates turn on a double vertical axis. To measure the angular distance horizontally between any two objects, the telescope is turned round along with the scope is turned round along with the Nestorius and the overpearing and inforvernier circle until it is brought to bear erant Cyril of Alexandria, he was deexactly upon one of the objects; it is then posed at the so-called robber council of turned round until it is brought to bear Ephesus, a sentence which was reversed on the other object, and the arc which the year that the general council of Chalcedon in vernier has described on the graduated 451. Theodoret appears to have died in circle measures the angle required. By 457 or 458. The most important of his means of the double vertical axis the observed and the overhearing and intorvernier may be repeated any number our books of the Old Testament and on servation may be repeated any number of times in order to ensure accuracy. The graduated vertical circle is for taking altitudes or vertical angles in a similar way. The theodolite is a most essential instrument in surveying and in geodetical operations.

Theodora (the-o-do'ra), the wife of the Byzantine emperor Justinian, of low birth, at one time a dancer on the stage, and notorious for licentiousness. She later assumed the character of throne. In 493, after several bloody ena pious benefactor of the church, and gagements, Theodoric induced Odoacer, died in 548, aged forty. See Justinian I. who had assumed the title of King of
Theodore (the u-dor), one of the most distinguished ecclesiastical writers of his age, born at Antioch about the middle of the fourth century. about the middle of the fourth century. have himself proclaimed sole ruler. The-

Early in life he followed the example of Chrysostom in embracing the monastic life. He was ordained priest, and for fifty years distinguished himself as a zealous opponent of the heresies of Arius, Apollinarius, and others. From Antioch he removed to Tarsus, and in the year 392 or 394 was chosen bishop of Mopsuestia in Cilicia, dying in 429. Only a few fragments of his works are extant, the most important of them being companying on almost all the bodg of the mentaries on almost all the books of the Bible, and various polemical treatises. His doctrine approximated somewhat to that of Pelagius, and was later considered heretical.

Theodore II, King of Abyssinia, born in the province of Kwara in 1818, for many years a rebel, finally fought his way to the throne (1855). He was a man of great parts, an inveterate foe of Islamism, a born ruler, and an intelligent reformer. But intolerance of any power save his own finally made a tyrant of him; and in consequence of the imprisonment of Consul Cameron and other British subjects he brought upon himself a war with England, which ended, April 13, 1868, in the storming of Magdala and the death (supposedly by suicide) of Theodore. See Abyssinia.

Theodoret (the-od'u-ret), a distin-guished ecclesiastical his-torian and theological writer, born at Antioch about the close of the fourth century, and in 420 or 423 raised to the bishopric of Cyrus or Cyrrhus. Becoming involved later in the quarrel between Nestorius and the overbearing and intolous books of the Old Testament and on the Pauline epistles; Ecclesiastical His-

Theodoric (the od'u - rik), King of the Ostrogoths; born in A.D. 455, died in 526; was the son of Theodemir, king of the Ostrogoths of Pannonia. From his eighth to his eightheanth wear he lived as a bostage with the eenth year he lived as a hostage with the Emperor Leo at Constantinople.

odoric ruled with great vigor and ability. He attached his soldiers to his service by assigning them a third part of the lands of Italy, on the tenure of military service; while among his Italian subjects, whom he conciliated by introducing an improved administration of justice, he encouraged industry and the arts of peace. Although, like his ancestors, he was an Arian, he never violated the peace or privileges of the Catholic Church.

Theodosius (the-o-do'shi-us), a Christian Roman emperor, born in Spain about 364, and selected by the Emperor Gratian, in 379, for his partner in the empire. To his for his partner in the empire. To his care were submitted Thrace and the eastcare were submitted Thrace and the eastern provinces, which he delivered from an invasion of the Goths, concluding a peace with them in 382. On the defeat and death of Maximus (388) he became the sole head of the empire, Gratian having been previously killed in the war against Maximus. In 390 a sedition took place in Thessalonica, and in regarge for this act. Theodosius caused the venge for this act, Theodosius caused the venge for this act, Theodosius caused the people of the city to be invited to an exhibition at the circus, and when a great concourse had assembled they were barbarously murdered by his soldiery, to the number, it is computed, of 7000. St. Ambrose refused him communion for eight months on account of this crime, and Theodosius submitted humbly to the punishment. He died at Milan, A.D. 395, leaving the eastern portion of the empire leaving the eastern portion of the empire to his son Arcadius, the western to his keeping.
son Honorius. He distinguished himself Theophrastus Paracelsus. by his zeal for orthodoxy, and his intolerance and persecution of Arianism and other heresies.

Theology (the-ol'o-ji; Greek Theos, God, and logos, doctrine) is the science which treats of the existence of God, his attributes, and the Divine will regarding our actions, present con-dition, and ultimate destiny. In refer-ence to the sources whence it is derived, theology is distinguished into natural or philosophical theology, which relates to the knowledge of God from his works by the light of nature and reason; and su-pernatural, positive, or revealed theology, which sets forth and systematizes the doctrines of the Scriptures. With regard to the contents of theology, it is classified into theoretical theology or dogmatics, and practical theology or ethics. As comprehending the whole extent of religious science, theology is divided into ple. not to the quality of a personal God. four principal classes, historical, exception of Christian doctrines. Exegetical theology the merely materialistic stand-point has

ogy embraces the interpretation of the Scriptures and Biblical criticism. Systeassigning them a third part of the lands matic theology arranges methodically the of Italy, on the tenure of military server great truths of religion. Practical theologics; while among his Italian subjects, ogy consists of an exhibition, first, of whom he conciliated by introducing an precepts and directions; and secondly, of improved administration of justice, he the motives from which we should be expected to comply with these. Apologetic and polemic theology belong to several of the above-mentioned four classes at once. The scholastic theology attempted to clear and discuss all questions by the aid of human reason alone, laying aside the study of the Scriptures, and adopting in-stead the arts of the dialectician.

Theophrastus (the -o - fras'tus), a celebrated Peripatetic philosopher, was born at Lesbos early in the fourth century B.C., and studied at Athens, in the school of Plato, and afterwards under Aristotle, of whom he was the favorite pupil and successor. On the departure of Aristotle from Athens after the judicial murder of Socrates he became the head of the Peripatetic school of phithe head of the Fernatetic school of philosophy, and composed a multitude of books—dialectic, moral, metaphysical, and physical. We possess two entire books of his botany, but only fragments of his other works, such as those on Stones, on the Winds, etc.; and his Characters or sketches of types of characters by for the most calculation. acter, by far the most celebrated of all his productions. He died in 287 s.c. To his care we are indebted for the preservation of the writings of Aristotle, who, when dying, intrusted them to his

Theosophy (the-os'u-fi), according to its etymology the science of divine things. But the name of ence of divine things. But the name of theosophists has generally been applied to persons who in their inquiries respecting God have run into mysticism, as Jacob Böhme, Swedenborg, St. Martin, and others. At the present day the term is applied to the tenets of the Theosophical Society, founded in New York in 1875 by Henry S. Olcott, the objects of which are: to form the nucleus of a universal are: to form the nucleus of a universal brotherhood of humanity, to promote the study of Eastern literature and science, and chiefly to investigate unexplained and chiefy to investigate unexplained laws of nature, and the physical powers of man, and generally the search after divine knowledge—divine applying to the divine nature of the abstract principle. not to the quality of a personal God. The theosophists assert that humanity is

failed to develop. They maintain the nection with another body called the re-The membership in the United States is or mechanical effect, and made available about 5000. Mrs. Annie Besant is at for the performance of work. The effipresent the president of the society. present the president of the society.

Thera. See Sanatoria.

to the Essenes.

Therapeutics (thera-pu'tiks), that department of medicine which treats of remedies in the widest sensê.

Theresa (te-re'sa), St., a religious enthusiast, born at Avila, in Spain, in 1515, who took the veil among the Carmelites at the age of twenty-four. Being dissatisfied at the relaxation of discipline in the order to which she belonged she undertook to restore the original severity of the institute. The first convent of reformed Carmelite nuns was founded at Avila in 1562, and was speedily followed by a number of others. She died in 1582, and was canonized by Pope Gregory XV in 1621.

Theresiopel (tā-rā-sē-ō'pel), or Ma-BIA-THE RESIENSTADT (Hung. Szabaaka), a royal free town in properly a district than a town, as it covers, with its numerous suburbs, an area of more than 600 square miles. It has manufactures of linen and woolen cloth, dye-works, tanneries, soap-boiling works, etc., and a trade in cattle, horses, hides, etc. Pop. 82,122.

Thermae (ther'me).

Thermæ (ther'mē), a name often given to the large bathing establishments of ancient Rome.

Thermidor (ther'mi-dor), the eleventh month of the year in the calendar of the first French republic. It commenced on July 19th and ended on August 17th. See Calendar. Thermit, the name given a mixture of aluminum powder or filings and powdered oxide of iron, used for and powdered oxide of fron, used for welding the ends of iron rails or fractures in iron goods. If set on fire it yields a temperature of 5400° F., far above the melting point of iron. In burning it produces practically pure iron in a liquid state and oxide of aluminum as a lag. The molten iron fills the fracture or the space between the rails, which it welds in hardening.

Thermo-pile.

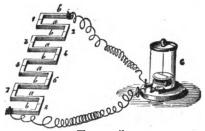
6, 8 at another. G is a delicate galvanometer which measures the force of the current produced. The thermo-electric battery or pile, an apparatus much used in delicate experiments with radiant heat, consists of a series of little bars of welds in hardening.

Thermodynamic Engine (theror steam engines) by means of which a percentage of the heat lost by one body called the source, on account of its con- nected with a galvanometer, which is very

Hindu doctrine of transmigration of souls. frigerator, is converted into kinetic energy heat available for mechanical effect to the total heat taken from the source. A re-Therapeutæ (thera-pū'tē), a Jewish versible engine is called a perfect engine, sect of devotees of the because it is the most efficient engine befirst century after Christ, somewhat akin tween the temperatures of its source and tween the temperatures of its source and the refrigerator.

Thermodynamics, that department of physical science which investigates the laws regulating the conversion of heat into mechanical force or energy, and vice versa.

Thermo-electricity, electricity projunction of two metals, or at a point where a molecular change occurs in a bar of the same metal, when the junction or point is heated above or cooled below the general temperature of the conductor. Thus when wires or bars of metal of different kinds, as bismuth and antimony, are placed in close contact, end to end, and disposed so as to form a periphery or continuous circuit, and heat then applied to the ends or junctions of the bars, electric currents are produced. The princi-ple of the arrangement is shown in the



in delicate experiments with radiant heat, consists of a series of little bars of antimony and bismuth (or any other two nam'ik) any form of heat engine (as gas power), having their ends soldered together and arranged in a compact form; the opposite ends of the pile being consensibly affected by the electric current,

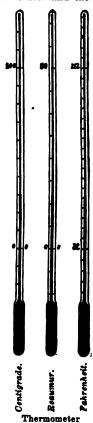
induced in the system of bars when ex-posed to the slightest variations of boiling water. In the thermometer com-temperature. To the combined arrange-monly used in the United States and the ment of pile and galvanometer the name British empire, known of thermo-multiplier is given. Two metal as Fahrenheit's therbars of different heat-conducting power mometer, the former having their ends soldered together, and point is marked 32° the combined bar then usually bent into and the latter 212°; a more or less horseshoe or magnet form for the purpose of bringing their free ends within a conveniently short distance, marked 0°, is 32° bedesignated a thermo-electric pair, are low the freezing-point, much used in thermo-electric experiments. But as the electric current developed in a single pair is very weak, a considerable freezing and boiling number are usually combined to form a points consists of thermo-electric pile or battery. Bismuth 180°. The zero point and antimony are the metals usually employed, the difference in electro-motive force being greater between them than between any other two metals conven-iently obtainable.

Thermograph (ther mu-graf), a thermometer provided with a registering device; and mechanism for reading temperature. The United States Weather Bureau uses a crescent-shaped bulb filled with alcohol and hermetically sealed. Changes of temperature affect the curve of the bulb, and its alteration of form is communicated to a series of multiplying levers, which act upon a recording pen. Bartlett's thermograph is designed for greenhouses, it being electrically connected with dials in the house and office, so that changes in temperature can be readily noted.

Thermometer (ther-mom'e-ter), an instrument by which the temperatures of bodies are second

the temperatures of bodies are ascertained; founded on the property which heat possesses of expanding all bodies, the rate or quantity of expansion being supposed proportional to the degree of heat applied, and hence indicating that degree. The thermometer consists of a slender glass tube, with a small bore, containing in general mercury or alcohol, which expanding or contracting by variations in the temperature of the atmosphere, or on the instrument being brought into contact with any other body, or immersed in a liquid or gas which is to be examined, the state of the atmosphere, the body, liquid, or gas, with regard to heat, is indicated by a scale either applied to the tube or engraved on its exterior surface. The ordinary thermometer consists of a small tube terminating in a ball containing mercury, the air having been expelled and the tube hermetically sealed. A scale of temperatures is attached, in which there are two points corresponding to fixed and determinate tem-

hence the zero of the scale, or that part marked 0°, is 32° beand the interval or space between the is supposed to have been fixed by Fahren-heit at the point of greatest cold that he had observed, probably by means of a freezing mixture such as snow and salt. In France and other parts of Europe, and nowadays in all scientific investiga-tions, the Centigrade or Celsius scale is used. In this the space between the freezing and boiling points of water is divided into 100 equal parts or degrees, the zero being at freezing and the boiling-point marked 100°. Réaumur's thermometer, in use in Germany, has the space between the freezing and boiling points divided into 80 equal parts, the zero being at freezing. The following formu-læ will serve to convert any given num-



Scales.

ber of degrees of Fahrenheit's scale into the corresponding number of degrees on Réaumur's and the Centigrade scales, and vice versa: let F, R, and C (the 0° of C. and R. being equal to F. 32°, and the three scales from freezing to boiling point being F. 180°, C. 100°, R. 80°, or in the ratio of 9, 5, 4) represent any corresponding numbers of degrees on the three scales respectively, then: $(F.-32^\circ)$ $\times \frac{1}{2} = R$.; $(F.-32^\circ) \times \frac{1}{2} = C$.; R. $\times \frac{1}{2} + 32^\circ = F$.; C. $\times \frac{1}{2} + 32^\circ = F$.; C. $\times \frac{1}{2} + 32^\circ = F$.; C. $\times \frac{1}{2} = C$. For extreme degrees of cold, thermometers filled with peratures, one, namely, to the temperature spirit of wine must be employed from its

great resistance to freezing temperatures, performing. whereas mercury freezes at about 39° below zero on the Fahrenheit scale. On the other hand, spirit of wine is not adapted to high temperatures, as it is soon con-verted into vapor, whereas mercury does not boil till its temperature is raised to 660° F. As the ordinary thermometer gives the temperature only at the time of observation, the necessity for having an instrument which would show the maximum and minimum temperatures within a given period is easily apparent in all cases connected with meteorology, and various forms of instruments for this purpose have been invented. A common form of maximum thermometer consists of the ordinary thermometer fitted with a piston which moves easily in the tube. other epistles. The genuineness of the The instrument is placed horizontally, first epistle has hardly ever been quesand the piston is pushed along the bore tioned, but according to the newer critias the mercury advances, and is left at cism, that of the second epistle is more the highest point by the retiring fluid. than doubtful.

This point is noted by the observer, who Thessalonica (thesa-lō-nē'ka). See then erects the thermometer, causing the piston to sink to the mercury, the instru-ment thus being in condition for a fresh experiment. A similar action takes place in the spirit of wine minimum thermometer, the small movable piston being, however, immersed in the fluid and drawn back by the convex surface of the con-tracting fluid, being left at the point of greatest contraction. The maximum and

Thermo-pile.

Thermopylæ (ther-mop'e-lē), a nar-row defile in Northern Greece, leading from Thessaly southward, between Mount Œta and the sea (the Maliac Gulf, now the Gulf of Zeitouni), 25 miles north of Delphi, celebrated for its brilliant defense by 300 Spartans, together with allies, under Leonidas, against the Persian host under Xerxes, in 480 B.C. Theseus (the sis), a mythical king of Athens and famous hero of antiquity, son of Ægeus by Æthra, the daughter of Pittheus of Troezen, in Peloponnesus, of whom many notable deeds are related, as the slaying of the Mino-taur and the freeing of Athens from the tribute of seven youths and seven maidens annually sent to Crete to be devoured by that monster. As king of Athens he is reputed to have governed with mildness, instituted new laws, and made the government more democratic.

Thespis (thes'pis), a native of a vil-lage near Athens, who lived in the sixth century B.C., reputed to be the inventor of tragedy and of the masks

His first representation took place in 535 B.C. See Drama.

Thessalonians (thes - a-lo'ni - ans), two New Testament epistles written by St. Paul to the church at Thessalonica, in all probability during his long stay at Corinth, and therefore not very long after the foundation of the Thessalonian church on St. Paul's second missionary journey. A note at the end of each of the epistles in our Authorized Version states that they were written from Athens, but there can be little doubt that this is erroneous, and that they were really written at Corinth. They are the earliest of Paul's writings, and are characterized by great simplicity of style as compared with his other epistles. The genuineness of the first epistle has hardly ever been questioned, but according to the newer criti-

Thessalonica (thes-a-lō-nē'ka).

Thessaly (thes'a-li), the northeast-ern division of Greece, mainly consisting of a rich plain inclosed between mountains and belonging almost entirely to one river basin, that of the Peneios (Salambria), which traverses it back by the convex surface of the confrom west to east, and finds an outlet tracting fluid, being left at the point of greatest contraction. The maximum and minimum instruments combined form the self-registering thermometer.

Thermo-pile.

Thermo-pile.

Thermo-grade in the from west to east, and finds an outlet tracting fluid, being left at the point of from the Egean through the vale of greatest contraction. The maximum and proper is said to have been inhabited by self-registering thermo-electricity.

Thermo-pile. and seldom exerted any important influence on the affairs of Greece generally.

Thessaly was conquered by Philip of Macedon in the fourth century B. C., became dependent on Macedonia, and was finally incorporated with the Roman Empire. After the fall of the Byzantine Empire it fell into the hands of the Turks, became a part of the Ottoman Empire, although most of the inhabitants are Greeks. The

most of the inhabitants are Greeks. The greater portion of it was in 1881 incorporated with the kingdom of Greece. Capital Larissa. Pop. 344,000.

Thetford (thet'ferd), a municipal borough of England, partly in the county of Suffolk and partly in that of Norfolk, on both banks of the Ouse, here crossed by a handsome iron bridge. It is a place of great antiquity and has a remarkable Celtic Mound called Castle Hill. Pop. 4778.

Thatford Mines a city of Ouebec

Thetford Mines, a city of Quebec Province, Canada, 26 miles s. w. of Quebec. It has rich asbestos mines. Pop. (1913) 7500.

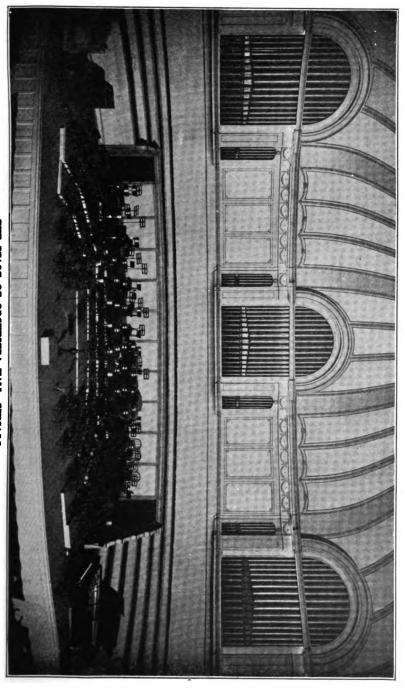
Thetis (the tis), a Greek divinity, a daughter of Nereus and Doris, therefore one of the Noroids. By Polous

which the Greek actors always wore in therefore one of the Nereids. By Peleus,

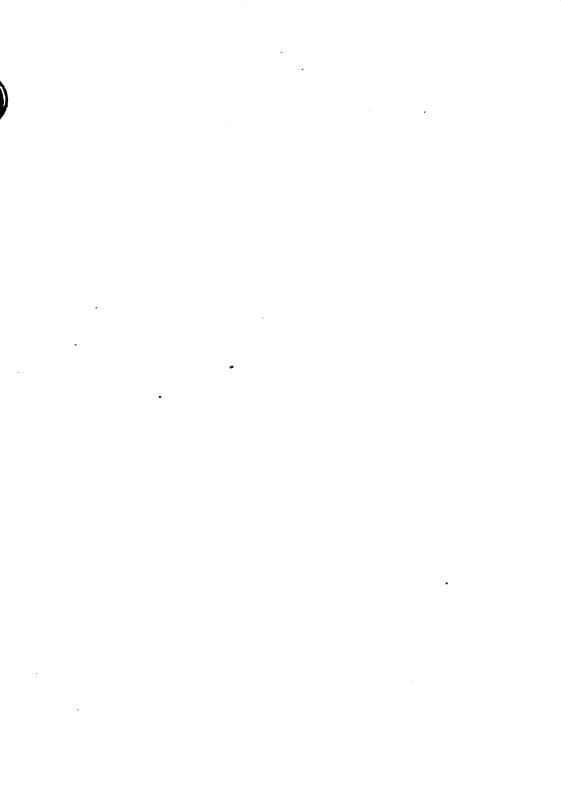
began. Christian IV of Denmark, induced partly by religious zeal and partly by the hope of an acquisition of territory, came to the aid of his German about to advance upon Austria, when the co-religionists (1624), and being joined news reached the armies that the Peace by Mansfeld and Christian of Brunswick, advanced into Lower Saxony. There and that the long struggle was concluded, they were met by Wallenstein, Duke of Friedland, who, in 1626, defeated Mansfeld at Dessau, while Tilly was also auccoasful in driving Christian back to Thistle successful in driving Christian back to Denmark. In the peace of Lübeck which followed (May, 1629) Christian of Denmark received back all his occupied territory, and undertook not to meddle again in German affairs. After this second success, Fredinand again roused his people by an edict which required restitution to the Catholic Church of all church-lands and property acquired by them since 1555. To the assistance of the Protestants of Germany, in these cir-cumstances, came Gustavus Adolphus, King of Sweden, who landed (1630) with a small army upon the coast of Pomerania. Joined by numerous volun-teers, and aided by French money, he advanced, and routed Tilly at Breiten-feld (or the battle of Leipzig, September, 1631), victoriously traversed the Main and the Rhine valleys, defeated Tilly again near the confluence of the Lech and the Danube (April, 1632), and en-tered Munich. Meanwhile the emperor sought the aid of Wallenstein, by whose tion to the Catholic Church of all churchsought the aid of Wallenstein, by whose ability and energy Gustavus was obliged to retire to Saxony, where he gained the great victory of Lützen (Nov., 1632), but It was instituted by James VII (James was himself mortally wounded in the battle. The war was now carried on by the Swedes under the chancellor of Swedes under the chancellor abeyance during the reign of William and Oxenstierna, till the rout of the Swedish Mary, but was revived by Queen Anne

many marched against Frederick, who, forces at Nördlingen (Sept., 1634) again with an army of Bohemians, Moravians, gave to the emperor the preponderating and Hungarians, kept the field until power in Germany. The Elector of November 8 (1620), when he was totally routed at Weissenberg, near Prague, by tavus, now made peace at Prague (May, Duke Maximilian of Bavaria. The 1635), and within a few months the Protestant cause was now crushed in Bohemia, and the people of that province suffered cruel persecution. The dominions of Frederick, the Palatinate of the Rhine included, were now conquered, a more active part in the conflict. Thus the latter being occupied by Count the last stage of the war was a contest Tilly, assisted by the Spaniards under of France and Sweden against Austria, Spinola. At the Diet of Ratisbon in which the Swedish generals gained (March, 1623) Frederick was deprived various successes over the imperial forces, of his territories, Duke Maximilian receiving the Electorate. Ferdinand, whose of his territories, Duke Maximilian re-while the French armies fought with ceiving the Electorate. Ferdinand, whose varied fortune in West Germany and on succession to the throne of Bohemia was the Rhine. Meanwhile the emperor had thus secured, had now a favorable opportunity of concluding a peace, but his is son, Ferdinand III. The struggle continued intolerance towards the Protestants caused them to seek foreign assistance, and a new period of the war generals Turenne and Conde, and the began. Christian IV of Denmark, in-Swedes advanced through Suabia and duced partly by religious real and partly Bayeria. The combined forces of Swedes

Thistle (this'l), the common name of prickly plants of the tribe Cynaraceæ, nat. order Compositæ. There are numerous species, most of which are inhabitants of Europe. The blessed-thistle, Carduus benedictus of the pharmacopæias, Cnicus benedictus or Cirsium benedictum of modern botanists, is a native of the Levant, and is a laxative and tonic medicine. The cottonthistle belongs to the genus Onopordum. The common cotton-thistle (O. Acanthium) attains a height of from 4 to 6 feet. It is often regarded as the Scotch thistle, but it is doubtful whether the thistle which constitutes the Scottish national badge has any existing type, though the stemless thistle (Cnicus acaulis or Cirsium acaule) is in many districts of Scotland looked on as the true Scotch thistle. Some dozen species of thistle are common in the United of thistle are common in the United States, spreading from New England to Florida, among them the Canada thistle, one of the severest pests of the farmer.



THE STAGE OF ORCHESTRA HALL, CHICAGO
The home of the famous Thomas Orchestra, one of the greates' musical organizations in the world.





Order of the Thistle—Star, Jewel, Badge and Collar.

Tholuck (to'luk), FRIEDRICH Au-GUST GOTTREU, a German theologian, born in 1799; died in 1877. He was educated at the universities of Breslau and Berlin, and devoted himself later years were passed in Chicago, where to theology. Tholuck filled the chair of the Symphony Hall was built through theology at death. death.

in 1703. The insignia of the order consist of a gold collar composed of thistles interlaced with sprigs of rue; the jewel, a figure of St. Andrew in the middle of a star of eight pointed rays, suspended from the collar; the star, of silver and eight-rayed, four of the rays being pointed, while the alternate rays are shaped like the tail-feathers of a bird, April 25, 1861, was some months later with a thistle in the center surrounded by the Latin motto Nemo me impune

The Book in the took part in the Mexican war (1846-47); was appointed professor at West Point in 1850; recalled to active service in 1855, and employed in Texas against the Indians. When the Civil War broke out Thomas had attained the rank of major, and being appointed lieutenant-colonel of volunteers, April 25, 1861, was some months later service in into Kentucky, where, in the following year, he defeated Zollikofer. As major-general of volunteers he took part in the battle of Murfreesborough, where he greatly distinguished himself; while at the bloody battle of Chickamauga, in September, 1863, he saved the Federal army from destruction by his stubborn resistance after the defeat of the Federal resistance after the defeat of the Federal right, earning the name of 'The Rock of Chickamauga.' In 1865 he compelled the Confederates to raise the siege of Nashville, for which he received the thanks of Congress, and was raised to the rock of major general in the to the rank of major-general in the regular army. The brevet ranks of lieutenant-general and general were offered him by President Johnson, but he declined them. He died in 1870.

Thomas (tom'as), Joseph, scholar and linguist, born in Cayuga Co., New York, in 1811, was, with Thomas Baldwin, author of Baldwin's Pronouncing Castteer. In 1851. ing Gazetteer. In 1851-52 appeared his first book of Etymology, followed by an edition of Oswald's Etymological Dictionary. In 1854 he prepared A New and ary. In 1894 he prepared A New and Complete Gazetteer of the United States; and in 1855 A Complete Geographical Dictionary of the World (popularly known as Lippincott's Gazetteer of the World), and which for accuracy and completeness had scarcely an equal. In 1864 spreared his comprehensive Medical lacessit; and the badge, oval, with the motto surrounding the figure of St. Andrew. The order consists of the sovereign and sixteen knights, besides extra knights (princes), and a dean, a secretary, the lyon-king-at-arms, and the gentleman usher of the green rod.

Tholen (to'len), an island in the province of Zealand, Holland, between the Scheldt and the Maas, with an area of about 50 sq. miles, and a pop. of 15,000.

World), and which is comprehensive Medical in 1864 appeared his comprehensive Medical Pronouncing Dictionary of Biography and Mythology, which occupies a high place among books of reference. He died December 24, 1891.

Thomas, Theodore, hord orchestral 1835; died in 1905. His family moved to the United States in 1845, and he became an expert on the violin. His symmetry and in 1870 his Universal Mythology, which occupies a high place among books of reference. He died December 24, 1891.

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came an expert on the violin. His symphony concerts began in 1864, and for thirty years he was conductor of the Brooklyn Philharmonic Society. His

Thomas à Kempis (that is, Thomas a Kempis as of Kempen, Thomas, George Henry, general, was born in Virginia in 1816, his birthplace, in the archbishopric of and at the age of twenty entered the military academy at West Point, passing into the artillery as sublicutenant at convent near Zwolle, in Holland, where he took the vows, and where, in 1471, he died sub-prior of the convent. He copied many MSS. in a beautiful hand and wrote numerous original works, including sermons, exhortations, ascetic treatises, hymns, prayers, etc. His name, however, would hardly be remembered were it not for its connection with the celebrated

Mississippi.

Thompson, BENJAMIN. COUNT RUM-FORD, an American scien-tist and Bavarian administrator, born at Woburn, Mass., in 1753; died at Auteuil, near Paris, in 1814. He commanded the King's American Dragoons in the Revo-lutionary War, and became aide-de-camp and chamberlain at the court of the elec-tor of Bavaria (1784-1802). He left funds to Harvard for the professorship of physical and mathematical sciences and to the American Academy of Arts and Sciences and the Royal Society of Lon-don for prizes for the most important dis-

took the leading part.

Thompson, FRANCIS, an English poet, born at Ashton. Lancashire in 1860; died in London, November 13, 1907. His early life closely reseminated but he was finally

Aside from portraits, his principal pictures are scenes from rustic American life, such as The Apple Gathering, The Old Oaken Bucket, the Old Stage, and The Lost Lamb. Many of his works have been made familiar by engravings.

Thompson,
SIE JOHN SPARROW, Canadian statesman, born add an statesman, born the Helifar in 1844 did in 1804 for its connection with the celebrated devotional work called The Imitation of at Halifax in 1844; died in 1894. He Christ, 'De Imitatione Christi,' a work entered early into public life and bewhich has passed through thousands of came premier of Nova Scotia in 1882. editions in the original Latin and in the was appointed attorney general of translations. The authorship of this the Dominion in 1885 and became prime book has long been a disputed point; but it is generally ascribed to a Kempis.

The survey and the Behring Sea arbitration.

Thomasville, a town and health resort, county seat of Thompson, Queens Co., Ireland, in vannah. It has a lumber trade, various

Pop. 6727.

It is generally ascribed to a Kempis.

Tration.

Thompson, Queens Co., Ireland, in New York in 1894. From 1874 to 1881 he resided in Rome. He was a portrait ranah. It nas a number trade, various and the resided in Rome. He industries, Pop. 6727.

Thomists, the followers of Thomas achieved great success as a portrait sculptor, and was elected a member of the Academy of Design in 1862.

Thompson, Stoddard, N. H., in 1839:

Thompson, MAURICE, poet and novalist born at Fairfield.

Thompson, MAURICE, poet and novdied in 1906. He became a member of the United States Topographic Engineers in Indiana, in 1844; died in 1901. His 1870. In 1882 he was appointed geographic to the United States Geological Surpher to the United States Geological Surpher to the United States Geological Surpher Witchery of Archery, A Tallehassee vey, and (1884-95) did important work Girl, His Second Campaign, and Songs of Fair Weather.

Thompson, ROBERT ELLIS, educator, was born in Ireland in 1844, came to America in 1857, was graduated from the University of Pennsylvania in 1868, and in 1872 was ordained and in 1865, and in 1873 was ordained min-ister in the Reformed Presbyterian Church. He was successively professor of mathematics, of social science, and of history and English literature in the University of Pennsylvania, and has been president of the Central High School of Philadelphia gives 1994 School of Philadelphia since 1894. was editor of the Penn Monthly, 1870-80, and became editor of The American in 1880. He wrote Social Science and Political Economy and Elements of Po-

Thompson, wright, born near Girard, Pennsylvania, in 1833; died in 1911. He is best known by his Joshua Whitcomb, remodeled into the highly popular play of the Canadian woods and on the western plains, became naturalist to the government of the g plains, became naturalist to the government of Manitoba, and wrote Birds of Manitoba and Mammals of Manitoba. He afterwards studied art and became an animal painter and illustrator. He also 13, 1907. His early life closely resembled that of DeQuincey, but he was finally became an active lecturer and wrote befriended and launched upon the career many popular books describing the of journalist and poet. His verse, while offen eccentric and even forced, abounds in passages of rare beauty.

Thompson, Jerome. painter, was him in this field and a controversy arose massachusetts, in 1814; died in 1886. of animal intelligence. The conception

this organization in the United States (see Boy Scouts). His name was legally changed from Seton-Thompson to Thompson-Seton in 1901.

Thoms (toms), WILLIAM JOHN, an English author, born at Westminster in 1803; died in 1885. He was secretary to the Camden Society from 1838 to 1873; deputy-librarian to the House of Lords; originator and for many years editor of Notes and Queries, and anthor of various antiquarian works. and author of various antiquarian works.

Thomson (tom'sun), SIR CHARLES
WYVILLE, naturalist, born
in 1830 in Linlithgowshire; died in 1882. Educated at the University of Edin-burgh, he became professor of miner-alogy and geology in Queen's College, Belfast, in 1854. In the dredging expeditions of the Lightning and Porcu-pine (1868-69) he took part, afterwards publishing in The Depths of the Sea (1869), the substance of his discoveries (1869), the substance of his discoveries in regard to the fauna of the Atlantic. In 1869 he became fellow of the Royal Society; in 1870 professor of natural history in the University of Edinburgh. In 1872 he was appointed scientific chief of the Challenger expedition, which was absent from England 3½ years, during which time 68,890 miles were surveyed. On his return he was knighted, and en-On his return he was knighted, and entrusted by the government with the task of drawing up a report on the natural history specimens collected during the expedition. But he lived only to publish a preliminary account of the expedition, The Voyage of the Challenger: the Atlantic (1876-78).

Thomson, ELIHU, an American electrician, born in Manchester, England, March 29, 1853; came to the United States and subsequently secured more than 500 patents for inventions which included the Thompson method of electric welding. He was awarded the Grand Prix, in Paris, in 1890 for electrical inventions. 1889, for electrical inventions, received the decoration of Chevalier of the Legion of Honor, for electrical research, etc.

Thomson, JAMES, poet, was born in 1700, at Ednam, near Kelso, in Scotland, his father being minister of Ednam parish, and was educated at Albertan parish, and was educated at of Ednam parish, and was educated at brilliancy and traits of graceful and the University of Edinburgh. He went in 1725 to London, He died in 1882.

where Winter, the first of his poems on the seasons, was published in 1726. In 1727 he published his Summer, his Poem to the Memory of Sir Isaac Newton, and his Britannia; in 1728 his Spring and in that living for Duddingston, near Edin-

of the organization of Boy Scouts, now 1730 his Autumn. After traveling for so popular, is ascribed to him, though not some time on the Continent with the son the title, and he is the leading spirit in of Sir Charles Talbot, the chancellor, he of Sir Charles Tailoot, the chancellor, he was rewarded with the post of secretary of briefs, which he held till the death of the chancellor (1737), when he received a pension of £100 from the Prince of Wales. Meanwhile he had brought on the stage his tragedy of Sophonisba (1729) and published his poem on Liberty, the cool reception of which greatly disappointed him. He now greatly disappointed him. He now (1738) produced his tragedy of Agamemnon, and a third entitled Edward and Eleanora. In 1740 he composed the masque of Alfred in conjunction with Mallet; but which of them wrote the formula conp. Pulse Residential is not famous song, Rule, Britannia, is not known. In 1745 his most successful tragedy, Tancred and Sigismunda, was brought out and warmly applauded. brought out and warmly applauded. The following year he produced his Castle of Indolence, a work in the Spenserian stanza. For a few years he held by deputy the confortable post of surveyor-general of the Leeward Islands, and he died in 1748. He left a tragedy entitled Coriolanus, which was acted for the benefit of his relatives. Thomson was greatly beloved for his amiability and kindness of heart. His Seasons, on which his fame rests, abounds in sensibility and beauty of natural description. His Castle of Indolence, though not so popular as the Seasons, is highly esteemed, but his tragedies are is highly esteemed, but his tragedies are almost forgotten.

Thomson, JAMES, poet, was born at Port-Glasgow, Scotland, in 1834, and was brought up at the Caledonian Orphan Asylum, both his parents having died when he was very young. He became a schoolmaster in the army, but quitted that occupation in 1862, and became clerk in a solicitor's office. In 1860 he became a contributor to the National Reformer, in which was published, under the signature 'B. V.,' The Dead Year, To Our Ladies of Death, and the poem by which he is best known, The City of Dreadful Night (1874). Among City of Dreadful Night (1874). Among his other works are: Tasso and Leonora (1856); The Doom of a City (1857); Sunday at Hampstead (1863); Sunday up the River (1868); A Voice from the Nile (1881), and Insomnia (1882). Thomson's verse is characterized by much brilliancy and traits of graceful humor, but its prevailing tone is one of despair.

is especially notable for his researches into the constitution of the atom of matter, and the promulgation of the theory of the electron, now so widely

died in 1852. He adopted the medical then at Peterhouse, Cambridge, where he profession, and embraced chemistry more graduated (1845) as second wrangler, especially as his favorite pursuit. In and first Smith's prizeman, and was 1802 he published the first edition of his elected to a fellowship. In 1846 he was System of Chemistry, which obtained appointed professor of natural philosorapid success both in Great Britain and phy in the University of Glasgow, a post on the Continual It was followed in which he continued to held The semantics. on the Continent. It was followed in on the Continent. It was followed in 1810 by his Elements of Chemistry, and in 1812 by his History of the Royal Society. In 1813 he went to London and commenced there a scientific journal, the continuous scientific pournal, the continuous scientific pour sci and commenced there a scientific journal, the Annals of Philosophy, which he continued to edit till the end of 1820. The lectureship (afterwards the regius professorship) in chemistry in Glasgow University was conferred on him in 1817. His great work on the atomic theory was published in 1825, under the title of Attempt to Establish the First Principles of Chemistry by Experiment. In 1830— liam Thomson's name is most generally 31 he published his History of Chemistry. known, his services being rewarded, on in two volumes, and in 1836 appeared the completion of the Atlantic cable of his Outlines of Mineralogy and Geology. 1866, with knighthood and other honors.

burgh, in 1805, dying there in 1840. Thomson, of the Rev. John Thomson, of Duddingston, was born at Dailly, land among the best painters of his native land.

Thomson, Joseph, an African export, was born at Penpont, Scotland, in 1858, and was educated at Edinburgh. When twenty years of age he accompanied Keith Johnston to Central Africa, assuming full charge of the expedition on the death of Mr. Johnston. In 1882 he explored the Rovuna in East Africa, and in 1884 made an important journey through Masai Land, in eastern equatorial Africa. Among his other achievements are an expedition to the Atlas Mountains, and one to the river Niger. He was a graphic writer, his published works including Through Masai Land, To the Central African Lakes and Morocco, Life of Mungo Park, etc. He died in 1895.

Thomson, Joseph John, physicist, Thomson, Joseph John, physicist, of works, including the Mungo Park, etc. He died in 1895.

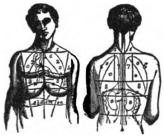
Thomson, Was born near Manchester, of works, including: An Outline of the Morosco, Was born near Manchester, of works, including: An Outline of the of Morosco, of works, including: An Outline of the of Morosco, was born at Dailly, appointed to the Scotland, in 1768; died in 1852. He was called to the Scotlish bar in 1793, appointed deputy-clerk register, 1806, and principal clerk of session, 1828. He was called to the Scotlish bar in 1793, appointed deputy-clerk register, 1806, and principal clerk of session, 1828. He was called to the Scotlish bar in 1793, appointed deputy-clerk register, 1806, and principal clerk of session, 1828. He was called to the Scotlish bar in 1793, appointed deputy-clerk register, 1806, and principal clerk of session, 1828. He was called to the Scotlish an in 1793, appointed deputy-clerk register, 1806, and principal clerk of session, 1828. He was called to the Scotlish, appointed to the Scotlish, appointed to the Scotland, in 1852. He was called to the Scot Thomson, Joseph John, physicist, Dr. Thomson was author of a number of works, including: An Outline of the England, in 1856, a cousin of Lord Kelvin. He became professor of experimental physics at Cambridge in 1884, and to some Current Theories; Crime and lts wrote Vortex Rings, Recent Researches Excuses; Life in Light of God's Word in Electricity and Magnetism, etc. He (sermons); Limits of Philosophical Into the courter the courter of the courter the courte to some Current Theories; Crime and Its Excuses; Life in Light of God's Word (sermons); Limits of Philosophical Inquiry; Design in Nature; and a series of essays entitled Word, Work and Will. He died in 1890.

accepted as the basic element of material nature. His studies into the characteristics of this have been intimate and profound.

Thomson, Thomas, a Scottish chemptofound.

Thomson, SIR WILLIAM (Lord Kellound) and physicists, was born at Belfast, Ireland, in 1824, his father being James Thomson, professor of mathematica in Glasgow University, and the published the first additional chemptofound. which he continued to hold. The same year he became editor of the Cambridge and Dublin Mathematical Journal, to which he contributed valuable papers on the mathematical theory of electricity, being also a distinguished contributor to Liouville's Journal de Mathématiques. Among the most important of his contributions to electrical science are the construction of several delicate instruments for the measurement and study of electricity. It is, however, in connection with submarine telegraphy that Sir Wilattention, but was finally abandoned by its author as mathematically undemon-

formed by the spine, ribs, and breast-bone, situated between the neck and the abdomen, and which contains the pleura, lungs, heart, etc. The name is also ap-



THORAX IN MAN.

Thoracic regions denoted by thick black Thoracic regions denoted by thick black lines. 1.1, Right and left Humeral; 2.2, do. Subclavian; 3.3, do. Mammary; 4.4, do. Axillary; 5.5, do. Subaxillary or Lateral; 6.6, do. Scapular; 7.7, do. Interscapular.—8.8, do. Superior Dorsal or Subscapular.—Viscera or contents of Thorax, the position of which is indicated by dotted lines. a.a. Diaphragm; b, Heart; c, Lungs; d, Liver; s, Kidneys; f, Stomach. neys; f. Stomach.

plied to the corresponding portions of other mammals, to the less sharply de-fined cavity in the lower vertebrates, as birds, fishes, etc., and to the segments intervening between the head and abdomen in insects and other Arthropoda. In serpents and fishes the thorax is not completed below by a breast-bone. In insects three sections form the thorax, the pro-thorae, bearing the first pair of legs; the meso-thoras, bearing the second don, where for thirty years he was al-6-10

He also made important additions to our pair of legs and first pair of wings; and knowledge of magnetism and heat, and and meta-thoras, bearing the third pair invented an improved form of mariner's compass now in extensive use. He was president of the British Association at its Edinburgh meeting in 1871. He was the author, jointly with Professor Tait, 1817, and was educated at Harvard Uniof a well-known treatise on natural versity, where he was graduated in 1837. Philosophy, and issued many valuable From that time till 1840 he was enpapers. A notable theory of his, the gaged as a schoolmaster. Then for vortex theory of atomics, attracted wide several years he occupied himself in tention, but was finally abandoned by various ways, in land-surveying, carpenits author as mathematically undemontering, and other handicrafts, but devotering and other handicrafts. tering, and other handicrafts, but devotstrable. He was created Baron Kelvin ing a greater part of his time to study in 1892. He died December 17, 1907.

Thor (thor, tor), son of Odin by Jörd 1845 he built for himself a hut in a (the earth), the Jupiter of the wood near Walden Pond, Concord, Mass., Teutons, the God of thunder. Thursday and there for two years lived the life of has its name from him. See Northern a hermit. After quitting his solitude, Thorax (tho'raks), the chest, or that

Thorax (axity of the human body A

Thorax (by breaks), the chest, or that

Thorax (by b A Week on the Concord and Merrimao Rivers (1849), and Walden, or Life in the Woods (1854). After his death appeared Excursions in Field and Forest, The Maine Woods, Cape Cod, and A Yankee in Canada. Thoreau was a friend of Emerson, and imbibed much of his spirit and method of thought.

Thorium (thö'ri-um), the metal of which thoria is the oxide, discovered by Berzelius. It is in the form of a heavy metallic powder, has an iron-gray tint, burns in air or oxygen, when heated, with great splendor, and is converted into thorina or oxide of thorinum. It unites energetically with chlorine, sulphur, and phosphorus. Hydrochloric acid readily dissolves it, with

the evolution of hydrogen gas. The symbol of Thorium is Th, and the atomic weight 116. See Hawthorn. Thorn.

Thorn (torn), a town and strong fort-ress of Prussia, province of East Prussia, on the Vistula. It consists of an old and a new town, has several churches, one of them containing a statue of Copernicus, who was born here; manufactures of machinery, soap, and a famous gigerbread; some shipping, and a good trade. Pop. 29,626. See Datura. Thorn-apple.

drochloric acid readily dissolves it, with the evolution of hydrogen gas. The

Thorn-back Ray. See Ray.

Thornbury (thorn'bu-ri), WALTER, miscellaneous writer, born in London in 1828. Beginning his literary career in Bristol at the age of seventeen, he soon after settled in London

most continuously at work writing for from Sir Thomas Hope to execute in Household Words, Once a Week, marble a statue of Jason, which the Athenaum, etc. Among his numerous sculptor had modeled. This was so bril-Household Words, Once a Week, Athenaum, etc. Among his numerous works are Shakespeare's England, Songs of the Cavaliers and Roundheads, Haunted London, Legendary and Historic Ballads, and a Life of Turner, under the supervision of Ruskin. He died in 1876. Thornhill (thorn'hill), Sie James, an English painter, born in 1676; died in 1734. He was much engaged in the decoration of palaces and public buildings, in which his chief works are to be found. Among his best efforts may be mentioned the dome of St. Paul's, the salon and refectory at Greenwich Hospital, and some rooms at Hampton Court. His forte was in the treatment

of allegorical subjects.

Throop, a borough in Lackawanna
from Scranton. It has coaling interests. Pop. 5133.

Thorough-bass. See Bass.

Thoroughwort. See Boneset.

Thorpe (thorp), BENJAMIN, an English scholar who greatly furthered the study of Anglo-Saxon; born in 1782; died in 1870. Among his numerous publications are an English edition of Rask's Anglo-Saxon Grammar, Ancient Laws and Institutes of the Anglo-Saxon. Kings. The Gospole in Anglo-Saxon. Sawon Kings, The Gospels in Anglo-Sawon, an edition of Beowulf, The Anglo-Sawon Chronicle, Northern Mythology, etc.

Thorpe, Francis Newton, an American author, born in Swamp-scott, Massachusetts, in 1857. He is scott, Massachusetts, in 1857. He is author of The Government of the People of the United States: The Story of the Constitution; The Constitution of the United States with Bibliography; The History of the Civil War, and numerous other works on historical and political subjects. He was professor of American Constitutional History at the University of Pennsylvania, 1895-98.

Thowwoldson (torvald-sen).

he helped his father to cut figureheads in the royal dockyard, then, after some years' study at the Academy of Arts, he won the privilege of studying three years abroad. Going to Rome (1797) he was much impressed by the works of Canova, the sculptor, and Carstens, the painter, who were then residing there. It was not until 1803, however, that he became at all widely known. Then by a lucky chance he received a commission a lucky chance he received a commission Memoirs of his own life.

liantly executed that commissions flowed in upon him, new creations from his hand followed in quick succession, and his unsurpassed abilities as a sculptor became everywhere recognized. In 1819 he returned to Denmark, and his journey through Germany and his receptions at Copenhagen resembled a triumph. After remaining a year in Copenhagen and executing various works there, he returned to Rome, visiting on his way Berlin, Dresden, Warsaw and Vienna. He remained at Rome till 1838, when he undertook another journey to Copen undertook another journey to Copenhagen, being principally moved to this step by the contemplated establishment in that city of a museum of his works and art treasures. His return was a sort of national festival. The remainder of his life was spent chiefly in the Dan-ish capital, where he died March 24, 1844. The Thorwaldsen Museum, opened in 1846, contains about 300 of the works of the sculptor. Thorwaldsen was eminently successful in his subjects chosen from Greek mythology, such as his Mars, Mercury, Venus, etc. His religious Mars, Mercury, Venus, etc. His religious works, among which are a colossal group of Christ and the Twelve Apostles, St. John Preaching in the Wilderness, and statues of the four great prophets, display almost superior grandeur of conception. Chief among his other works are his statues of Galileo and Copernicus, and the colossal lion near Lucerne, in memory of the Swiss guards who fall in memory of the Swiss guards who fell in defense of the Tuileries.

Thoth
(thoth, tot), an Egyptian deity identified by the Greeks with the Mercury) to whom was at-

Hermes (Mercury), to whom was attributed the invention of letters, arts, and sciences. The name is equivalent in significance to the Greek Logos, and Thoth is a mythical personification of the

of Pennsylvania, 1895-98.

Thorwaldsen (torvald-sen), Alborn at celebrated sculptor, born at tations, and in 1593 made him his principle helped his father to cut figureheads in the royal dockyard, then, after some regency of Mary de' Medici he was one of the directors-general of finance. His greatest literary labor was the composi-tion in Latin of a voluminous *History of* My Own Times, comprising the events from 1545 to 1607, of which the first part was made public in 1604. To this work, which is remarkable for its impartiality, he subjoined interesting

Thought-reading. See Telepathy.

Thourout (tö-rö), a town of Belgium, in the province of West Flanders, with various manufactures and a large trade. Pop. 10,146.

Thousand and One Nights.

See Arabian Nights.

Thousand Islands, a group of small islands. islands, which really number about 1800, in the St. Lawrence immediately below Lake Ontario. They partly belong to Canada and partly to the State of New York, and

have become a popular summer resort.

Thrace (thras), or Thracia, a name applied at an early period among the Greeks to a region lying north of Macedonia. By the Romans this country was regarded as divided into two parts by the Hæmus (or Balkan), the northern of which was called Mœsia and the southern Thrace. The Greeks early settled colonies on the coasts, and the country, besides possessing rich meadows and corn-lands, abounded in mines, while the Thracian horses and riders rivaled those of Thessaly. Of the rivers of Thrace, the largest and most celebrated was the Hebrus (now Maritza). Abdera, the birthplace of Democritus and Protagoras; Sestos, on the Hellespont, celebrated in the story of Hero and Leander; and Byzantium, on the peninsula on which Constantinople now stands, were the places the most

ing grain from the straw, and in which to form a thread is enected by a threadthe moving power is that of horses, frame or doubling and twisting machine,
oxen, wind, water, or steam. The which accomplishes the purpose by the
thrashing-machine was invented in Scotaction of bobbins and flyers. Thread
land in 1758 by Michael Stirling, a is used in some species of weaving, but
farmer in Perthshire; it was afterwards its principal use is for sewing.
improved by Andrew Meikle, a millwright
Thread-worms, the name for threadin East Lothian, about the year 1776. in East Lothian, about the year 1776. Since that time it has undergone various improvements. The principal feature of the thrashing-machine as at present constructed, is the three rotary drums or cylinders, which receive motion from a water-wheel, or from horse or steam power. The first drum which comes into power. The first drum which comes into operation has projection ribs called beaters on its outer surface, parallel to plies, electric motors, furniture, tools, its axis. This drum receives a very rapid motion on its axis. The sheaves of grain are first spread out on a slanting table, and are then drawn in with the ears foremost between two feeding rollers with of Montreal, at the confluence of the parallel grooves. The beaters of the rivers St. Maurice and St. Lawrence. It drum act on the straw as it passes through the rollers, and beat out the

grain. The thrashed straw is then carried forward to two successive drums or shakers, which, being armed with numerous spikes, lift up and shake the straw so as to free it entirely from the loose grain lodged in it. The grain is made to pass through a grated floor, and is generally conducted to a winnowing-machine connected by gearing with the thrashing-machine itself, by which means the grain is separated from the chaff. Improved machines on the same principle, many of them portable, are extensively used in the United States and Britain, those of the former country being particularly light and effective. In American thrash-ers two modes are employed for separating the straw from the grain; the endless aprons, answer an excellent purpose when not driven too rapidly, and make clean work. The 'vibrator' consists of a series of inclined fingers, the rapid shaking motion of which tosses up the straw and shakes out the grain; to the machine is attached a measuring hopper, showing the quantity of grain passing through it. Another machine for thrashing rye carries the straw through unbroken, for binding in bundles. The portable steam thrashing-machine, moved from farm to farm, may perform the thrashing-work of a wide district for the whole second. whole season.

Thrasimene (or Trasimenus), Lake. See Perugia, Lago di.
Thread (thred), a slender cord consisting of two or more yarns, worthy of note.

Thrashing-machine, a machine gether by twisting. The twisting together of the different strands or yarns ing grain from the straw, and in which to form a thread is effected by a thread-the moving power is that of horses, or steam. The

of the order Nematoda. The Owyuris vermicularis occurs in great numbers in the rectum of children particularly. See Nematelmia.

Three Rivers, a city of St. Joseph St. Joseph River, 25 miles S. of Kala-mazoo. Manufactures cars, railroad sup-plies electric meteors.

one of the oldest towns in the province, being founded in 1634. It is the resi-dence of a Roman Catholic bishop, and contains a cathedral. Pop. 9981.

Thresher-shark, also called the Fox-shark, a genus of sharks containing but one known species (Alopias vulpes), with a short conical snout, and less formidable jaws than the white shark. The upper lobe of the tail fin is very elongated, being nearly equal in length to the rest of the body, and is used as a weapon to strike body, and is used as a weapon to strike with. Tail included, the thresher attains a length of 13 feet. It inhabits the Atlantic and the Mediterranean. See Shark.

See Sea-pink. Thrift.

Thrips, a genus of minute insects, ormoptera, closely allied to the Aphides. They are extremely agile, and seem to leap rather than fly. They live on flowers, plants, and under the bark of trees. T. cerealium is a common species, scarcely a line in length or in extent of wing, residing in the spathes and husks of cereals, especially wheat, to which it is most injurious.

Throat (throt), the anterior part of the neck of an animal, in which are the œsophagus and windpipe, or the passages for the food and breath. See Laryna, Esophagus, Trackea, Diphtheria, Croup, etc.

Thrombosis (throm-bo'sis), the formation of a clot in the heart or a blood-vessel which may block the vessel, causing serious results. Throstle. See Thrush.

Thrush, the name applied popularly to several insessorial birds. The true thrushes (Turdidæ or Merulidæ) form a family of dentirostral passerine birds, including the songthrush or throstle, the missel-thrush, the blackbird, etc. They feed upon berries, small molluses, worms, etc. Their habits blackbird, etc. They feed upon berries, action, of tracing events to their causes, small molluscs, worms, etc. Their habits of appreciating the motives of individual are mostly solitary, but several species agents, and of combining in their just are gregarious in winter. They are relations all the threads of the tangled celebrated on account of their powers of web of history. The best translations song; and are widely diffused, being are by Jowett and Dale. found in all the quarters of the globe.

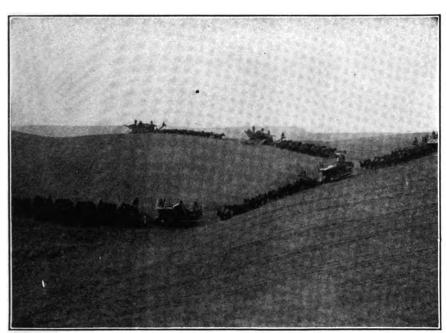
Thugs, the name applied to a secret Nine species of the thrush family are found in the United States. These inseming the Hindus, whose occupation clude the wood thrush, found east of waylay assassinate, and rob all the Wississippi and south to Guatemala, who did not belong to their own caste. the liquid, half plaintive notes of which excel in sweetness those of any other as from religious motive, such actions American bird. The notes are few in manner, but possess a charm beyond description. The common robin slap is a manufacture of such actions and the common robin slap is a manufacture of such active receiving. The common robin slap is a manufacture such actions and last in the common robin slap is a manufacture such actions and last in the common robin slap is a manufacture such actions 1831 and 1835. scription. The common robin also is a measures against them in 1831 and 1835, member of the thrush family. There and Thuggery is now practically extinct.

are several European species, among which are included the missel thrush and the song thrush of Britain. These are also sweet singers.

Thrush, a disease common in infants who are ill fed. (See Aphthæ.) The name is also applied to an abscess in the feet of horses and some other animals.

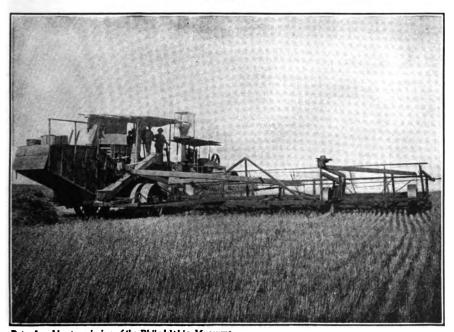
See Thou. Thua'nus.

Thucydides (thö-sid'i-dez), the greatest of all the Greek historians, was born in Attica about 471 B.C. He was well born and rich, being the possessor of gold mines in Thrace, and was for a time a prominent commander during the Peloponnesian war, which forms the subject of his great work. For many years he suffered exile (being accused of remissness in duty); but appears to have returned to Athens the year following the termination of the war, namely in B.C. 403. He is said to have met a violent death, probably a year or two later, but at what exact time, and whether in Thrace or Athens, is not known. His history consists of eight books, the last of which differs from the others in containing none of the political speeches which form so striking a feature of the rest, and is also generally supposed to be inferior to them in style. Hence it has been thought by various critics to be the work of a different au-thor, of Xenophon, of Theopompus, or of a daughter of Thucydides; but it is more probable that it is the author's own without his final revision. The history is incomplete, the eighth book stopping abruptly in the middle of the twentyfirst year of the war. As a historian Thucydides was painstaking and indefatigable in collecting and sifting facts, brief and terse in narrating them. His style is full of dignity and replete with condensed meaning. He is unsurpassed in the power of analyzing character and



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HARVESTING IN THE WEST



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STEAM HARVESTER AND THRESHER

The upper view shows side hill harvesters drawn by teams of twenty-eight horses each. The machines cut the grain, and tie it up in bundles, which are dropped outside. The machine in the lower view is self-propelling, cuts and threshes the grain, throwing out the straw, and places the grain in sacks ready for loading on the wagon.

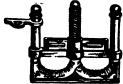


Thuja. See Arbor Vita.

Thule (tho'le), the name given by the ancients to the most northern country with which they were acquainted. According to Pytheas it was an island six days' voyage to the north of Britannia, and accordingly it has often been identified with Iceland. Some have imagined it to be one of the Scotch islands, others the coast of Norway.

Thumb-screw, a former instrument of torture for com-

pressing the thumbs. It was a m ployed in various countries, Scotland in particular. Called also Thumbkins.



Scotch Thumb-Screw, time of Charles I.

Thun (tön), a town of Switzerland, in the canton of

Bern, beautifully situated at the northwestern extremity of the lake of its own name, at the point where the Aar issues from it. It is the seat of the Swiss military school, and the chief place of arms in the country. Pop. 6069.— The lake is 10 miles long, 2 broad, and about 720 feet deep. At its southeastern extremity it receives the surplus waters of the Lake of Brienz by the Aar, which again emerges from its northwestern extremity.

Thunder. See Lightning.

Thunder-fish, a species of fish of the family Siluride, found in the Nile, which, like the torpedo, can give an electric shock. It is the Malapterarus electricus of naturalists.

Thundering Legion. See Aurel-

Thurgau (tur'gou), a canton in the northeast of Switzerland, bounded mainly by the Lake of Constance and the cantons of Zürich and St. Gall; area, 381 square miles; capital Frauenfeld. It differs much in physical conformation from most other Swiss cantons, in having no high mountains, though the surface is sufficiently diversified. The whole canton belongs to the basin of the Rhine, to which its waters are conveyed chiefly by the Thur and its affluents, and partly also by the Lake of Constance, including the Untersee. The principal crops are grain and potatoes; large quantities of fruit are also grown. In many places the vine is successfully cultivated. The manufactures consist

chiefly of cottons, hosiery, ribbons, lace, etc. Pop. 113,221.

Thurible (thürri-bl), a
kind of censer of
metal, sometimes of
gold or silver, but
more commonly of
brass or latten, in
the shape of a covered vase or cup,
perforated so as to
allow the fumes of
burning incense to
escape. It has
chains attached, by
which it is held
and swung at high
mass, vespers, and
other solemn offices
of the Roman Catholic Church.



Thurible.

Thüringerwald (tű'ring-ér-valt), or FOREST OF THUBINGIA, a mountain chain in the center of Germany, stretching southeast to northwest for about 60 miles. Its culminating points are the Beerberg and the Schneekopf, which have each a height of about 3220 feet. The mountains are well covered with wood, chiefly pine. The minerals include iron, copper, lead, cobalt, etc.
Thuringia (thö-rin'ji-a; German, Thüringen, tü'ring-én), a region of Central Germany situated between the Harz Mountains, the Saale, the Thüringerwald, and the Werra, and comprising great part of Saxe-Weimar, Saxe-Coburg-Gotha, and other small adjoining states.

Thurles (thur'les), a town in Ireland, in the county of Tipperary, on both banks of the Suir, with considerable trade, a Roman Catholic cathedral and college, etc. Pop. 4411.

Thurlow (thur'10), Edward, Lord, was born at Little Ashfield, near Stowmarket, Suffolk, in 1732, and in 1778 was made lord-chancellor, being raised to the peerage as Baron Thurlow. Pitt suspected Thurlow of intriguing with the Prince of Wales, and from this time an open disagreement took place between them. Pitt demanded his dismissal, to which the king at once agreed, and he was deprived of the great seal in June, 1792. He died in 1806.

Thurman (thurman), Allen Gran-Bert, statesman, born at Lynchburg, Virginia, in 1813. He entered Congress in 1845, and was elected to the supreme bench of Ohio in 1851, occupying the position of chief-justice. Ohio sent him to the United States Senate in 1869, where he became the recognized leader of the Democratic party. He was the author of the act to compel the Pacific rallroad corporations to fullfil their obligations, known as 'the Thurman act.' In 1888 he received the nomination of the Democratic party for the vice-presidency, but was defeated. He was called 'the old Roman' because of his special devotion to the Republic. He

Thursday Island, a small island Queensland. in Normanby Sound, Torres Straits. It is a government station, and the harbor
— Port Kennedy — is one of the finest in
this quarter. It is in the direct tract of all vessels reaching Australia by Torres Straits; is the center of a large and important pearl and beche-de-mer fishery; and is a depot of trade with New Guinea. Thurso (thur'sō), a seaport of Scot-land, in the county of Calth-ness, on the shore of the bay of the same name. The chief trade is the exproduce and excellent paying cattle produce a Pop. 3723.

Thurston (thurs'tun), ROBERT HEN-BY, physicist, was born at Providence, Rhode Island, in 1839; died in 1903. He graduated at Brown Uni-versity in 1859; served in the navy during the Civil war; became assistant proing the Civil war; became assistant professor of natural philosophy at the Naval Academy in 1865, professor of mechanical engineering at the Stevens Institute in 1871, and director of Sibley College, Cornell University, in 1884. His experiments and inventions were of great value to his profession. He wrote History of the Growth of the Steam Engine, Friction and Lubrication, Materials of Engineering etc. ing, etc.

Thyestes (thi-es'tez), in Greek my-thology, son of Pelops and Hippodamia, and grandson of Tantalus. Having seduced the wife of his brother Atreus, the latter, in revenge, served up to him the body of his own son at a

feast. See Atreus.

Thylacine (thil'a-sen; cynocephalus), a carnivinhabiting inhabiting Tasmania, and commonly known as the Tasmanian wolf. In size it is generally about 4 feet in total length, though some specimens attain a much greater size. It is nocturnal in its habits; of a fierce and most determined disposition, and is very destructive to sheep and other ani-

mals. It has an elongated and somewhat dog-like muzzle, and a long tapering tail; the fur is grayish-brown with a series of bold transverse stripes, nearly black in color, beginning behind the shoulders and ending at the tail.

Thylacoleo (thil-a-kō'le-ō), a re-markable extinct carnivorous marsupial, whose bulk and proportions appear to have equaled the lion. died December 12, 1895.

Thursday (thurs'da; that is, 'Thor's Thyme (tim; Thymes vulgāris), a small plant of the nat. order week, so called from the old Teutonic god of thunder, Thor. See Thor.

Thyme (tim; Thymes vulgāris), a small plant of the nat. order Labiatæ, a native of the south of Europe, and frequently cultivated in gardens. It and frequently cultivated in gardens. It is from 6 to 10 inches high, with narrow, almost linear leaves, and whitish or reddish flowers; has a strong aromatic odor, and yields an essential oil, which is used for flavoring purposes. The fragrant wild thyme found in several of the United States is the Thymus Scrpyllus of botanists. Both species afford good bee-pasture. Thymelaceæ (thi-me-la'se-ē), the Daphne family, an order of exogenous plants, consisting of shrubs or small trees, rarely herbs, with non-articulated, sometimes spiny branches, with tenacious bark. The with non-articulated, branches, with tenacious bark. The branches, are alternate and opposite, and leaves are alternate and terminal. The the flowers spiked and terminal. fruit is nut-like or drupaceous. species are not common in Europe; they are found chiefly in the cooler parts of India and South America, at the Cape of Good Hope and in Australia. See Daphne and Lace-bark Trees.

Thymus Gland (thrmus), a duct-less temporary or-gan situated in the middle line of the body. After the end of the second year of life it decreases in size, and almost or wholly disappears at puberty. It is covered in front by the breast-bone, and lies on the front and sides of the windpipe. Its functions are still undetermined.

Thyroid Cartilage. See Laryna.

Thyroid Gland (thi'roid), a duct-less structure in man which covers the anterior and in-ferior part of the larynx and the first rings of the windpipe. It is of a reddish color, and is more developed in women than in men. It may become abnormally enlarged, as in goitre. Its use is not at all clear, but it probably exerts some influence on the blood and circulation, especially in childhood.

Thyrsus (thir'sus), among the Greeks, a wand or spear wreathed

with ivy leaves, and with a pine-cone at the top, carried by the followers of Bacchus as a symbol of devotion. In ancient representations it appears in various



Various forms of Thyrsus, from ancient Vases.

Thysanura (this'a-nû'ra; 'fringe-tailed'), an order of ap-terous insects that undergo no meta-morphosis, and have, in addition to their feet, particular organs of motion, generally at the extremity of the abdomen.

The group is often divided into two families, Poduridse or spring-tails, and Lepismidse or sugar-lice, etc. Recently it has been divided into two orders by Sir John Lubbock: 1. Collemböla, comprising those members known as spring-

prising those members known as springtails, and nearly co-equal with the Poduridæ; 2. Thysanura (restricted), The death of Livia in A.D. 29 removed comprising those whose anal bristles do not form a spring, as the Lepismidæ.

Tiara (tī-ā'ra), originally the cap of the Persian kings. The tiara of the Persian kings. The tiara of the pope is a high cap, encircled by three coronets with an orb and cross of gold at the top, and on two sides of it a chain of precious stones. The miter alone was first adopted by Damasus II in 1048. It afterwards had a plain circlet of gold put round it. It was surmounted by a coronet by Boniface VIII. The second coronet was added by Urban V.

Tibbus (tib'us), a people of the Eastern Sahara, probably allied in race to the Berbers.

Tibus (tib'us), a people of the Eastern Sahara, probably allied in race to the Berbers.

race to the Berbers.

Tiber (tt'ber; Italian, Tevère; anciently, Tibèris), a celebrated river of Italy, which rises in the Apenciently, Tibèris), a celebrated Its plains average about 10,000 feet in river of Italy, which rises in the Apenheight, and many of its mountains have nines, in Tuscany, and, after a general twice that altitude. In Tibet nearly all southerly course of about 240 miles, falls the great rivers of South and East Asia into the Mediterranean by two mouths take their rise (Indus, Brahmaputra, (one of them artificial). It traverses Hoang-ho, Yang-tse-kiang, etc.), and the city of Rome, here forming the isl-there are numerous salt and freshwater and anciently called Insula Tiberina. lakes, situated from 13,800 to 15,000 About ninety miles of its course are feet above the sea-level. The climate is navigable for small vessels; those of characterized by the excessive dryness of

about 140 tons burden reach Rome. It is subject to floods, and carries down quantities of yellowish mud, hence its designation 'the yellow Tiber.' See Rome.

See Galilee, Sea of. Tibe'rias.

Tiberius (tī-bē'ri-us), in full, TIBE-RIUS CLAUDIUS NERO CÆSAR, a Roman emperor, born B.C. 42, was the son of Tiberius Claudius, of the ancient Claudian family, and of Livia Drusilla, afterwards the wife of the emperor Augustus. Tiberius became consul in his twenty-eighth year, and was subsequently adopted by Augustus as his heir. In A.D. 14 he succeeded to the throne without opposition. Dangerous mutinies broke out shortly afterwards in the armies posted in Pannonia and on the Rhine, but they were suppressed by the exertions of the two princes, Germanicus and Drusus. The conduct of Tiberius as a ruler was distinguished by an extraordinary mixture of tyranny with oc-casional wisdom and good sense. Tacitus records the events of the reign, including the suspicious death of Germanicus, the detestable administration of Sejanus, the poisoning by that minister of Drusus, the emperor's son, and the infamous and dissolute retirement of Tiberius (A.D. 27) to the Isle of Caprese, in the Bay of Naples, never to return to Rome. The death of Livia in A.D. 29 removed the only restraint upon his setting and

Karakorum range to the frontiers of China; area about 700,000 sq. miles. Its plains average about 10,000 feet in

Tibia Tickell

the atmosphere, and the severity of the mished with a mouthplece. For the tibia winter. From October to March vegetation is almost wholly dried up, and the cold is intense. Notwithstanding the inclemency of the weather there is a great longed to the equestrian order, and died abundance of wild and domestic animals. Of these the most remarkable is the yak, this poems are among the most perfect which exists both wild and domesticated. It supplies food and clothing, and is also tast of a reckless voluptuary. We posused as a beast of burden. Other animals include the musk-deer. the Cashmere but the third and part of the fourth are It supplies food and clothing, and is also used as a beast of burden. Other animals include the musk-deer, the Cashmere goat, wild sheep, wild horses and fattailed sheep. Agriculture is practiced to Tibet does a large trade with China, exchanging gold-dust, incense, idols and
European and Indian goods, for tea, silks several hours. It occurs on one side of
and other Chinese produce. The capital
is Lhasa. The form of government is a
hierarchy. The religion is Buddhism in
a form known as Lamaism (which see),
of which Tibet is the principal seat. The
of which Tibet is the principal seat. The the natural remedy; and warm applicalamas or priests form a large proportion
of the population, and live in monasteries; the two grand lamas being regarded as the religious and political heads
of the state. Remains of an earlier creed
exist in the Boupo, a religion evolved
from Shamanism, but much influenced
by Buddhism, and frequently confounded from Shamanism, but much influenced by Buddhism, and frequently confounded with the old school of the Buddhists.

The inhabitants are of an amiable disposition, but much averse to intercourse Ticino (German and French, Tessin), with foreigners, few of whom have been able to gain admittance to the country. Recently, however, the country has been northern and greater part of this canton traversed by persistent explorers and its an elevated and mountainous region, general characteristics learned The traversed by persistent explorers and its general characteristics learned. The the Splügen, St. Bernardin, and Mount manners and mode of life of the people are rude. Polyandry is a common custom. The language is allied to Chinese, there are numerous small lakes. Lake and has been written and used in literature for 1200 years. Tibet was governed by its own princes till the commencement of the 18th century, but since dairy produce. In the south the olive, 1720 it has been a dependency of China. A Chinese functionary is always grown. Manufactures and trade are unstationed at the residence of the grand lama, and a Chinese governor with a linzona, Locarno, and Lugano. Pop. military force is stationed in each of the principal towns. A recent event was the speak Italian. principal towns. A recent event was the speak Italian. principal towns. A recent event was the speak Italian. sending of a Chinese force to the counself of a Chinese force to India, putting himself under ture and in life was mainly due to British protection. The population is Addison, who procured for him in 1717 estimated at from 2,000,000 to 3,000,000, an under-secretary ship of state. In 1725 though he come it is supposed to be consequently a consequent to the lorder of the consequent of the consequent of the lorder of the consequent of the lorder of the consequent of the consequence of the consequent of the consequence of the consequent of the consequence of the consequence

but the third and part of the fourth are spurious.

Tic Douloureux (db'lb-re), a painful affection of a tailed sneep. Agriculture is practiced to
a comparatively small extent, suitable
a comparatively small extent, suitable
a localities being rare. Minerals include facial nerve, a species of neuralgia. It is
gold, copper, iron, borax and rock-salt. characterized by acute pain, attended
Tibet does a large trade with China, exwith convulve twitchings of the muscles,
changing gold-dust, incense, idols and continuing from a few minutes to
European and Indian goods, for tea, silks
and other Chinese produce. The capital the face, and may be caused by a dis-

120 miles joins the Po on the left. It traverses Lake Maggiore and separates Piedmont from Lombardy.

though by some it is supposed to be conhe was appointed secretary to the lords-siderably larger.

Tibia (tibi-a), a kind of plpe, the his death in 1740. His chief works are commonest musical instrument Prospect of Peace, a ballad entitled of the Greeks and Romans. It had holes at proper intervals, and was furdeath of Addison.

Ticket-of-leave, a certificate given to a convict by which he is permitted to go at liberty, under certain restrictions, before the ex-piration of his sentence. This system exists in Britain and a similar system, known as parole, has recently been adopted in parts of the United States. It amounts to a conditional pardon, dependent upon the conduct of the pris-

Ticking (tik'ing), a strong cloth, com-monly made of twilled linen or cotton and of a striped pattern. It is chiefly used for covering mattresses for beds.

Ticknor (tik-nur), George, historian, born at Boston in 1791; died there in 1871. He was graduated from Dartmouth College in 1807, and was admitted to the bar in 1813. In 1815 he embarked for Europe, and visited the chief capitals for the purpose of pursuing his studies. On his return in 1820 he was appointed professor of modern languages and literature in Harvard University. In 1835 he resigned his professorship, and for the next three

into Spanish and German. After completing some works of minor interest he produced, in 1863, a Memoir of Prescott, the historian, with whom he had long main-tained a close friendship.

Ticks, a tamily of the rida or mites, class a family of the Aca-Arachnida. Ticks are parasitic animals, possessing oval rounded bodies. mouths, in the form of suckers, by which they attach themselves to dogs, sheep, oxen, and other mammals. Birds and reptiles are also annoyed by the attacks of certain species and man is subject to their attacks. (tī-kon-der-ō'ga), a vil-Ticonderoga

iage in Essex Co., New

York, situated upon the stream connecting lakes George and Champlain. It figured prominently during the colonial and revolutionary period, having a fort-ress built by the French in 1755, which was attacked by the British in 1758 and captured by Ethan Allen in 1775. The ruins of the old fort remain an object of interest. Pop. 2475.

Tidal Motor, a motive power receiving its energy through the lift and fall of the tides acting upon a suitable apparatus.

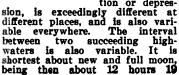
Tide (tid), the rising and falling of the water of the sea, which occurs periodically, as observed at places on the coasts. The tide appears as a general wave of water, which gradually elevates itself to a certain height, then as gra lually sinks till its surface is about as much below the medium level as it was before above it. From that time the wave again begins to rise; and this reciprocating motion of the waters continues constantly, with certain varia-tions in the height and in the times of languages and literature in Harvard tions in the height and in the times of University. In 1835 he resigned his professorship, and for the next three and of depression. The alternate rising years traveled in Europe with his family. In 1849 he published a *History of Spanton and falling of the tide-wave are observed in Literature*, corrected and enlarged course of a lunar day, or of 24 hours editions being subsequently published. 49 minutes of mean solar time, on most It was at once recognized by scholars as of the shores of the ocean, and in the a work of value, and has been translated greater part of the bays, firths, and rivers which communications.

Fig. L.

M

Tides.

which communicate freely with it. The tides form what are called a flood and an ebb, a high and low water. The whole interval between high and low water is often called a tide; the water is said to flow and to ebb; and the rising is called the flood-tide and the falling the rise or fall of the waters, in regard to elevation or depres-



Tide . Tieck

the earth. The moon is the nearest of the heavenly bodies to the earth, and the mobile nature of water leads it to yield readily to the attractive influence. Those readily to the attractive influence. Those parts of the waters directly under the moon's vertical path in the heavens are drawn out towards the moon. At the same time the moon attracts the bulk of the earth, and, as it were, pulls the earth away from the water on the surface furthest from it, so that here also the water is raised, although not quite so much as on the nearer side. The waters being thus heaped up at the same waters being thus heaped up at the same time on these two opposite parts of the earth, and the waters situated half-way between them being thus necessarily depressed, two high and two low tides oc-cur in the period of a little more than one revolution of the earth on its axis. The sun's influence upon the tides is evidenced in its either increasing or evidenced in its either increasing or diminishing the lunar tide, according as the sun's place in the heavens coincides with the line of the moon's attraction, or the reverse. It is this difference which produces what are known as spring tides and neap tides. Spring tides occur at new and full moon, and are the result of the gravitating influence of both sun and moon; neap tides occur when the moon is in her quarters, and are not so high as the spring tides, the lunar inmoon is in her quarters, and are not so high as the spring tides, the lunar in-fluence being lessened by the sun's force acting in a direction at right angles to it. The accompanying figures illustrate the theory of the tides, E being the earth, M the moon, s the sun, W, W, the water raised up by attraction on the opposite sides of the earth. Fig. 1 shows spring tide at new moon, fig. 2 spring tide at full moon, the low tides being at σ and d. Fig. 3 illustrates the neap tides, a_1 a_2 being small tides caused by the sun alone. The interference of coasts and irregularities in the ocean beds cause the great variations as to time and range in the actual tides observed at different places. In some places, as in the German Ocean at a point north of the Straits of Dover, a high tide meets low water, and thus a night the meets low water, and thus of the German translation of Snakespeare maintains perpetual mean tide. In the commenced by Schlegel. His last story case cited high water transmitted through of importance was Vittoria Accorombona the Straits of Dover encounters low water (1840). On the accession of Friedrich transmitted round the north of Scotland, William IV Tieck was invited to the any place between noon and the time of privy-councilor, and the rank of a high water on the day of full or new privy-councilor, and thenceforward acted moon is called the establishment of the as a sort of supervisor of the Pressian moon is called the establishment of the as a sort of supervisor of the Prussian

minutes; and about the time of the port. The height of the tide differs moon's quadratures it is 12 hours 30 greatly in different localities. In the minutes. But these intervals are somewhat different at different places. Tides are caused by the attraction which the much higher in the contracted waters of sun and moon exert over the water of the British coast than in the open waters of of American ports. In home waters the carth. The moon is the pagest of of American ports. In home waters the series of the pagest o of American ports. In bays, where the inflowing waters are lifted through contraction, the tides are necessarily high, and this is especially the case in the long and narrow Bay of Fundy, where the tides are exceptionally high, rising from 50 to 70 feet, while the rush of water into and out of the bay is very rapid.

Tidore (ti'dôr), one of the Moluccas (which see). (which see).

Tieck (tek), Ludwig, a German writer, born at Berlin in 1773. He was educated at the University of Halle, and at Göttingen and Erlangen, and having returned to Berlin came forward as a writer of tales and romances, including his tale of Abdallah, and a novel entitled William Lovell. His Peter Lebrecht, a History without Adventures, and Peter Lebrecht's Volksmärchen displayed great imaginative power and rich humor. At Jena in 1799-1800 he entered on friendly relations with the Schlegels, Novalis, Brentano, and others, and through this association arose what has been denominated as 'the Romantic School of Germany.' In 1799 he published Romantische Dichtungen, and in 1804 appeared his comedy Kaiser Octavianus. His Phantasus, however, gave the first sign of his having freed himself from the sign of his having freed himself from the mysticism and extravagance of his earlier works. In 1817 he visited England, where he collected material for his Shakespeare; and on his return resided at Ziebingen till 1819, when he removed to Dresden. From this period his writings, as exemplified in his Tales, bear the true stamp of genius. These tales were ultimately published complete in twelve volumes (Berlin, 1853), the principal being Dichterleben ('A Poet's Life—Shakespeare'); Der Tod des Poeten ('The Poet's Death—Camoens'); the Witches' Sabbath; and Aufruhr in den Cevennen ('Revolt in the Cevennes'), an incomplete work. In 1826 he published his Dramaturgische Blätter. His lished his Dramaturgische Blätter. His study of Shakespeare resulted in Shakespeare's Vorschule, and the continuation of the German translation of Shakespeare

stage. He died at Berlin on April 28, 1853.— His brother, CHRISTIAN FRIED-RICH (born in 1776; died in 1851), was

celebrated as a sculptor.

Tiel (tel), a town in Holland, in the province of Gelderland, 19 miles

is navigable only by native craft, and large vessels have their cargoes transshipped outside the mouth of the Taku roadstead. A large import trade is carried on chiefe in port trade is carried on chiefe in present trade is carried. The principal imports are cottons, sugar, is the shipping point for large quantities opium, paper, and tea; exports, dates, of wheat and corn. The manufactures cotton, camel's wool, and coal. The include stock food, chemicals, grain, coal, Taku forts were taken by the British and woolen goods, farming implements, emery-French in 1860, and the capture of wheels, pottery, glass, well-drilling ma-Pekin followed. Since then the defenses chinery, etc. Pop. 13,217.

of the Pei-ho have been immensely Tiflis (tif-lis), capital of Russian Caustrengthened. The city is surrounded by a lofty wall with towers and presents ton and silk, leather, soap, etc. The armean appearance by its great expanse tisans of Tiflis are celebrated as silvera mean appearance by its great expanse tisans of Trifia are celebrated as silverof low houses. The foreign quarter, smiths, gunsmiths, and sword makers,
however, which is outside the main city, Pop. 303,150.—The government has an
is well built. Pop. estimated at about area of 17,000 sq. miles; produces cereals,
800,000.

Tierra del Fuego (të-er'a del fwä'go; 'Land of
Fire'), a large group of islands at the
southern extremity of South America, separated from the mainland by the Strait of Magellan. It consists of one large island and numerous smaller islands, with a total area of about 32,000 square miles. The eastern part of the group belongs to the Argentine Republic, the western part to Chile. These islands consist chiefly of mountains covered with perpetual ice and snow, or clothed with stunted forests, mainly evergreen-beech. The climate is wretched. The natives in the northeast resemble the Patagonians in color, stature, and habits; but those in the southeast are short and stunted, unclean in their habits, and pass a most degraded existence. Tierra del Fuego was discovered by Magalhaens (Magellan) in 1520, and named 'Land of Fire' from the numerous fires he saw on its coast during the night.

Tiers-état (ti-ār-zā-tā; 'third estate'), the name given in the ancient French monarchy to the third order of the nation, which, together with the nobility and clergy, formed the états généraus (states-general). It consisted of the deputies of the bourgeoisie,

that is, the free inhabitants of the towns and communes who did not belong to either of the other two estates. the states-general, or rather the tiers-état by itself, assumed the name of the National Assembly.

w. s. w. of Arnhem, on the right bank of the Waal. It carries en a considerable general trade. Pop. 10,788.

Tientsin (tě-en-tsēn'), a town in the 1848. In 1880 he began to devote himnorth of China, and the self almost entirely to the production of river-port of Pekin, 70 miles away, and decorative glass. The Favrile glass, with which it communicates by the Pei-ho River and by a railway line. The Pei-ho in both Europe and America.

Tiffin (tif'in), a city, capital of Seneca co., Ohio, is situated on the Sanlarge vessels have their cargoes transco., Ohio, is situated on the Sanshipped outside the mouth of the Taku dusky River, 40 miles S. E. of Toledo.
roadstead. A large import trade is carit is the seat of Heidelburg University
ried on, chiefly in European goods and the college of Ursuline Sisters.
(Tientsin being one of the treaty ports). Natural gas and oil are produced and it
The principal imports are cottons, sugar, is the shipping point for large quantities
opium, paper, and tea; exports, dates, of wheat and corn. The manufactures

Tiger (tr'ger; Felis tigris or Tigris re-galis), a well-known carnivo-rous animal, possessing, in common with the lion, leopard, etc., five toes on the front feet and four on the hinder feet, all the toes being furnished with strong retractile claws. The tiger is about the height of the lion, but the body is longer and the head rounder. It is of a bright fawn-color above, a pure white below, irregularly crossed with black stripes. The tiger is an Asiatic animal, attaining its full development in India, the name of 'Bengal tiger' being generally used as synonymous with those specimens which appear as the typical and most which appear as the typical and most powerful representatives of the species. The tiger also occurs in Java and Sumatra. In habits it is far more active and agile than the lion, and exhibits a large amount of fierce cunning. It generally selects the neighborhood of watercourses as its habitat, and springs upon the animals that approach to drink. 'Man-eaters' are tigers which have acquired a special liking for human prey. The natives destroy tigers by traps, pits, poisoned arrows, and other means. Tiger-hunting is a favorite Indian sport. Tiger-beetle (Cincindela campest-ris), a species of coleopterous insects which are swift and the Euphrates somewhat more than 100 active in their movements, and prey upon miles from its embouchure in the Perother insects.

Tiger-cat, a name of not very defi-nite signification, some-times given to some of those animals of the family Felidæ which are of middling size, and resemble the tiger in their form or markings, such as the chati, the margay, the ocelot, the serval, etc., which Bee.

Tiger-flower (Tigridia pavonia), a Mexican bulbous plant Mexican bulbous plant of the nat. order Iridacese, frequently cultivated in gardens on account of the magnificence of its flowers. The stem is about 1 foot in height, with swordshaped leaves. The flowers are large, of a singular form,

and very evanescent. The petals are of a fine orange-red to-wards the extremity; whitish or yellowish and beautifully spotted at the base.
Tiger-lily (Lilium tigri-

num) a native of China, common in American gardens, baving scarlet flowers turned downward, the



Tiger-lily (Lilium tigrinum).

perianth being reflexed. It is remarkable for having axillary buds on the stem. The bulbs are eaten in China and

Tiger-moth (Arctia caja), a genus of lepidopterous insects, of lepidopterous insects, the caterpillars of which are well known under the popular name of 'woolly bears.' The moth is colored red and brown. The larvæ feed on dead-nettles.

Tighe (tt), MARY BLACKFORD, an Irish poetess, born in Dublin in 1774, and married to Henry Tighe in 1793. Her writings were published after her death in 1810. Her chief poem is Psyche, or the Legend of Love, written in the Spenserian stanza. Her other poems are short occasional pieces, frequently of a religious cast.

See Assyria. Tiglath-pile'ser.

Tigra'nes. See Armenia.

Tigré. See Abyssinia.

Tigris (ti'gris), a river in Western Asia, having its principal source in the Turkish province of Diarbekir, on the southern slope of the Anti-Taurus, a Till, a name given in Scotland to unfew miles to the east of the Euphrates.

It flows generally southeast, passes now extended by geologists to any similar Diarbekir, Mosul and Bagdad, and joins surface or drift deposit.

miles from its embouchure in the Persian Gulf, after a course of 1100 miles, the united stream being known as the Shatt-el-Arab. Large rafts, supported by inflated skins, are much in use for the transport of goods. The region between the Tigris and the Euphrates is known as Mesopotamia. Tikus. See Bulau.

Tilden (til'den), SAMUEL JONES, statesman, born in New Lebanon, New York, in 1814. He was elected to the State assembly in 1845, and in 1846 was a member of the State Constitutional Convention. From 1855 more than half the railway corporations in the North were his clients. By 1868 he had become the leader of the Demonstration party in Now York State His cratic party in New York State. His determined opposition and practical measures broke up the Tweed ring. He was elected in 1874 Governor of New York and in 1879 was Deceased in 2015 York and in 1876 was Democratic candi-York and in 1876 was Democratic candidate for President. The election was so close that a contest arose, the dispute being finally settled by the decision of an Electoral Commission. The electoral vote, as declared finally, was 185 for Hayes; 184 for Tilden. In 1880 and in 1884 a renomination was pressed upon him, but declined. The greater portion of his fortune (which was estimated at of his fortune (which was estimated at \$5,000,000) he devoted to public uses, but the will was contested and the estate went to the next of kin. He died August 4, 1886.

Tile (til), a term applied to a variety of articles made either for ornament, such as inlaid paving tiles (see Encaustic Tiles and Mosaic), or for use, as in tile-draining (see Draining) and roofing, which last are made similarly to bricks, and of similar clay.

Tiliaceæ (til-i-ā'se-ē), the lime-tree family, a nat. order of polypetalous dicotyledonous plants, consisting petaious dicotyledonous plants, consisting chiefly of trees or shrubs, with simple, toothed, alternate leaves, furnished with stipules. The species are generally diffused throughout the tropical and temperate parts of the globe. They have all a mucilaginous wholesome juice, and are remarkable for the toughness of the fibers of their inner bark, which is used for various geographical purposes under for various economical purposes under the name of bast. Among the most im-portant genera are Tilia and Corchorus, the former containing the common lime, the latter jute.

Tillandsia Timber

the nat. order Bromeliacese, natives of tropical America. T. amana and T. splendens are cultivated in hothouses on splenders are Currented in neutrons are country and splender of the singular variety and splender of the colors of the spathes and flower-spikes. T. usneoides is a native of the Southern United States, where it

hangs in festoons from trees.

Tiller (til'èr), the lever or handle of the helm by which the rudder of a vessel is turned. See Steering Apparatus.

Tillman (til'man), BENJAMIN RYAN, statesman, born in South Carolina in 1847. A farmer until 1886, he began to agitate for industrial education and other reforms; was elected Governor of South Carolina in 1890 and As a member of the Senate he has been radical in his views and very pronounced in his expression of them. He instituted in his state a system of selling liquor under State control and founded an industrial school for boys, the largest in the South. He died July 3, 1918.

Tillotson (til'ot-sun), John, an English prelate, son of a clothier near Halifax, was born in 1630. In 1647 he became a student of Clare Hall, 1647 he became a student of Clare Hall, Cambridge, and was elected a fellow in 1651. He was a Presbyterian preacher until 1662, when he submitted to the Act of Uniformity, and was chosen preacher to the society of Lincoln's Inn, and lecturer at St. Lawrence, Jewry, in 1664. After becoming a D.D. in 1666, he was made king's chaplain, and presented to a prebend of Canterbury. He was subsequently appointed dean of was subsequently appointed dean of Canterbury, and in 1689 he became dean of St. Paul's. During the suspension of Archbishop Sancroft, Tillotson exercised the archiepiscopal jurisdiction, and in 1691 reluctantly accepted the archbishopric. His liberal views rendered him obnoxious to the advocates of orthonim odnoxious to the advocates of orthodoxy, and he was assailed with great animosity after his acceptance of the primacy. He died in 1694. Tillotson's sermons were at one time very popular.

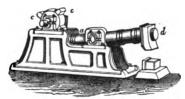
Tilly (til'i, tē-yē), JOHANN TSERK-LAES, COUNT OF, one of the most celebrated generals of the seventeenth century, born about 1559, in Walloon Brabant. After being educated by the sermons were at one time very popular.

Tilly (til'i, teye), Johann TserkLaes, Count of, one of the most
celebrated generals of the seventeenth
century, born about 1559, in Walloon Sexton's Tale (poems, 1867); Sanctum
Brabant. After being educated by the Sanctorum (1869); Tempest Tossed
Jesuits he served successively in the (1874); Thou and I (poems, 1882), etc.
Spanish, Austrian, and Bavarian armies.
On the outbreak of the Thirty Years' war
he led the army destined to crush the
rotestants in Bohemia. (See Thirty
Years' war.) He defeated them on the
White Mountains (Nov., 1620), and in

Tillandsia (til-and'si-a), a genus of 1622 conquered the Palatinate, defeating several Protestant commanders. On August 27, 1626, he defeated Christian IV of Denmark in Brunswick, and compelled him to return to his own country. In 1630 Tilly succeeded Wallenstein as generalissimo of the imperial troops. The act by which he is best known in history is the bloody sack of Magdeburg, May 10, 1631, the inhabitants being ruthlessly slaughtered. Gustavus Adolphus met him at Breitenfeld, near Leipzig, September 7, and Tilly was entirely beaten, and was himself wounded. In a subsequent engagement with the Swedes on the Lech a cannon-ball shattered his thigh, and caused his death in 1632.

Tilsit (til'sit), a town of East Prussia, on the Memel, by means of which it carries on a large trade. Manuwhich it carries on a large trade. Manufactures include iron castings, machinery, paper, cloth, soap, oils, leather, cheese, etc. Pop. 37,148. The town is celebrated for the peace concluded here in July, 1807, between Russia and Prussia and Napoleon. See Prussia.

Tilt-hammer, a large and heavy steam or water power, and used in forgings. It has been largely superseded by the steam-hammer, but is still advantageously used with light work. Cogs (a:



Tilt-hammer.

at oc in cut) being brought to bear on the tail of the hammer (a), its depression causes the head (d) to be elevated, which, when the tail is liberated, falls with considerable force by its own weight.

Tilton (til'tun), THEODORE, author, was born in New York City in

pieces. He was fanatical in his religion, and although no conquests were ever attended with greater cruelty, devastation, and bloodshed, he was in a measure a patron of science and art, and is also reputed author of the Institutions of Timur and the Autobiography of Timur, both translated into English.

New South Wales and Victoria; also occurs in Tasmania. There are only two ores of tin; the native binoxide, called tin-stone, and the double sulphide of tin and copper, called tin-pyrites. The former is the only ore used for obtaining metallic tin. It occurs in various crystallized forms, in deep lodes blended with several other metals, as arsenic, copper, zinc, and tungsten, when it is known as mine-tin; or, in disseminated masses in alluvial soil, in which state it is called tin called tin; by are afterwards to the metallic state, yields block-tin, while stream-tin yields a purer sort called grainsing. The ore is first ground and washed, and then roasted in a reverberatory furnace to expel the sulphur and arsenic. Mixed with limestone and fuel, it is again fused in a furnace for about eight with the lime, while the oxide of tin, reduced to a metallic state, falls by its own weight to the bottom, and is drawn off. The tin, still impure, is again moderated when it melts and flows off into the refining basins, leaving the curs in Tasmania. There are only two ores of tin; the native binoxide, called tin-stone, and the double sulphide of tin and copper, called tin-pyrites. The former is the only ore used for obtaining

taken prisoner. The conquests of the greater part of the foreign metals in Tartar now extended from the Irtish a solid state. The molten tin is stirred and Volga to the Persian Gulf, and in order to disperse the gases, and, when from the Ganges to the Grecian Archipelago. He was making mighty preparations for an invasion of China when death arrested his progress at his camp artially cool, it separates in zones, the partially cool, it separates in zones, the partially cool, it separates in zones, the was for an invasion of China when death arrested his progress at his camp and his empire immediately fell to block-tin, the purest specimens being pieces. He was fanatical in his religion, and although no conquests were ore of tin, contains from 14 to 30 per ever attended with greater cruelty, deverated with greater cruelty when the greater greate has a slightly disagreeable taste, and emits a peculiar sound when rubbed. Its hardness is between that of gold and raphy of Timur, both translated into English.

Tin, a hard, white, ductile metal; atomore weight 118; chemical symbol Sn (from L. stannum). Tin appears to have been known in the time of called the cry of tin. It loses its luster Moses; and the Phænicians traded largely in the tin ores of Cornwall. The mountains between Galicia and Portugal, and those separating Saxony and Bohemia, were also productive of tin centuries ago, and still continue unexpensively. The United States, Mexico, Bolivia, Peru, the United States, Mexico, Bolivia, Peru, the United States, there are rich deposits of both vein ore so called from Libavius, a chemist of and stream-tin, but they are yet little worked, the extraction of the tin being difficult. The most important localities are the Straits Settlements, Banca, and Bolivia. In Australia tin is found in New South Wales and Victoria; also occurs in Tasmania. There are only two cores of tin: the netic blooking called control of the provide called from Libavius, a chemist of the sixteenth century. Tin also combines with phosphorus and with sulphur. Stannic sulphide (SnS₂) has are the Straits Settlements, Banca, and Bolivia. In Australia tin is found in worse of tin: the netic blookide called from Libavius, a chemist of the sixteenth century. Tin also combines with phosphorus and with sulphur. Stannic sulphide (SnS₂) has are the Straits Settlements, Banca, and Bolivia. In Australia tin is found in worse of tin: the netic blookide called the cry of tin. Its very flexible, and it is very malleable. Specific Tin will lead, and it is very malleable. Specific Tin will tend that is very malleable. Specific Tin stannes as carackling sound, sometimes is between that of gold and lead, and it is very malleable. Combines with reverse it is suctioned and the extraction of gravity 7.28. Melting point about 230° and the lead, and it is very malleable. Combines is very fixible, and the early suct of C. Tin is very fixible, and bed, and it is very malleable. Combines is very fixible, and the early su but does not readily combine with iron.

off into the refining basins, leaving the pheasant down to that of a quail. The

great tinamou (Tinamus brasiliensis) is visiting Luther at Wittenberg. forests of Guiana.



Great Tinamou (Tindmus brasiliensis).

Tinavelly. See Tinnevelli.

Tincal (ting'kal), the commercial name of borax in its crude or unrefined state. See Boras.

Tincture (tingk'tūr), a spirituous solution of the active principal

ples of some vegetable or other medicinal substance.

Tindal (tin'dal), MATTHEW, an English controversial writer, born about 1657; entered Lincoln College, Oxford, in 1672; became a fellow of All Souls', and received the degree of LL.D. After the revolution he sat as a judge in the Court of Delegates. In 1706 he published a treatise entitled the Right of the Christian Church attacking bisrapsh. lished a treatise entitled the Right of the Christian Church, attacking hierarchical supremacy. This work excited the animosity of the high church clergy, and the House of Commons ordered it, together with two defenses of it written by Tindal, to be burned by the common hangman. In 1730 he published his most famous work, Christianity as Old as the Creation, or the Gospel a Republication of the Religion of Nature, in which he maintains that there has been

no revelation distinct from the internal revelation of the law of nature in the hearts of mankind. He died in 1733. Tindall, or Tyndale, William, a martyr to the Reformation, born about 1484 in Gloucestershire, and educated at Oxford. After taking orders he went as a tutor to Gloucestershire, where, in consequence of his opinions in favor of the reformation doctrines, he was reprimanded by the chancellor of the diocese. He then removed to Lon-don, where he probably began his Eng-lish version of the New Testament, and subsequently proceeded to Germany,

which he maintains that there has been

7-10

about 18 inches long, and inhabits the completed his translation he got it partly printed in quarto at Cologne; but he had to flee from this town, and the complete work was printed in octavo at complete work was printed in octavo at Worms. The greater part was sent to England, and the prelates Warham and Tunstall collected all copies they could seize or purchase, and committed them to the flames. The only fragment of the quarto edition known to exist is preserved in the British Museum. Of the first octavo edition only two copies remain, one in the Baptist Museum at Bristol, the other (imperfect) in the library of the Chapter of St. Paul's. Revised editions were soon issued by Tindall himself. Tindall also translated the Pentateuch, and subsequently Jonah. the Pentateuch, and subsequently Jonah. In 1530 he took up his residence at Antwerp. In 1535 he was thrown into prison at Vilvorde near Brussels, and being found guilty of heresy he was strangled in 1536 and his body burned at the stake. Tindall's translation of the at the stake. Tindall's translation of the Scripture is highly esteemed for perspicuity and noble simplicity of idiom.

Tinder (tin'der), any substance artificially rendered readily ignitible but not inflammable. Before the invention of chemical matters. The tinchief means of procuring fire. The tinder, ignited by a spark from a flint, was contact with matches vention of chemical matches it was the dipped in sulphur. Tinder may made of half-burnt linen, and of various other substances, such as amadou, touchwood, or German tinder (which see).

Tinea. See Ring-worm, also Clothesmoth.

Tin-foil, pure tin, or an alloy of tin and lead, beaten into leaves about 1000th part of an inch thick. When coated with mercury it forms the reflecting surface of glass mirrors.

Tinnevelli (tin-ë-vel'i), a town in the southeast of India, in the presidency of Madras, the largest town of the district of the same name, the administrative headquarters of which are at Palamkotta (which see) on the other side of the Tambraparni River. has an interesting ancient temple and is an active Protestant missionary center. Pop. 40,469.—The district, which occupies the extreme southeastern corner of

the Indian peninsula, has an area of 5381 square miles. Pop. 2,059,607.

Tinning (tin'ing), the process of covering or coating other metals with a thin coat or layer of tin, to protect them from oxidation or from cor-

Tinos (të'nos), or Tino (anciently Tenos), an island in the Grecian

Archipelago, one of the Cyclades, immediately southeast of Andros; area, about 85 sq. miles. It produces barley, silk, wine, figs, oranges, and honey. There is a town of the same name near the south coast. Pop. of the island 12,300; of the town, about 2000.

Tin-plate. See Tin.

Tintoretto (ten-to-ret'to), the surname of a Venetian historical painter, GIACOMO or JACOPO ROBUSTI, born at Venice in 1518; died there in 1594. He studied for a few days under Titian, but, being dismissed without explanation by his master, he afterwards pursued his studies alone, and endeavored, according to his own motto, to unite Titian's colorings with the drawing of Michael Angelo. He painted many works for his native city, among which are a Last Judgment, the Israelites Worshiping the Golden Calf, a Crucificion, the Marriage of Cana, the Miracole of St. Mark ('Miracole dello Schiavo'), his masterpiece. His portrait, by himself, is in the Louvre; and there are many of his paintings in Germany, Spain, France, and England. Equal in several respects to Titian or Paul Veronese, he wants the dignity of the former, and the grace and richness of composition of the latter. His manwards pursued his studies alone, and enof composition of the latter. His manner of painting was bold, with strong lights, opposed by deep shadows. His execution was very unequal.

Tinoceras (ti-nos'er-as), or Tino-mals now extinct, found in the Eocene, and representing the order Dinocerata.

famous for the battle fought near its mouth, November 7, 1811, in which the Indians, under Tecumseh's brother, the prophet, were defeated by General Harrison.

Tipperah (tip-pe'ra), a district of British India, in the Chit-

tagong division of Bengal; area, 2491 square miles. Capital, Cornilla.

Tipperary (tip-per-ā'ri), an inland county in Ireland, in the province of Munster; area, 1659 square province of Munster; area, 1659 square **Tipton** (tip'tun), a town in Stafford-miles. The soil is extremely fertile; the shire, England, 8 miles w. N. w. chief crops are oats, potatoes, and of Birmingham. It depends chiefly on what. The highest elevation is 3000 its manufactures of heavy iron goods. miles. The soil is extremely fertile; the fees: the level country forms part of the Pop. 31,763.

great central plain of Ireland, and includes some branches of the Bog of Allen. It is drained mainly by the river Suir. Mineral productions comprise coal, copper, zinc and argentiferous lead; slates of good quality are exten-sively obtained near Killaloe. Grazing is the principal employment, and there are numerous dairies. Chief towns: Clonnumerous dairies. Chief towns: Clonmel, Carrick-on-Suir, Nenagh, Thurles. Cashel, Tipperary and Roscrea. Pop. 160,232.—TIPPERABY, the county town, situated on the river Arra, 98 miles s. w. of Dublin, in a district called, from its fertility, the 'Golden Vale.' It has a large trade in butter. Pop. 6281.

Tippoo Sahib (ti-pö' sa'hib), Suitan of Mysore, son of Hyder Ali, born in 1749, succeeded his father in 1782. (See Hyder Ali Khan.) He continued the war in which his father was engaged with the British. and

He continued the war in which his father was engaged with the British, and abandoned the Carnatic in order to check the British advance on the Malabar coast. In April, 1783, he forced the British commander, Matthews, to surrender at Bednore. Matthews and a part of the garrison were put to a shameful death. Mangalore also fell into his hands; but in March, 1784, being deprived of the assistance of the French by the Treaty of Versailles (Sept., 1783), he was induced to sign the Treaty of Mangolore on advantageous terms. In 1789 he attacked the Rajah of Travancore, an ally of the British. An offensive and defensive alliance was concluded (June, 1790) between the East India Company, the Peishwa of the Mahrattas, and the Nizam. In the campaign of 1790 and 1791 several places and representing the order Dinocerata. Mahrattas, and the Nizam. In the camThe individuals were all large, some of
them nearly equaling the elephants, while
were reduced by the allies, and Tippoo
the brain was smaller than that of any
living or fossil mammal.

Tippecanoe (tip-pe-ka-nō'), a river
of Indiana, which rises
half his territory and to pay 33,000,000
in the N. part of the State, flows W. S. W. rupees. But Tippoo was unwilling to
and S. 200 miles, and empties into the submit to this loss and entered into
Wabash 10 miles above Lafayette. It is negotiations with the French. Suspectfamous for the battle fought near its ing that Tippoo's preparations were coning that Tippoo's preparations were con-nected with Bonaparte's invasion of Egypt, the Company determined to an-ticipate hostilities, and on Feb. 22, 1799, in connection with their allies, they de-clared war against the sultan. Tippoo was defeated in two battles, and retreated to Seringapatam; which place was attacked by General Baird on May 4, and completely reduced, Tippoo perishing in the assault.

Kherson, on the Dniester. Pop. 31,616.

Tirlemont (tirl-mon), a town of Belgium, in South Brabant. It has a church dating from the ninth century, and manufactures of woolens, breweries, and a large trade. Pop. 18,544.

Tirnau (tir'nou), Tyrnau, a royal free town of Hungary, county of Pressburg. Pop. 13,181.

Tirnova (tir'no-và), or Ter'nova, a town of Bulgaria, capital of province of same name. Pop. 12,185.

Tirol. See Tyrol

Franco-German war. He was made a rear-admiral in 1895, and in 1898 became or Elliptical Parenchyma. 5, Round rear-admiral in 1895, and in 1898 became or Elliptical Parenchyma. 5, Round secretary of state for the Admiralty, the head of the German navy. He is a man of great personal force and has done much to build up the German navy.

Tiryns (ti'rins), a very ancient city of the control of the

of great personal force and has done much to build up the German navy.

Tiryns (tirins), a very ancient ruined city of Greece, in the Peloponnesus, in the plain of Argolis, about 3 miles from the sea, with remains of Cyclopean walls, and of a palace of the eleventh or tenth century B.C., excavated by Schliemann.

Tischendorf (tish'en-dorf), Lober of time—from three to fifteen days—but

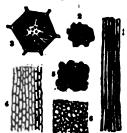
the most remarkable being (in 1859) the famous Sinaitic Codex (which see). Tischendorf was continually engaged in editorial labors, and was broken down by overwork in 1873. He died at Leipsic in 1874.

Tisio. See Garofalo, Benvenuto.

Tissue (tish'a), (1) in animal anatomy, the texture or grouping of anatomical elements of which the systems of organs are composed. Thus in

Tipula (tip'u-la), a genus of dipterous insects or flies, of which
the great crane-fly (T. gigantea) is a In vegetable anatomy, the minute eletypical species. See Crane-fly.

Tiraspol (tye-ras-pol'y'), a town of
South Russia government
Kherson, on the Dniester. Pop. 31,616.



TISCHENGOFF (USE endorf), LOBE. can be kept alive only for a certain length of time—from three to fifteen days—but it is believed that death may be rather in 1815, studied at Leipsic, and in 1845 became professor extraordinary there, becoming professor ordinary of theology carrel has devised a system of artificial in 1850. He made several visits to the East, and brought back valuable MSS., the most remarkable being (in 1859) the Currel has devised a system of artificial rejuvenescence, by washing the tissue from time to time in Ringer's solution and by placing it in a medium of plasma and distilled water. The excised heart of a turtle will, under appropriate conditions, continue beating for several days. Tit. See Titmouse.

Titania. See Mab.

Titanic, WRECK OF THE. On the night of April 14-15, 1912, took place the greatest disaster recorded in of anatomical elements of which the systems of organs are composed. Thus in special histology we speak of muscular tissue, or fesh; osseous tissue, or bone; with the loss of 1635 of her passengers adipose tissue, or fat; cartilaginous tissue, or gristle; pigmentary tissue, or 66,000 tons each, were launched by the coloring matter seen in the skin, etc.; White Star Line—the Olympic in 1910, arsolar, oellular, or connective tissue, the Titanic in 1911. These floating palaces widely distributed in every part of the length of 882½ feet, breadth 92½ feet, the band playing, and without a cry of and height from bottom of keel to top of despair from the doomed multitude. the captain's house 105½ feet. Their It was at break of day that the Cardecks numbered 11, and they were pathia, reached by the call for aid, came equipped with 15 watertight bulkheads, within sight of the lifeboats. Those who the claim being made that they were unsinkable. While of 66,000 tons displacement, their registered tonnage was 45, turned backward for New York, whence 000 tons. The Titanic, the one of these the had sailed. She arrived with the two thin steamers with which we are specially concerned, was capable of carrying 18. Those alive numbered 705. Several 5000 passengers, and had an average died on the voyage homeward. The story speed of 21 knots. She was prepared in told indicated that the berg had rent the almost every particular for the comfort, side of the Titanic through a great part enjoyment and safety of her passengers, of her length, rendering many of her being equipped with such unusual applicated that the berg had rent the almost every particular for the comfort, side of the Titanic through a great part enjoyment and safety of her passengers, of her length, rendering many of her ances as salt-water swimming pools, squash disaster would probably not have occurred racquet courts, sun parlors and other passenger great, not only in life, but in value of the unprovided for was that of sufficient lifeship and cargo, estimated at \$12,500,000. A number of multi-millionaires and promposable event of an accident. Her water-inent persons were aboard. Investigation into the causes of the disaster led to more adequate safety regulations.

The Titanic left Southampton, Eng- adequate safety regulations.

land, on April 10, 1912, in charge of Titanium (ti-ta'ni-um), a metal discoptain E. J. Smith, a navigator of long covered in 1791. It is experience, her crew and passengers num- found combined with oxygen in several bearing 2440. A disease was three toned minerals, and occurs especially in iron eventful voyage, Sunday, April 14, found menachanite, from Menachan in Cornwall, her in the seas southeast of Newfoundland, then infested with icebergs to an unusual extent. News of the presence of these bergs was received by wireless meshages from other vessels, but there was no abatement in the speed of the Titanic, her record rate of 21 knots an hour being maintained. At 10.25 at night her wireless operators sent news of disaster far deposed him, raising Cronus, one of over the seas, their message being picked and deposed him, raising Cronus, one of over the seas, their message being picked that the Titanic had struck an iceberg and needed immediate assistance, her position being given as latitude 41° 46' north, longitude 50° 14' west. The shock of the collision with the berg had been so slight that few of those on board of the studied at Brasenose College, apprehended danger until an hour or more and was extension lecturer at Oxford and structure and was extension lecturer at Oxford and was extension lecturer at Oxford and was extension lecturer at Oxford and structure and was extension lecturer at Oxford and was extension lecturer at Oxford and at the University of Leipzig, apprehended danger until an hour or more and was extension lecturer at Oxford and at the University of Leipzig, apprehended danger until an hour or more and was extension lecturer at Oxford and at the University of Leipzig, apprehended danger until an hour or more and was extension lecturer at Oxford and at the University of Leipzig, apprehended danger until an hour or more and was extension lecturer at Oxford and at the University of Leipzig, apprehended danger until an hour or more and was extension lecturer at Oxford and at the University of Leipzig, apprehended danger until an hour or more and was extension lecturer at Oxford and at the University of Leipzig, apprehended danger until an been so slight that few of those on board apprehended danger until an hour or more had passed. Then it grew apparent that the ship was fatally wounded and was gained international fame. His best-sliy lowered and set afloat, the men on board holding heroically back and putting perimental Psychology (1901-05); Lectures on the Experimental Psychology of Thought Proc-fortunately the boats were not capable of crew, yet no panic took place, the greatest heroism was shown, and when the great ship finally plunged beneath the waters, at 2.20 A. M., carrying more than 1600 to inevitable death, she did so with

experience, ner crew and passengers numbering 2340. A disaster was threatened minerals, and occurs especially in iron
at the outset, the suction made by her
great bulk as she began her course being ttaniferous iron ores. Titanium is a
so great as to drag the American liner
dark green, heavy, amorphous powder, and
New York from her quay, a perilous colBome authorities doubt its metallic charlision being imminent. Proceeding on her
acter. The ores of this metal include
eventful voyage, Sunday, April 14, found
menachanite, from Menachan in Cornwall,
her in the seas goutheast of Newfound. Where it was originally found: issrine.

lotted to the clergy for their maintenance. Christmas. In Ireland the tithes were The custom of giving and paying tithes commuted into a money rent charge in is very ancient, and was legally en1838, which by the Irish Church Act of joined by Moses (Lev. xxvii, Deut. xiv, 1869) was vested in the commissioners of The custom of giving and paying tithes is very ancient, and was legally enjoined by Moses (Lev. xxvii, Deut. xiv, and elsewhere). In 778 Charlemagne established the payment of tithes in those parts of the Roman Empire under his sway, dividing them into four parts: one to maintain the edifice of the church, the second to support the poor, the third the bishop, and the fourth the parochial clergy. Similar laws were afterwards enacted in various countries of Western Europe. Their payment was first enjoined in England by a constitutional decree of a synod held in 786. Offa, king of Mercia, in 794 made a law giving the tithes of all his kingdom to the church, and similar laws were enacted by Atheland similar laws were enacted by Athelstan and Canute. The first mention of tithes in statute law is in 1285. In the stan and Canute. The first mention of the householders and their families held tithes in statute law is in 1286. In the together in a society, all being bound for earliest arrangement a man might give the tithes to what priests he pleased, chief of whom was the tithing-man. which were called arbitrary consecrations of tithes; but when dioceses were divided into parishes, the tithes of each of the benefice. It is now generally held that tithes are due of common right to the parson of the parish, unless there he a special exemption. The parson of the parish may be either the actual incumbent or else the appropriation of extreme age. Tithonus 'prayer to the cumbent or else the appropriations.)

Tithes in English law are of three kinds: 1. pradial, arising immediately from the soil, as corn, hay, fruit, etc.; 2. mixed, such as calves, lambs, pigs, of the most distinguished of the year of the pared, such as calves, lambs, pigs, at lating painters, and head of the Venetian definition of the pared and small. Great tithes are chiefly corn, hay, and wool, and belong to the profits of personal tithes are chiefly corn, hay, and wool, and belong to the pared to have a same trade, profession, or occupation. They are divided into great and small. Great tithes are chiefly corn, hay, and wool, and belong to the preserve small tithes tithes are chiefly corn, hay, and wool, and belong to the rector; small tithes and belong to the rector; small titles are chiefly mixed and personal titles, and belong to the vicar. Originally all the land in the kingdom, except crown and church lands, was tithable. By acts passed in the reign of Henry VIII, however, tithes could be temporarily redeemed by the payment of a lump sum. The circumstance that tithes were en-The circumstance that tithes were en-acted from dissenters and the difficulties of collecting them, long led to constant bickerings between the clergy and the people. The popular demand for a measure of commutation was at last met by the Tithe Commutation Act (1836). This act. amended by subsequent stat-utes, provides for the conversion of all the uncommuted tithes in England and dore, in the Carnic Alps, in 1477. He Wales into a corn and rent charge, paystudied under Giovanni Bellini of Venice, able in money, and estimated on the and in 1507 was associated with the average price of a bushel of corn for the painter Giorgione in executing certain seven years ending at the preceding frescoes. In 1511 he was invited to

such rent charge at 22½ years purchase to the landowner. The tithes in Scotland are called teinds (which see). Tithes were collected in Virginia in colonial times, and Patrick Henry first won fame as a particle by his virgence. won fame as an orator by his vigorous defense of those who refused to pay them. The lack of an established church has kept this form of taxation out of the United States, all church support being voluntary.

(tith'ing), an ancient subdivision of England, forming Tithing part of the hundred, and consisting of ten householders and their families held

ten nouseholders and their ramines held together in a society, all being bound for the peaceable behavior of each other, the chief of whom was the tithing-man.

Tithonus (ti-thö'nus), in Greek mythology, a son, or brother, of Laomedon, king of Troy. He was beloved by Eos (Aurora, Morning), who importuned Zeus to make him immortal.

Her prayer was granted but she had



Padua, where he executed three remark- Titlark. See Pipit. tadia, where he executed three remarks able frescoes which are still to be seen there. In 1512 he completed the unfinished pictures of Giovanni Bellini, his former master, in the Sala del Gran gages, conveyances, etc., which afford eviconsiglio at Venice, and the senate were dence of the ownership of real property. so pleased that they gave him an important office. To this period are attibuted his pictures of the Tribute Money in virtue of particular offices or dignities and Sacred and Profane Love. In 1514 possessed by them, or as marks of dishe painted a portrait of Ariosto at Fertinetion and special rank. They have a special after the property. rars, and after his return to Venice he painted an Assumption of the Virgin (1516), considered one of the finest pic-(1516), considered one of the finest pictures in the world; it is now in the the epithets Cæsar, the name of a famAcademy of the Fine Arts in Venice. ily, and Augustus, which were gradually About 1528 he produced his magnificent applied to all who filled the imperial picture, The Death of St. Peter the throne. See Nobility, Peer, and Address Martyr—'a picture,' says Algarotti, (Forms of).

'in which the great masters admitted they could not find a fault,' unfortunately destroyed by fire in 1867. In 1530 the Emperor Charles V invited him to Bologna to paint his portrait and execute various other commissions. In 1532 he again painted the emperor's portrait, and he is said to have accompanied Charles to Madrid, where he received several honors. He remained, it is said, Christ in the Garden, St.

Margaret and the Dragon, are still to be Sleeping Venus, Christ in the Garden, St. Margaret and the Dragon, are still to be found. In 1537 he painted an Annunciation, and in 1541 he produced The Descent of the Holy Ghost on the Apostles, The Sacrifice of Abraham, and David and Goliath. In 1543 he painted his picture of The Virgin and San Tiziano; and in 1545 he visited Rome, where he painted the famous group of Tiziano; and in 1545 he visited Rome, where he painted the famous group of Pope Paul III, the Cardinal Farnese, and Duke Ottavio Farnese. He was patronized as warmly by Philip II as by his father, Charles V. Of Titian's private life but little is known. He died of the plague in 1576, aged ninety-nine, having painted to the last with almost undiminished powers. Titian excelled as much in landscape as in figure-painting, was equally great in sacred and profane subjects, in ideal heads and in portraits, in freescoes and in oils; and though others may have surpassed him in single points, none equaled him in general mastery. As a colorist he is almost unrivaled, and his pictures often reach the perfection of ished powers. Titian excelled as much in landscape as in figure-painting, was shrill and wild. They build in the holoqually great in sacred and profane sub- lows of trees, in walls, etc. The great jects, in ideal heads and in portraits, in frescoes and in oils; and though others and six inches long, and inhabits Europe may have surpassed him in single points, none equaled him in general mastery. There are various other Europe according to the salmost unrivaled, and united States, some of them known as his pictures often reach the perfection of chickadee (which see). sensuous beauty.

(tit-ē-kā'kā), a lake on the Bolivia, situated in a valley of the constituent present in a compound, by Andes, 12,600 feet above sea-level; estimated area, 5300 square miles. It contains several islands, and abounds with the constituent present in a compound, by nearest area, 5300 square miles. It conknown strength (called a standard solvation) necessary to convert the constituents. Titicaca

existed probably among all peoples. Such were in Rome the titles of Magnus (Great) and Africandus (African); and the epithets Cæsar, the name of a family, and Augustus, which were gradually applied to all who filled the imperial throne. See Nobility, Peer, and Address



Blue Titmouse, male and female (Parus carulsus).

Titration (ti-tra'shun), in chemical analysis, a process for asent into another form. The reaction is

accompanied his latter in the waragainst the Jews as commander of a legion. When Vespasian became emperor
(69) Titus was left to conduct the warin Judea. He took Jerusalem (A.D.
70), and after visiting Egypt returned to Rome in triumph, and was associated with his father in the government of the empire. He became sole emperor in 79, and showed himself an enlightened and munificent ruler, distinguished by benevolence and philanthropy. He died Sept. 13, 81, after a reign of a little over two months. His brother years and two months. His brother Domitian was strongly suspected of having poisoned him.

Titus, a disciple and assistant of the apostle Paul, and the person to whom one of the canonical epistles of the New Testament is addressed. He was a gentile by origin, and probably a native of Antioch. He labored with Paul in Asia Minor, Macedonia and Crete, and is said to have been the first Christian bishop of Crete.

Titus, Epistle To, one of the three pastoral epistles of the New Testament (the remaining two lengthose

Testament (the remaining two being those addressed to Timothy), believed to have been written by St. Paul after his first imprisonment at Rome. The topics handled are the same which we find in the other two kindred epistles. See Timothy, Epistles to.

Titus Livius. See Livius.

Titusville (tl'tus - vil), a city of Crawford Co., Pennsylvania on the Pennsylvania and New York Central railroads. It has steel and forge works, oil refineries and manufactures of iron, radiators, saddlery, etc. Pop. 9000. Tiumen (työ-mān'), a town in the government of Tobolsk, Western Siberia, on the Tura, an affluent of the Tobol. It is the center of the Western Siberian trade, and has various manufactures. Pop. 29,588.

Tiverton (tiv'er-tun), a municipal borough of England, in the

county of Devon, pleasantly situated 12 miles north by east of Exeter. It consists of several well-formed streets, and has a spacious market place, guildhall, assembly rooms, public baths, etc.; and important manufactures of lace. Pop. (1911) 50,705.

usually marked by a change of color or Tivoli (tiv'o-i; the ancient Tibur), a by the formation of a precipitate. by the formation of a precipitate.

Titus (ti'tus), or in full, Trus FlavIUS Sabinus Vespasianus, a on the left bank of the Teverone (or Roman emperor, born a.d. 40, was the Anio), which here forms fine falls. It eldest son of the Emperor Vespasian. has steep, narrow, and ill-paved streets, He served with credit as a military and houses in general poorly built; with tribune in Germany and Britain, and a modern handsome cathedral, and some accompanied his father in the war other churches. It was a favorite resort of the ancient Romans, and among the remains in the town and neighborhood are the circular temple of the Sibyl, the ruins of Hadrian's villa, the villa of Mæcenas, etc. The wine of Tivola was famous in ancient times. Pop. 12,881. Tiziano. See Titian.

(tlas'kā-lā), a state of Tlaxcala Mexico, surrounded nearly on all sides by the state of Puebla; area, 15,957 square miles. Pop. 172,315. The

15,957 square miles. Pop. 172,315. The capital, which bears the same name, was once an important city. Pop. 2715.

Tlemgen (tlem-sen'), a town of Algeria, in the province of Oran, 70 miles s. s. w. of the city of that name, finely situated 2500 feet above the sea, in the midst of olive groves, vineyards, and orchards. Its chief buildings are some fine mosques. Pop. 24,060.

Toad (tod), the name applied to various genera of tailless amphibians.

Toads have a thick, bulky body, covered Toads have a thick, bulky body, covered with warts or papills. They have no teeth, and the tongue is fixed to the front of the mouth, but the posterior extremity is free and protrusible. The hind feet are but slightly webbed. They leap badly, and generally avoid the water, ex-cept in the breeding season. Their food consists of insects and worms. Toads consists of insects and worms. Toads have a most unprepossessing aspect and outward appearance. The bite, saliva, etc., of the common toad of Europe (Bufo vulgāris) were formerly considered poisonous, but no venom or poison apparatus of any kind exists in these creatures. The toad is easily tamed, and exhibits a considerable amount of inteligence as a part. It lies tornid in some exhibits a considerable amount of intelligence as a pet. It lies torpid in some hole during winter. Insects are caught by a sudden protrusion of the tongue, which is provided with a viscous secretion. There are several species of toads in the United States. The Surinam toad is described in the article Pipa. The toad is extremely tenacious of life, but experiments have conclusively shown that experiments have conclusively shown that there is no truth in the oft-repeated stories of the creature being able to support life when inclosed in solid rock for immense periods of time. Dr. Buckland has shown that when excluded from air and food, frogs and toads, in virtue of

their slow circulation and cold-blooded habits, might survive about a year or eighteen months at most.

Toad-fish, a name sometimes given to the Lophius piscatorius. See Angler.

Toad-flax, the English name of various plants of the genus Linaria, order Scrophulariaceæ. The common toad-flax is L. vulgāria, which in its general habits is not unlike flax. The flowers are of a bright yellow; the corolla labiate, resembling that of snapdragon in shape, but provided with a long spur. It grows in hedges and fields, and is a reputed purgative and diuretic. The ivy-leaved toad-flax (L. Cymbalaria) is often found trailing over old walls. Allied to this genus is the Antirrhinum (which see).

(which see).

Tobacco (to-bak'ō), a very important plant, belonging to the nat. order Atropaceæ, or night-shade order. The introduction of the use of tobacco forms a singular chapter in the history of markind According to some authoriof mankind. According to some authorities smoking was practiced by the Chinese at a very early date. At the time of the discovery of America to-bacco was in frequent use among the Indians, and the practice of smoking, which had with them a religious character, was common to almost all the acter, was common to almost all the tribes. (See Calumet.) The name totribes. (See Catamer.) The name to-bacco was either derived from the term used in Hayti to designate the pipe, or from Tabaca in St. Domingo, whence it was introduced into Spain and Portuat was introduced into Spain and Portugal in 1559 by a Spaniard. It soon found its way to Paris and Rome, and was first used in the shape of snuff. Smoking is generally supposed to have been introduced into England by Sir Walter Raleigh, but Camden says the practice was introduced by Drake and his companions on their seturn fear. Victorial interpretations of their seturn fear. practice was introduced by Drake and his companions on their return from Virginia in 1585. It was strongly opposed by both priests and rulers. Pope Urban VII and Innocent IX issued bulls excommunicating such as used snuff in church, and in Turkey smoking was made a capital offense. In the canton of Bern the prohibition of the use of to-bacco was put among the ten commandments, immediately after that forbidding ments, immediately after that forbidding adultery. The Counterblast or denunciation written by James I of England is a matter of history. All prohibitions, however, regal or priestly, were of no avail, and tobacco is now the most extensively used luxury on the face of the earth. The most commonly cultivated tobacco plant (Nicotiāna tabācum) is glutinous, and covered with a very short dowp; the stem upright, 4 or 5 feet high,

and branching; the leaves are lanceolate, sometimes two feet long; the flowers are terminal and rose-colored. A less esteemed species is N. rustica, distinguished by a short yellowish-green corolla. All the tobacco plants are natives of America, and that continent has continued the principal producer, the chief tobacco-growing country being the United States, and the chief localities being Kentucky, North Carolina, and Virginia. The N. quadrivalis and N. re-

panda have white or yellow corollas. The latter is cultivated to some extent in Cuba and is known as Yara tobacco. There are five leading types of tobacco grown in the United States—the United States—us Seed Leaf, White Bur-ley, Heavy Shipping or Dark, Yellow, and Perique. To bacco Perique. Tobacco owes its principal properties to the presence of a poisonous alkaloid named nicotine (see Nicotine). The cultivated forms of the present day are highly developed and very sensitive. In some the localities plants are shielded with slats or cheeseplants



Virginia Tobacco (Nicotiana tabacum).

cloth. Clayey soils yield heavy leaves; sandy soils, light. All plants except those which are to be kept for seed are topped. When the leaves begin to turn yellow the plants are cut close to the ground, and afterwards carried to the dry-shed, where they are hung up in lines to dry. Artificial heat is sometimes used. Priming, which is also largely practiced, consists in removing the leaves in the order in which they mature. When perfectly dry the leaves are stripped from the stalks and packed in boxes, in which they are allowed to heat and sweat or ferment. Cigarette tobacco is cured in large drying ovens and is consequently light in color and without the agreeable cigar-leaf aroma. Snuff is tobacco ground to a powder and perfumed. Chewing tobacco consists of pressed cakes or plugs, or of a spongy mass of fine threads called 'fine cut,' and is flavored with vanilla, sugar, licorice, etc. Pipe tobacco is sold in rolls of the natural leaf, or it may be cut fine. In the manufacture of cigars the leaves are saved for 'wrappera,' while smaller pieces, sometimes of inferior grade, are used as 'fillers.'

also are the best cigars made there ers of that country. Lately it has beThe leaf used for the manufacture of come used for sport in cities of cold
Manila cheroots is grown chiefly on the climates. As such it is made of carefully
island of Luzon. Tobacco is one of the prepared hickory splints, from 5 to 15
most profitable crops in the United feet long, the sides strongly braced, and
States; about one-half of the production is absorbed for home use the other side or an artificial slow covered with States; about one-half of the production is absorbed for home use, the other side or an artificial slope covered with being exported, the far largest customer frozen snow, called a toboggan slide. being Britain. The plant has numerous insect enemies, among them being the Northern tobacco-worm (Protoparos the Ural Mountains, in the government celeus), and P. carolina, the tobacco-worm of the Southern States. These town of Tobolsk, after a course of about are called, when adult, sphinx-moths; 550 miles. they are strong, rapid flyers, and at twilight are often mistaken for huming-birds. The eggs are laid singly on the tobacco leaves, and quickly hatch: Irtish. It has a cathedral, arsenal, barming-birds. The eggs are laid singly on the tobacco leaves, and quickly hatch; the larva—hornworm—is a voracious feeder and inflicts much damage, particularly in the large, 'wrapper' leaves. The greasy cutworm (Agrostis ypsilon) is another pest. The tobacco-fly or flea-beetle (Crepidodera cucumeris) lives through the winter in a winged state. The annual tobacco crop of the United States ranges from 700.000,000 to 1.000. States ranges from 700,000,000 to 1,000,000,000 pounds, much surpassing that of other countries, and its consumption there also much exceeds that of any other country.

Tobago (tō-bā'gō), an island of the British West Indies, belonging to the Windward group, was annexed in 1889 to Trinidad; area, 114 square miles. Two-thirds of the island are covered with primeval forests, and out of a total area for 32 212 agency only about 10 000 errors. of 73,313 acres, only about 10,000 acres are cultivated. Sugar, rum, molasses, and cocoanuts are the chief productions: but attention is now being turned to the cultivation of cocoa and coffee, for which the soil and climate are admirably adapted. This island is one of the most healthy of the West Indies. Tobago was discovered by Columbus in 1498, and was ceded to Great Britain by France in 1763. Principal town, Scarborough. Pop. 18,761.

Tobit (töbit), Book of, one of the Old Testament apocryphal books, rejected by the Jews and Protestants, but included in the Roman Catholic canon. It contains an account of some remarkable events in the life of Tobit, a Jew of able events in the life of Tobit, a Jew of cepted the portfolio of foreign affairs, but the tribe of Naphtali, carried captive to soon resigned it. After the coup d'état Nineveh, and his son of the same name. of 1851 he lived retired from public affairs. He wrote also L'Ancien Régime et sledge, of Indian invendum affairs. He wrote also L'Ancien Régime et du Révolution; Histoire Philosophique tion. made of a piece of birch bark or similar material, with the front end turned up and a rope attached by which it was drawn over the snow. This was downtains, in Southern India. They are in use in Canada and was adopted and

As the best leaf is grown in Cuba, so improved by the fur-traders and explor-

Irtish. It has a cathedral, arsenal, barartish. It has a cathedral, arsenal, barracks, a large prison for Siberian exiles, a theater, etc. The climate is exceedingly severe in winter. Pop. 21,401.—
The government comprises the northwestern part of Siberia, and has an area of 539,659 square miles, and a population of 1,656,700. Its mineral products, of the Ural region, include iron, copper, gold, silver, and platinum. The north is widely forested; the south fertile, vielding wheat, oats, and other fertile, yielding wheat, oats, and other grains.

Tocantins (tō-kān-tēns'), a river of Brazil, which rises in lat. 14° s., flows northward, receives the Araguay, and enters the Atlantic by the Para estuary, forming one mouth of the Amazon. The entire course is 1590 miles, and is navigable for 1080; but navigation is much impeded by sandbanks and rapids.

Tocqueville (tok-vēl), ALEXIS CHARLES HENRI CLEREL DE, a French writer, born in 1805; died DE, a French writer, born in 1805; died in 1859. Being commissioned by the government to proceed to the United States to report upon the penitentiary system, the results of his inquiry were published in 1833 under the title Du Système Pénitentiaire aux Etats-Unis et de son Application en France. His most celebrated work, however, was La Démocratie en Amérique ('Democracy in America,' two vols. Paris, 1834), which was translated into the principal which was translated into the principal European languages. In 1849 he ac-cepted the portfolio of foreign affairs, but

of polyandry and intemperance they are Tofana. rapidly disappearing. Their language is Dravidian.

Toddy (tod'i), the name given by the which are extracted from the different ered the whole of species of the palm tribe, including the today except cocanut tree. When newly drawn from the tree it is a sweet, cool, refreshing and was origin-beverage, but when it has been allowed ally worn by both about ten or twelve hours to ferment it becomes highly intoxicating. The name matter as adopted to the state of toddy is also given to a mixture of spirits, hot water, and sugar.

hot water, and sugar.

Todhunter (tod'hun-ter), ISAAC, manly gown, was mathematician, was born assumed by Roat Rye, England, in 1820; studied at unanyouths when University College, London, and afterwards graduated as senior wrangler at St. John's College, Cambridge, where he resided as fellow, tutor, and principal mathematical lecturer until his death in 1884. He wrote a series of popular textbooks on mathematics, a History of the the conaments atbooks on mathematics, a History of the tached to it indimathematical Theories of Attraction and the Figure of the Earth (two vols., 1873), etc. etc.

(tōt'lā-ben), Francis Ed-Todleben ward, Count, a Russian general and military engineer, born in 1818; died in 1884. After leaving the schools of Riga he entered the College of Engineers at St. Petersburg, and served against the Circassians in 1848. In 1854 he took the chief part in the defense of Sebastopol, and after the peace rense of Sepastopol, and after the peace of 1856 wrote a Narrative of the War in the Crimea. During the Russo-Turkish war Todleben was sent (in 1887) to reduce Plevna. The place was soon invested, and Osman Pasha, the Turkish commander, was compelled to surrender at discretion. For his services Todleben was created a count, and he subsequently became commander-in-chief of the Russian army in Turkey. He was after-wards appointed governor of Odessa, and later, of Wilna.

Todmorden (tod'mor-den), a town of England, partly in Lancashire, partly in Yorkshire (West Riding), on the Calder, in a beautiful and romantic valley, 21 miles N. N. E. of Manchester. It has extensive manufactures of cotton goods. Pop. 25,-455.

Tody (to'di), the name of certain tropical birds, genus Todus, family Todidæ. They are birds of gaudy plumage, and feed on insects, worms, etc. The most elegant species is the *T. regius* (royal or king tody). a native of Cayenne and Brazil. The green tody (*T. viridis*) is also a pretty bird, about the size of a pretty bird, about the size of a wren. It is very common in Jamaica.

See Aqua Tofana. under Aqua.

Toga (to'ga), the principal outer garment of wool worn by Roman

stola. the ${f The}$ toga virilis, or manly gown, was of the wool, and the ornaments atcated the rank of



Roman Senator wear-

cated the rank of the citizen; generally it was white.

Togo (tō'gō), Heihachiro, a Japanese admiral, who took an active part in the war with China in 1894, and opened the war with Russia in 1904 by an attack on the Russian fleet at Port Arthur. On May 27-28, 1905, he annihilated a powerful Russian fleet in the Korean Straits, winning one of the most notable of naval victories.

Togoland (to'go-land), a German protectorate on the Slave Coast, Guinea, acquired in 1885. It lies between the British Gold Coast Colony and Dahomey, with a coast line of 12 miles, but a wide expansion inland, the total area being estimated at 33,000 sq. miles. Various tropical plants are grown, and palm oil, gum and palm kernels are exported. Pop. estimated at 900,000, with less than 200 whites.

Tokar (tökar), a town of the Eastern Soudan, south of Suakin, the scene of two battles between English and Arabs in February, 1884. Pop. 20,000.

Tokat (tökät'), a town of Northeastern Asia Minor, 75 miles south of the Black Sea, near the Yeshil

Trunk. Pop. about 30,000.

Tokay (tō-kā'), a town of Hungary, at the conflux of the rivers and Bodrog; pop. 5110. This town is celebrated for the wine grown in its vicinity, especially for a fine, rich, and the rivers to the rivers of the rivers of the rich and the sweet variety. Inferior and imitation wines are often sold under this name.

Tokens (tokens), pieces of money current by sufferance, and not coined by authority; or coins only nomiually of their professed value. In Eng-land tokens first came into use in the tendance of about 4000 students. This reign of Henry VIII, owing to the want city may be considered the center of the of authorized coins of lower value than political, commercial, and literary activ-a penny. Stamped tokens of lead, tin, ity of Japan. Its foreign trade is and even leather were issued by vintners, grocers, and other tradesmen during the time of Elizabeth, and were extensively

time of Elizabeth, and were extensively circulated, being readily exchanged for authorized money at the shops where they were issued. Token money has been frequently issued in other countries.

Tokio (tö'kē-ō), or Tokyo, formerly called Yeddo, the capital of Japan, and chief residence of the mikado, is situated on a bay of the same name, on the S. E. coast of Hondo, the largest of the Japanese islands, and is connected by rail with Yokohama and Kanagawa. The bulk of the houses are of wood, but there are many new buildings of brick there are many new buildings of brick and stone, and an imperial palace has been erected near the center, as also



public offices, etc. The greater part of the town is flat, and intersected by nu-merous canals crossed by bridges. The merous canals crossed by bridges. The streets of the modern city have been made fairly wide and regular; they are kept clean and some of them are traversed by railways. Gas has been introduced, and the sanitary arrangements have been improved. Education is well organized, and there are numerous private and elementary schools. Tokio con- Eric Canal, and the center of several tains the imperial university, the most extensive railway lines. It has an examportant educational institution of the cellent harbor and is one of the largest

political, commercial, and literary activity of Japan. Its foreign trade is limited, on account of the shallowness of the bay and rivers, but manufactures are active and developing. Its population, once estimated at 1,500,000, fell off till in 1872 it was about 780,000. It has since rapidly increased and in 1909 was 2,168,151, ranking as the fifth city in the world.

the world.

Toland (tō'land), John, an English deist, born in 1669; died in 1722. He entered Glasgow University in 1687; was graduated M.A. from Edinburgh in 1690, and afterwards studied theology at Leyden. In 1696 he published his Christianity not Mysterious, which created a great sensation, and was burnt by the hangman at Dublin, by order of the Irish parliament, in 1697. He subsequently settled down as a voluminous pamphleteer in London. Of his other works the chief were: Life of his other works the chief were: Life of Milton (1698), accompanying an edition of his writings, Anglia Libera (1701), Socinianism Truly Stated (1705), and Pantheisticon (1750). In the last of these works Toland distinctly avowed himself a pantheist.

Toledo (tō-lè'dō; anciently Tolètum), a city of Spain, in New Castile, capital of a province of the same name, on a rocky eminence washed by the Tagus, and 1820 feet above the sea, 55 miles southwest of Madrid. It is the see of an archbishop, who is primate of Spain. The streets are narrow and steep, and the houses crowded together. Toledo the houses crowded together. contains a ruined alcazar, or palace and fortress, dating from 1551, and a Gothic cathedral, one of the grandest in the world, completed in 1492, in the style of word, completed in 1492, in the style of the thirteenth century; also other interesting buildings. The Toledo sword-blades, renowned for many centuries, are manufactured in a large building (a government establishment) on the Tagus, about a mile from the town. Toledo was taken by the Romans in 193 B.C., and is celebrated in the history of Spain. It was successively the seat of government under the Goths, Moors, and kings of Castile. Pop. 23,317. Province: area 5919 sq. miles. Pop. 376,814.

Toledo, a city, capital of Lucas Co., Ohio, on the Maumee River, about six miles from Lake Erie, and 65 miles s. s. w. of Detroit. Toledo is the northern terminus of the Miami and

grain-shipping points of the country; also ships large quantities of iron-ore, coal, lumber, provisions, live stock, etc. Manufactures are important, beer and wine being largely produced and many other entitles are all this countries. other articles made. Boat and ship-building are large industries. The city has some notable public buildings, and possesses a zoölogical garden. Pop. possesses 168,497.

Telentino (tō-lān-tē'nō), a town of Central Italy, in the province of Macerata, with a fine cathedral. Here Pope Pius VI, in 1797, concluded a humiliating peace with Bonaparte, and in the neighborhood, in 1815, Murat, at the head of the Neapolitans, was defeated by the Austrians under Bianchi. Pop. (commune) 13.197.

Pop. (commune) 13,197.

Toloration See Religious Liberty. Toleration.

Toleration, Act of. See Act of Toleration.

Tolima (tő'lē-må), a state of the Republic of Colombia, intersected by the upper course of the Magdalena, and embraced between the two chief chains of the Cordillera; area, 18,400 sq. miles. It produces cacao, sugar, maize, and tobacco, and is rich in gold and silver. The volcane of Tolima has

maize, and tobacco, and is rich in gold and silver. The volcano of Tolima has a height of 17,660 feet. Pop. 305,185.

Capital, Neiva.

Toll (töl), a tax paid, or duty imposed, city has a cathedral, a theater, etc., and is noted for some liberty or privilege or other reasonable consideration; such as other reasonable consideration such as other reasonable consideration; such as the payment claimed by the owners of a port for goods landed or shipped there; (b) the sum charged by the owners of a market or fair for goods brought to be sold there; (c) a fixed charge made by those intrusted with the

charge made by those intrusted with the maintenance of roads, streets, bridges, etc., for the passage of persons, goods, and cattle. See Roads.

Tolstoï (tol'stoi), Count Leo Niko-Laievitch, a celebrated Russian novelist, born Aug. 28, 1828. In 1851 he accompanied his brother to the Cancesing and entered the army and directions. Caucasus and entered the army, and during the Crimean war took part in the defense of Sebastopol. At the close of the war he retired to his estates and devoted himself to literary composition voted nimself to literary composition and schemes for the education and social improvement of the peasantry. Eventually he gave himself up to working out the higher problems of life experimentally—working along with the peasantry in a sort of communistic life. Among his earliest writings of moment are his vivid sketches from Sebastopol. His three great novels are the Cassacks.

towards an explanation of his peculiar social and mystic religious ideas. Among them are Confessions, My Religion, The Search for Happiness, Two Generations, Infancy and Youth, Death, Great Problems of History, What is My Life? The Kreutzer Sonata, etc. Regarded as one of the leading writers and reformers of the world, he was annoyed in his old age by visitors and the social duties which the world, he was annoyed in his old age by visitors and the social duties which interfered with his life pursuits, and left home secretly with an idea of escaping these distractions. The severe weather to which he was thus exposed brought on inflammation of the lungs, and he died November 19, 1910. Toltecs (tol'teks), a prehistoric people of Mexico and Central Amer-ics to whom the Astecs and the Mayer

ica, to whom the Aztecs and the Mayas ascribed their arts and ancient monu-ments. See Mexico.

Tolu-balsam (to-lo'), a resin or bal-sam obtained from a tree of tropical South America, the Myrospermum (Myrorylon) tolusferum or peruiferum. Tolu-balsam becomes hard and may be pulverized, has a pleasant aromatic flavor, and is used in certain medicinal preparations.

Toluca (tō-lō'kā), a Mexican city, capital of the State of Mexico,



Tomahawks of the North American Indians.

nally of stone attached to the shaft by thongs, etc., but steel heads were afterwards supplied by American and European traders. The Indians could throw the tomahawk with remarkable accuracy. His three great novels are the Cossacks, Tomato (tu-ma'to, tu-ma'to; Lycoper-War and Peace, and Anna Karenina.

His later writings are all mostly directed longing to the nat. order Solanaceee. Formerly known also as Love Apple. terms. He was energetic in the war It is a native of South America, but has against England and aided in having been introduced into most other warm or slavery abolished in New York.



Tomato (Lycopersicum esculentum).

stews, and soups, as well as eaten by miles, and a pop. of 2,412,700. It is itself. The plant is a tender, herbaceous annual, with yellow flowers, and has come into high repute, and its cultivation has rapidly extended in many parts on the Niagara River, 11 miles s. E. of of the world. Its general use as food has been chiefly within recent times.

North Tonawanda, on the opposite side of Tonawanda, on the opposite side of Tonawanda, on the opposite side of Tonawanda.

Tomb (tom), any sepulchral structure, usually a chamber or vault formed wholly or partly in the earth, with walls and a roof, for the reception

temperate countries. It is cultivated for the sake of its fruit, which is fleshy, usually scarlet or orange, irregularly British army. It is said to have originated in the custom of making out blanks for military accounts with the name, 'I, Tommy Atkins,' etc. Kipling has immortalized it in verse.

Tom of Coventry, or Perping Tom.
Tomsk, a town of Western Siberia,
capital of the government of
Tomsk, on the right bank of the Tom, on the great road to China. Manufactures include cloth, leather, and soap; and there is an extensive trade in furs, fish, and cattle, obtained in exchange for artifacture. Pop. 112,083.—The government of Tomsk has an area of 331,159 square miles, and a pop. of 2,412,700. It is watered by the Obj and its tributaries.

North Tonawanda, on the opposite side of Tonawanda creek. It has a large pine lumber trade, engine, boiler, and steel

usually a chamber or vault formed wholly or partly in the earth, with walls and a roof, for the reception of the dead. See Sarcophagus, Burial and Fuseral Rites.

Tombac, Tombak (tom'bak), an alloy to 85 parts copper, mixed with 25 to 15 parts sinc, and used as an imitation of gold for cheap jewelry. When arsenic is added it forms white tombac.

Tombigbee (tom-big'be), a river which rises in Tishomingo county, Mississippi, and after an irregular course of 450 miles joins the Alabama River 45 miles above Mobile River below the junction. It is navigable for 10 miles from Mobile Bay.

Tomcod (tom'kod), an American name for certain small and februard in the earth, works, and wooden ware factories. An armory is located here. Pop. 8200.

Ton (tun), a denomination of weight equivalent to 20 hundredweights of the United States goods are sometimes weighed by the short ton, of 2000 lbs., the hundredweight being reckoned at 100 lbs.; but it has been decided by act of Congress that, unless otherwise specified, a ton weight is to be understood as 2240 lbs. avoirdupois.

Tone (ton), in music, the sound produced by the vibration of a string Nearly every musical sound is composite, that is, consists of several simultaneous tones having different rates of vibration according to fixed laws.

below the junction. It is navigable for 410 miles from Mobile Bay.

Tomcod (tom'kod), an American name for certain small cod-fishes.

Tomelloso (tom-el-lo'so), a town of Spain in La Mancha, 50 simultaneously sounding components are miles E. N. E. of Ciudad Real. It has called partial tones; that one having the lately risen into importance as a center of the wine trade, a great part of the sound is termed the prime, principal, or claret and 'cognac' of commerce being here produced. Pop. 13,929.

Tompkins (tom'kins), Daniel D., vice-president, was born in Westchester Co., New York, in 1774; died in 1825. He was elected to Congress in in 1763; educated at Trinity College; studing the sound is the sound is termed the prime, principal, or fundamental tone; the other partial tones are called harmonics or overtones to the complex of the complex in 1763; educated at Trinity College; studing the sound is the prime, principal, or fundamental tone; the other partial tones are called harmonics or overtones are called harmonics at Trinity College; studing the prime for the sound is termed the prime, principal, or fundamental tone; the other partial tones is a content of the sound is termed the prime, principal, or fundamental tone; the other partial tones; that one having the mode of producing its vibrations. The simultaneously sounding components are called partial tones; that one having the mode of producing its vibrations. in 1825. He was elected to Congress in ied law in London, and was called to the 1804, was governor of New York 1807- bar at the Middle Temple (1798). He 17, and was vice-president of the United was an ardent sympathizer with the doctates during President Monroe's two trines of the French revolution, and have

ing promoted the combination of the Irish of mucus. The nervous supply is dis-Catholics and Dissenters he founded the tributed in the form of three main nerves Catholics and Dissenters he founded the society of United Irishmen in 1791. The discovery of his secret negotiations with France drove him to the United States (1795). He sailed for France in 1700. 1796, and became brigadier in Hoche's projected expedition to Ireland. He served in the Bavarian army in 1797, and in 1798 he was captured on board a French squadron bound for Ireland. He was brought to Dublin, and sentenced to death by a country retial but tenced to death by a court-martial, but committed suicide in prison, November 19, 1798.

Tonga Islands (tong 'ga'). See Friendly Islands.
Tongataboo (tong-ga-tabö), or Ton-ga-tabu, one of the most southern of the Friendly Islands, in the Pacific Ocean. It is of coral formation, about 60 miles in circuit. Its soil is extremely fertile. See Friendly Islands.

Tongking. See Tonquin.

Tongres (ton-gr; Flemish, Tongeren), a town of Belgium, in the province of Limburg, on the Geer, 12 miles southwest of Maestricht. Tongres has a church (Nötre Dame) dating from 1240. Pop. 9152.

Tongue (tung), the organ found in the mouth of most vertebrate animals, which exercises the sense of taste, and also assists in speech and in taking food. The name tongue is also given to very different structures in Invertebrata. In man the tongue is attached by its base or root to the hyold bone, its other extremity being free. The upper surface is convex with a through middle sontum called the sanké fibrous middle septum, called the raphé. The front two-thirds of the tongue are rough, and bear the papilla, in which the sense of taste resides. The posterior Tonic Sol-fa System, in music, a third is smooth, and exhibits the openings of numerous mucous glands. The notation and teaching which has reings of numerous mucous glands. The notation and teaching which has resubstance of the tongue consists of nucently been widely spread among the merous muscles. The papillæ, which English-speaking population of the globe, cause the characteristic roughness of the chiefly through the untiring efforts of tongue, are of three kinds, circumvallate, the Rev. John Curwen, of Plaistow, who fungiform, and filiform. The largest or obtained the leading features of his plan circumvallate papillæ number from eight from Miss Glover, of Norwich. The following and continue of the system.

to each half of the organ. The gustatory nerves and the glossopharyngeal branches are the nerves providing the tongue with common sensation, and also with the sense of taste; while the hypoglossal nerve invests the muscles of the tongue with the necessary stimulus. The conditions necessary for the exercise of the sense of taste are: firstly, the solution of the matters to be tasted; secondly, the presence of a special gustatory nerve; and thirdly, that the surface of the tongue itself be moist. The top and edges of the tongue are more sensitive to taste than the middle portion. The sense of touch

Tonic (ton'ik), or KEY-NOTE, in music, the first or fundamental note of any scale, the principal sound on which all regular melodies depend, and in which they or their accompanying basses naturally terminate.

Tonic, in medicine, any remedy which improves the tone or vigor of the fibers of the stomach and bowels, or of the muscular fibers generally. Tonics may be said to be of two kinds, medical and non-medical. Medical tonics act chiefly in two ways: (1) indirectly, by first influencing the stomach and increasing its digestive powers; such being the effect of the vegetable bitters, the most important of which are calumba, chamomile, cinchona bark, gentian, taraxacum, etc. (2) Directly, by passing into and exerting their influence through the blood; such being the case with the the blood; such being the case with the various preparations of iron, certain mineral acids, and salts. The non-medical tonics are open-air exercise, frichistonics are open-air exercise, frietion, cold in its various forms and applications, as the shower-bath, sea-bath-

circumvallate papillæ number from eight from Miss Glover, of Norwich. The foltoten, and occupy the posterior part of the upper surface. They vary from of the two relations of musical sounds, to the fingiform papillæ are scattered irregulatter is of transcendent importance, larly, the filiform over the front. In structure the papillæ are like those of this fact on the mind and ear of the the skin (which see), and contain capillary vessels and nervous filaments. Numerous follicles and mucous or lingual scale, whether it is founded on the key merous follicles and mucous or lingual of C. D. E., or on any other tone thus glands exist on the tongue, the functions of these latter being the secretion ordinary notation. The tonic or key-

note of the scale is always called doh, tremely agreeable. It is used in perthe second ray, the others me, fah, soh, fumery. Called also Tonkin bean, Tonlah, te, successively, no matter what the quin bean. See Coumarin.

absolute pitch of the sound may be, the initials only being ordinarily used in printed music: thus, d, r, m, f, s, 1, t.

Tonnage (tun'ij), a word originally signifying the number of printed music: thus, d, r, m, f, s, 1, t.

tons weight which a ship might carry with safety, but now used to denote the the tonic-solfaist uses the first seven letters of the alphabet just as the followers the standard for tolls, dues, etc. It is of the other musical system do. Time generally assumed that 40 cubic feet and accent are marked thus, |:|, or shall constitute a ton, and the tonnage |::|, or |:|:|, etc.; the space be- of a ship is considered to be the multiple tween the lines and dots indicating the ters of the alphabet just as the followers the standard for tolls, dues, etc. It is of the other musical system do. Time generally assumed that 40 cubic feet and accent are marked thus, |:|, or shall constitute a ton, and the tonnage |::|, or |:|:|, etc.; the space beof a ship is considered to be the multiple tween the lines and dots indicating the of this ton which most closely correaliquot parts of the bar (the beat or pulse), the line showing the strong accent, the short line the medium accent, and the colon the weak accent. Accently the rule was to multiple the short line the medium accent, and the colon the weak accent. Accently the rule was to multiple the short line the medium accent, and the colon the weak accent. Accently the find the same as the cidental or chromatic tones are indicated width, multiply by this assumed depth, and divide the product by 94. the

In teaching the system great use is made of the modulator, a chart which represents pictorially in an upright position the relative places of the notes of the scales, the chromatic notes, the closely related scales, etc.

Tonka (ton'ka), Tonga, the fruit of the Dipterix odorate or Coumana ederate a shought plant of

rouna odorāta, a shrubby plant of



cidental or chromatic tones are indicated by a change in the vowel sounds of the syllables; thus, doh, ray, fah, etc., when sharpened become do, re, fe, etc.; and me, te, etc., flattened become ma, ta, etc. The higher octaves are marked d|, | m|, etc. The higher octaves are marked d|, | m|, etc., the lower d|, r|, m|, etc. The last two lines of the psalm tune french would therefore be printed thus:—

Key F.

S|d|:t|l:s|s:fe|s:m|r:d|d:t|d and divide the product by 94, the quotient being the tons burden. But smode was found to be both mis-leading and dangerous; for as harbor and light dues, towage, etc., were charged to tonnage, shipowners had the their vessels built so deep and narrow that they were often unseaworthy. An improved system was introduced in 1835. The depth from the deck to the bottom of the hold is taken at different places, and the breadth is measured at different and the breadth is measured at different elevations in depth. If the vessel is a steamer an allowance is made for the space occupied by the engine-room, boilers, coal-bunks, etc. In vessels with a break or poop in the upper deck, the tonnage of this poop space must be ascer-tained and added to the ordinary tonnage. This system of measurement is in common use in the United States and British countries.

Tonnage and Poundage were formerly imposed in England on exports and imports. Tonnage was a duty upon all wines imported. Poundage was an ad valorem duty of 12d. in the pound on all merchandise imported or exported. They were first levied by agreement, and were granted by parliament to the crown for a limited period in 1370. They were afterwards granted to successive sover-eigns until 1787, when they were finally abolished.

(ton-ken'), Tongking, the Tonquin most northern province of Anam in Asia; area, between 40,000 and 50,000 square miles. The chief river is the Song-ka. The principal agricultural products are rice, cotton, spices. Tonks Bean Plant (Dipteriz odorsta).

Guiana, nat. order Leguminosse, suborder Papilionacese. The fruit is an oblong, dry, fibrous drupe, containing a single seed. The odor of the kernel is ex-

Tonsils (ton siles), in anatomy, two oblong suboval bodies situated on each side of the throat or fauces.

(ton'shör), the name given Tonsure to the bare place on the heads of the Roman Catholic and Greek priests, formed by shaving or cutting away the hair and keeping it so. The custom of cutting away the hair in token of the dedication of a person to the service of God is mentioned as early as the fourth century. Shaving the hair precedes consecration: it is performed by the bishop. The tonsure admits the subject into holy orders, and the extent of the tonsure increases with the rank held.

Tontine (ton-ten'), a kind of life annuity, so called from its inventor Tonti, an Italian of the seven-teenth century. A tontine is an annuity shared by subscribers to a loan, with the benefit of survivorship, the annuity being increased as the subscribers die, until at last the whole goes to the last until at last the whole goes to the last survivor, or to the last two or three, according to the terms on which the money is advanced. By means of tontines many government loans were formerly raised in England.

Tooke (tök), John Horne, son of John Horne, a rich poulterer, was born in Westminster, England, in 1736. He was educated at Westminster and Eton, afterwards proceeding to St.

and Eton, afterwards proceeding to St. John's College, Cambridge. In 1760 he John's College, Cambridge. In 1100 he entered the church, and obtained the living of New Brentford. A close friendship with Wilkes ended in a public altercation in 1770 and 1771. The year 1771 also witnessed his contest with Junius, in which, in the general opinion, he came off victor. In 1773 he resigned his benefice to study for the bar (to ing from various causes. Inflammation which from being in orders he was not of the fangs of the teeth is a common admitted); and by his legal advice to cause. If the inflammation is not re-Mr. Tooke, of Purley, he became that gentleman's heir, and assumed his name. a gum-boil. Caries is a frequent cause In 1777 he was prosecuted for a seditious of toothache, the outer part of the tooth lihel condemning the American war, and rotting away and exposing the nerve. libel condemning the American war, and his trial resulted in a year's imprison-ment, and a fine of £200. He was a

Tönsberg (tuns-berg'), a town in genious linguistic work entitled Epes Norway, situated on a fjord ptercenta, or the Diversions of Purley.

See Christiania.) Many vessels belong to the town. Pop. 8620.

Tonsilitis (ton-si-li'tus). See Quiney.

The control of th School. After serving for some time as a clerk he took to the stage, and made his first appearance at the Haymarket in 1852. In 1880 he commenced the management of the Folly Theater, Lon-Their minute structure resembles that don, which he later on reconstructed and of the closed sacs or follicles of Peyer named after himself. In 1874 he visited in the intestine, and their function is not America, in 1888 he published his Remiyet understood. See Palate.

nisoeness, and in 1890 made a successful tour in the Antipodes. He was one of the most popular actors on the stage, and inimitable in his personation of semipathetic and semiludicrous characters. Among his most successful impersonations were Paul Pry, Caleb Plummer in the Cricket on the Hearth, Uncle Dick in Uncle Dick's Darling, etc. Uncle Dick in Uncle Dick's Darling, etc.

Toombs (töms), Roberg, secessionist, was born in Wilkes Co., Georgia, in 1810; died in 1885. He was elected to the United States Senate in 1853 and 1859, became a leader in the Secession party in Georgia and resigned from the Senate to join the Confederate cause. He was Secretary of State in the Confederate Congress in 1861; Senator, February, 1862; and resigned to become a brigadier-general in the army, but won no distinction as a soldier. He refused to take the oath of allegiance to the United take the oath of allegiance to the United States government after the war and re-mained rebellious till his death.

Toon (ton), Toona, the wood of an East Indian tree, the Cedrela Toona, nat. order Cedrelacese. It is sometimes called *Indian makogany*, and also *Indian cedar*. Another species (C. Austrālis) yields the so-called cedar-wood of New South Wales. Toonwood is of New highly valued as a furniture wood, and is used for door-panels, carving, etc. See Cedrela.

Toorgonef. See Tourguenieff.

See Teeth. Tooth.

rotting away and exposing the nerve. Neuralgic toothache is a purely nervous ment, and a fine of £200. He was a variety, and may occur either in sound short time member of parliament for Old or carious teeth. As a preventive against Sarum. He died in 1812. He wrote toothache the teeth should be kept several political pemphlets and an in-scrupulously clean, and when they show symptoms of decay the services of a tensive railroad shops, flour mills, cream-skillful dentist should be had recourse eries, packing houses, foundries and other to. The decay of a tooth is very often industries. Since 1885 there have been arrested by stopping or filling up the no saloons in the city. Pop. 47,385.

See Dentalium. Tooth-shell.

See Dentaria. Toothwort.

Toowoomba (tö-wöm'bå), the principal town of the Darling Downs district of Queensland, Australia, 100 miles west of Brisbane. It occupies one of the best localities in Southern Queensland, in the center of a large agricultural settlement; contains a number of religious, educational, and other public buildings, and many handsome private residences. Wine is produced in the vicinity. Pop. 9137.

Topaz (tô'paz), a mineral, ranked by mineralogists among gems,

Topaz (to'paz), a mineral, ranked by mineralogists among gems, characterized by having the luster vitreous, transparent to translucent; the color yellow, white, green, blue; fracture subconchoidal, uneven; specific gravity, 3.499. It is harder than quartz. It is a silicate of aluminium, in which the oxygen is partly replaced by fluorine. It occurs massive and in crystals. The primary form of its crystal is a right rhombic prism. Topazes occur generally in igneous and metamorphic rocks, and in many parts of the world, as Cornwall, Scotparts of the world, as Cornwall, Scotland, Saxony, Siberia, Brazil, etc. The finest varieties are obtained from Brazil and the Ural Mountains. Those from Brazil have deep yellow tints; those from Siberia have a bluish tinge; the Saxon topaxes are of a pale wine-yellow, and those found in the Scotch Highlands are of a sky-blue color. The purest from Brazil, when cut in facets, closely re-semble the diamond in luster and brilliance.

Tope (top), a popular name for a species of Buddhist monument intended usually to mark some important event. The oldest monuments of this kind are spherical or elliptical cupolas, resting on a circular or rectilinear base, with an umbrella-shaped structure on the apex. See Dagoba.

Tope (Galeus canis), a European fish of the shark family, attaining a length of six feet.

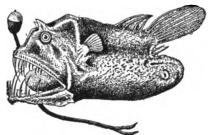
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Top-Haneh. See Constantinople.

Tophet. See Gehenna.

Töplitz. See Teplitz.

Torch-fish (torch'fish), a deep-sea, pediculate fish which is found off Madeira. The first dorsal spine



Torch-Fish (Liuophryte lucifer).

carries a luminous bulb above the eyes which resembles a torch.

Torgau (tor'gou), a strongly fortified town of Prussia, province of Saxony, 45 miles E. N. E. of Merseburg, on the Elbe. Pop. 12,299.

Tormentil tor'men-til; Potentilla Tormentilla, a trailing plant common in healthy or waste places.

plant common in healthy or waste places. See Potentilla.

Tornado (tor-nā'dō), a term applied to hurricanes and whirlwinds in general, such as are prevalent in the West Indies and on the west coast of Africa about the time of the equinoxes and in the Indian Ocean about the time of changes in the monsoons. They are accompanied with severe thunder and are accompanied with severe thunder and lightning and torrents of rain, but are of short duration and limited area. It is especially applied to the very destructive whirling storms, of very narrow width and brief duration, common on the plains of the Mississippi valley and occasionally appearing beyond this area. Originating in an overhanging cloud, a tornado sends down a funnel-shaped cloud to the ground, the lower portion long and narrow. This is caused by an immensely rapid vertical whirl in the air, Topeka (tō-pĕ'kà), a city of Kansas, tornado sends down a funnel-shaped capital of the State and cloud to the ground, the lower portion county seat of Shawnee Co., on the Kansas River. 67 miles w. of The Missouri immensely rapid vertical whirl in the air, River. It has wide, well-built streets, capable of twisting off the limbs of great and contains a handsome State house, trees and of destroying whatever it State memorial building, State hospital for the insane, reform school, Washburn storm, its track usually a narrow one, College, Bethany College, etc. It has ex-

of the River Tornea, which rises in latest official census gives a population of Sweden and forms part of the boundary 376,538, but the city subsequently took between it and Russia. It has an active a census through its police department,

Toronto (to-ron'to), one of the chief cities of the Dominion of Canada, capital of the province of Ontario, situated in the county of York, Canada, capital of the province of Ontario, situated in the county of York, on a small bay on the northwest coast of Lake Ontario, 315 miles w. s. w. of Montreal. Its site is low, but rises gently from the water's edge to a height of above 100 feet. The fine bay in front of the city forms a splendid harbor. The and noted for their power of giving town is regularly built, the streets cross electrical shocks by means of specially-each other at right angles, and are wide, well paved, and in general of handsome architecture. The common on each side of the head, and composed material is brick, of a pleasing light color; the public buildings are numerous, and many of them very handsome. The richy furnished with nervous filaments. Churches most worthy of notice are the Anglican and the Roman Catholic cathedrals, both in the pointed style, the Conversion of an equivalent of nerve Metropolitan Church (Methodist), and force into electric force by the electric St. Andrew's Church (Presbyterian). Among secular buildings the finest (almost completely destroyed by fire in 1890) motion through the muscles. The power is the University of Toronto; the others comprise the lieutenant-governor's residence; the magnificent new Parliament typical perfection chiefly in the Mediterranean Sea, and in the Indian and Pacipulating; Trinity College, in connection ft. long, and weigh from 60 to 70 lbs. With the Protestant Episcopal, a highly or agents, namely, torpedoes proper, the public library; the Government which are moveable, and are propelled

length. Death and destruction are left gineering works, agricultural implement in its path, especially where this passes factories, breweries, carriage-works, tanthrough a town or city, and tornadoes neries, soap-works, boot and shoe factories, greatly feared in the localities subject to their visitations.

Tornea (tor'ne-0), a seaport of North Finland, Russia, at the mouth Toronto was founded in 1794. The of the River Tornes which rises in latest official careaus gives a population of

Ward		63,704 60,204
66		54,758
44	4	 71,860
66		72,897
44		. 83,589
•		18,395

lege; the custom-house; the post-office; tive agents, namely, torpedoes proper, the public library; the Government which are moveable, and are propelled the public library; the Government which are moveable, and are propelled School of Practical Science; and the against an enemy's ship; and submarine group of buildings where the annual inmines, which lie stationary in the water. dustrial exhibitions are held. Charitable Of the first class, called of ensive torand benevolent institutions are numerous.

Deal is which the university (a) the 'sutumobile' of which the and benevolent institutions are numerous. pedoes, there are three principal types: Queen's Park, in which the university (a) the 'automobile,' of which the sis situated, is the principal public park. Whitehead is the best-known form; (b) The university is one of the best equipped in America; and besides Trinity College vey; and (c) the 'spar' or 'outthere is Knox College, a Presbysterian theological institution; Wycliffe College, to torpedo, may be described as being a an Anglican theological school; M'Master University, supported by the Baptists; the Upper Canada College; the Provincial Normal and Model Schools; 2000 pounds. It is made of specially pretwo schools of medicine, two colleges of music, a veterinary college, etc. The industries include iron-foundries and encharge, consisting of wet guncotton, trinical triangles.

This charge is exploded by a priming charge of dry guncotton which in turn is fired by a primer struck by a firing pin carried in the war nose screwed into the head of the torpedo before discharging. The central portion of the torpedo contains the air flask in which air, comcontains the air hask in which air, compressed to 2500 pounds to the square inch pressure, is carried for driving the propelling engine. The after part contains the engine, which is of reciprocating design; the horizontal steering gear which consists of a gyroscope driven by a spiral spring. Any deflection of the torpedo from the line or which it was fired covered. from the line on which it was fired causes the gyroscope to act on a steering engine which moves the horizontal rudders and restores the torpedo to its proper course. The compartment also contains the automatic vertical steering gear.

The range of torpedoes may be as high as 10,000 yards at a speed of 25 knots an hour, but shorter ranges (up to 2500 yards) are more practical and at the shorter ranges speeds up to 50 knots per hour have been attained.

In recent practice the use of torpedoes has been almost entirely confined to submarines, which use a short-range torpedo carrying a very large charge of high ex-plosive. The long range guns of modern battleships and battle cruisers precluding a sufficiently near approach for the use of torpedoes. There are several forms of torpedo operated from shore. Of these the Brennan carries in its interior two drums on which is wound piano wire. The wires pass out of the rear and are attached to powerful engines on shore. These reel the wires on the drums, causing the latter to rotate rapidly and to act upon the propellers. Increased speed in the engines causes the torpedo to move more rapidly, while it can be steered by checking one of the wires, these acting on vertical rudders in the torpedo. The operating range is a mile or more. In the Sims-Edison torpedo there is a 'float' from which the torpedo is suspended, so that it hangs about six feet below the surface. Here an electric motor forms the propelling agency, it being worked from shore through an electric cable which is paid out as the torpedo advances towards its mark. Another form, the Lay torpedo, has compressed carbonic acid gas for its motive power, the working of the engine being controlled by an operator on shore through an electric cable. Both these forms can be exploded by aid of the electric current through the cable, their speed being about 10 or 11 chief weapons of offense. It must be knots per mile. The three wire-controlled capable of high speed, able to launch its forms mentioned can be fully controlled torpedoes effectually and seaworthy in pro-

tro-toluol or some other high explosive. only from a fixed base and are thus fitted to be discharged only from shore, it being evidently a difficult problem to control their movements when discharged from a moving base, as a ship or torpedo-boat. To the latter the Whitehead, or other self-moving form, is well adapted, but its unlikely that the wire-controlled forms are ever likely to be used except from shore stations. The Whitehead is the form commonly in use. In addition to these types of traveling torpedoes several kinds of fixed torpedoes are in use, known as torpedo mines or submarine mines. These have been for many years mines. These have been for many years effectively used in warfare, and are of two types, the self-acting and the controlled. The first type is fired either mechanically or electrically. A common mechanical device consists in a set of pins projecting at different angles from the head of the torpedo, any one of which being struck is driven down on a fulminating base. The electrically fired are anchored so as to float 5 to 20 feet below the surface, or may be ground mines low the surface, or may be ground mines with a buoyant float. The electric cir-cuit is completed and the mine fired when float or mine is struck by a passing vessel. The controlled mines have wires leading to shore stations. In one form the closing of the circuit at the station does not fire the mine, which must be touched by the vessel to complete the firing circuit. In another form observers watch the movement of the vessel and fire the mine from shore when the ship is over the torpedo. The spar or outrigger torpedo consists simply of a metal case containing the explosive substance (gunpowder, gun-cotton, dynamite, etc.), and fitted with a fuse constructed so that it can be fired at pleasure, or exploded by contact with a ship's side. It is screwed on to a long spar, which is usually fixed in the bow of a swift boat or steam-launch, which endeavors to reach and push the torpedo against the hostile vessel. Stationary torpedoes or submarine mines, such as are placed in channels or coasts to prevent the approach of an enemy's vessels, usually consist of a strong metal case containing an effective explosive, such as gun-cotton, etc., and having a fuse or cap which will explode the charge on the slightest contact; or the explosion may be effected by means of electricity, the operator firing it at will from the shore.

Torpedo-boat. The modern torpedo-boat is a small warship equipped with torpedo tubes as its chief weapons of offense. It must be

portion to its size. types, the torpedo-boat destroyer and the torpedo-boat, a smaller type of 200 to 400 tons displacement which has been largely superseded by the destroyer type and relegated to harbor and coast defense. This type is equipped with two or three torpedo-tubes, several three-inch guns and smaller arms. It has a speed of from 25 to 30 knots. The torpedo-boat destroyer is a larger vessel usually of 900 to 1200 tons displacement, though larger vessels in this class have been built. From four to eight torpedo tubes are carried and four 4-inch guns, together with lighter rour 4-inch guns, together with lighter pieces. A destroyer has a speed of about 30 knots per hour and is highly efficient both as a scout and as a defense against submarines. Originally designed for night attacks on larger ships the development of rapid-firing guns and searchlights has been such that operations of this character are rare though destroyers were actively engaged on both sides during actively engaged on both sides during naval engagements in the European war (q. v.). The motive power of these vessels is steam generated by fuel oil for the sake of space, economy and convenience. They are driven by high powered quad-ruple expansive engines operating twin propellors and are sufficiently seaworthy to accompany a battleship fleet on the high seas.

Originally a torpedo-boat consisted simply of a small boat filled with explosive which was itself destroyed in the explosion. Such vessels were used as early as 1595 at Antwerp. Submarine craft carrying torpedoes which were to be affixed to the bottom of the enemy ships followed. Surface craft appeared in the American Civil War, most of them using torpedoes on long spars attached to their bows, but it was not until 1877 when Herreshoff brought out the first torpedo-boat fitted to discharge White-head Torpedoes that the principles of the modern vessel of this class were established.

Torpedo Net. A net made up of steel links which is carried on a warship as a defense against sub-marine torpedoes. The usual practice is to suspend the net from the ends of booms pivoted at the inboard end to the side of the ship. When the ship is at rest these booms are swung out horizon-tally and the net unfurls, falling to a sufficient depth to protect the hull. When the ship is in motion the net is of no use and the booms are swung in, the net being furled and lying in a shelf.

Torquay (tor-ke'). a seaport and watering-place of England

There are two main antly situated on a series of heights and depressions on the north side of Torbay. It is well built, and consists principally of two streets, of several commanding terraces, and of a great number of isolated cottages and villas, with gar-dens attached. It has several handsome churches, a town-hall, assembly-rooms, etc., and a long pier forming an excellent promenade. The water supply and drainage system are excellent. For invalids its climate in winter is among the best in England. Here William of Orange landed in his invasion of 1688. Pop. (1911) 38,772.

Torque (tork), or Torc, a personal ornament worn by certain ancient nations, as by the ancient Britons, Gauls, and Germans. It consists of a stiff collar, formed of a number of gold wires twisted together, and sometimes of a thin metal plate, generally of gold, and was worn round the neck as a symbol of rank and command.

Torquemada (tōr-kā-mā'da), JUAN DE, a Spanish Cardinal born at Valladolid in 1388; died in 1468. He entered the Dominican Order in 1403 and became noted for his theological writings and took part in many important church councils.

Torquemada, Tomas DE. See In-

Torre Annunziata (tor'ra a-non-tse-a'ta), a seaport in the province of Naples, Italy, at the foot of Vesuvius, on the Bay of Naples. Pop. 28,084.

(del grā'kō), Torre Del Greco seaport of Italy, in the province of Naples, on the Gulf of Naples, at the foot of Mount Vesuvius. The town has suffered much by eruptions of Vesuvius. Pop. 35,328.

(tor'renz), LAKE, a large Torrens shallow salt lake of South Australia, about 90 miles N. of Spencer's Gulf. Length, about 130 miles; average breadth, 20 miles. In the dry season it is merely a salt marsh.

Torrens System, a system of registration of titles to real estate originated by Robert S. Tor-rens, and first brought legally into opera-tion in South Australia in 1858. Something of the same character had been employed in Austria in 1811 and Hungary in 1855, and Denmark had registered titles by judicial decree as early as 1550. But the Torrens system differed from Torquay (tor-ke'). a seaport and these earlier forms, and gradually spread watering-place of England, through the Australian provinces and to on the south coast of Devonshire, pleas-

these the registration of titles was made compulsory on the alienation of crown lands, but was otherwise voluntary. Only fee simple titles could be registered, and the title obtained by registration became

indefeasible.

various colonies in America, to Norway, Denmark, Germany and Austria, to England in 1862 and Ireland in 1865. In In Canada the system was adopted in the several provinces at various dates from 1871 to 1906, the act being compulsory on alienation of crown lands, except in British Columbia, and voluntary otherwise except in Ontario, where it is wholly voluntary.

The registration of land titles under statutes usually known as 'Torrens Acts' has been adopted in many parts of the United States. Illinois in 1895 was the first to adopt it. The act was held there to be unconstitutional, but was rewas re-enacted in 1913 when the Constitution was amended. Various other States adopted it, New York, in 1908, being among the latest to do so. The method pursued differs in form in different States, the local procedure varying widely. The claim to the title must be definitely passed on by examiners of title and in the event of a contest, this needs to be passed upon by a court. The de-cree, when given, becomes absolute and conclusive after a period varying in different States and Territories, ranging from thirty days in Massachusetts and the Philippines to five years in California. The title, when registered is, generally speaking, indefeasible, the exceptions being by private parties for fraud, for varying periods and under varying conditions.

To protect the indefeasible quality of the registered title, provision is generally made for an 'assurance fund,' the proceeds of which are used for the reim-bursement of any one injured by reason of the decree upon which the registration was based. Such a person must bring suit within a fixed period, varying from six to ten years in different States. constitutional amendment submitted in 1915 in Pennsylvania provided that new courts should be established for carrying 1915 in Pennsylvania provided that new the courts should be established for carrying the system into effect in that State. In the same year a Torrens bill was brought the constitutes a consider-

before the Legislature of Michigan. These were the latest States to take action upon the system.

(tor'rez), the strait Torres Strait which separates Ausdefeasible.

tralia from New Guinea, being about 80
From Australia the system spread to miles across. It is crowded with islands, prious colonies in America, to Norway, shoals, and reefs, rendering its navigation difficult.

Torres Vedras (tor'rosh va'drash) these, leaseholds for life or for twenty Lines or, so-called jears were included. Absolute, qualified from a village in Portugal 24 miles or possessory titles may be registered in northwest of Lisbon. These stupendous England; only absolute titles in Ireland. works, constructed by Wellington in 1810, consisted of two fortified lines, the one 20 miles in length, the other, in the rear of the former, 24 miles in length, forming an impregnable barrier between torming an impregnable barrier between the French troops and Lisbon. The lines of Torres Vedras saved Lisbon, baffled a well-appointed French army, and gave Wellington a fair opportunity to enter upon offensive operations. See Spain.

Torrey (tor'ri), John, botanist, born at New York in 1796; died in 1873. 1873. He became a physician in New York and engaged in botanical study, enacted in 1897, the point of objection publishing the first volume of his Flora being removed. The same happened in of the Northern United States in 1824. Ohio, a law being passed in 1896 and With Prof. Gray he produced a Flora of repealed as unconstitutional in 1898. It North America in 1838. He was proof the Northern United States in 1824. With Prof. Gray he produced a Flora of North America in 1838. He was professor of chemistry at Princeton College, 1830-54, and botanist of the Geological Survey of New York. In 1860 he presented his herbarium, containing about 50,000 specimens, to Columbia College.

Torricelli (tor-ri-chel'le), EVANGE-LISTA, an Italian physicist, born in 1608; died in 1647. Torricelli's name is important in the history of science as the discoverer of the law on which the barometer depends. Barometer.

Torrington (toring-tun), a borough of Torrington township, Litchfield Co., Connecticut, on the Naugatuck river, 26 miles w. by N. of Hartford. Its manufactures are of brass, machinery, needles, automobile accessories, hardware, etc. Pop. 20,000.

Torsion Balance (tor'shun), an instrument ployed to measure the intensities of very small forces. It consists of a fine wire, silk thread, or the like, suspended from a fixed point, and having a horizontal needle attached, the force being measured by the resistance to twisting which the filament exhibits when the force (that of attraction, for instance) acts on the needle.

manded it for five years.

Tort, in law, denotes injustice or injury. Actions upon torts or wrongs are all personal actions for tres-

passes, nuisances, assaults, defamatory words, and the like.

Tortoise (tor'tis), the name applied to various genera of reptiles included in the order Chelonia, along with the truther and their client. with the turtles and their allies. The



Common or Greek Tortoise (Testudo Grasca).

distinctive features of the tortoises and other Chelonians consist in the modification of the skeleton and of the skinstructure or scales to form the wellknown bony box in which their bodies are inclosed, the upper portion of which is the carapace, the lower the plastron. The The carapace, the lower the plastron. The Testudinide or typical land-tortoises have short stunted limbs adapted for terrestrial progression; the short toes are bound together by the skin, and have well-developed nails. The carapace is strongly convex, and is covered by horny appridentic plates. epidermic plates. The horny jaws are adapted for cutting, or may be divided into serrated processes. The head, limbs, and tail can be completely retracted within the carapace. Though capable of swimming, the tortoises proper are really terrestrial animals, and are strictly vegetable feeders. The most familiar example is the common Greek or European tortoise (Testudo Graca) so frequently its heated state. Pieces can also be kept as a household pet, and which occurs chiefly on the eastern borders of hot irons. It is now largely imitated by the Mediterranean. These animals somehorn and cheap artificial compounds.

able article of trade. It is, when salted and dried, a savory stock-fish. It is according to some), and hibernate from 18 to 30 inches long, and is called also tusk.

Torso (tor'sō; Italian), an art term signifying the trunk of a statue tortoise (T. Indica), which attains a of which the head and the extremities are length of over 3 feet and a weight of wanting. The torso of Hercules, in the Belvedere at Rome, is considered by connoisseurs one of the finest works of art remaining from antiquity.

Tortion (tor'sten-sun) Linnard. remaining from antiquity.

Torstenson

Swedish general, born from part of the plastron, which shuts over the anterior aperture of the shell when the animal retrievable in the shell when the shell when the shell when the shell when the animal retrievable in the shell when the shell w in 1603; died in 1651; distinguished in over the anterior aperture of the shell the Thirty Years' war (which see). He like a lid when the animal retracts it-was appointed leader of the Swedish self. In the box tortoise of North army in Germany in 1641, and com-America (Cistado Carolina) the hinder part of the plastron forms a lid. It is part of the plastron forms a lid. It is included among the Emydæ or terrapins. (See Terrapin.) Other genera include the alligator terrapin (Chelydra serpentina) of America, also called the 'snapping turtle.' (See Snapping Turtle.) The mud or soft tortoises (Trionychidæ) occur in Asia, Africa, and North America. They have soft fleshy lips, and no horny plates are developed in the skin. Very frequently also the ribs are not so modified as to form a hard carapace, as in other chelonia. See also Turtle.

Tortoise-shell a name popularly ap-Tortoise-shell, a name popularly applied to the shell or rather the scutes or scales of the tortoise and other allied chelonians, especially to those of the Chelonia imbricata (the hawk's-bill turtle), a species which inhabits tropical seas. The horny scales or plates which form the covering of this animal are extensively used in the manufacture of combs, snuff-boxes, etc., and in inlaying and other ornamental



Hawk's-bill or Tortoise-shell Turtle (Chelonia imbricata).

work. It becomes very plastic when heated, and when cold retains with sharpness any form it may be molded to in its heated state. Pieces can also be Tortoise-shell Butterfly, a name France, studied the literature of these two British butterflies, the small torpublished a critical essay, showing

but the other buildings are unimportant. An active trade is carried on. Pop. 24,452.

Tortugas (tor-tö'gås), or Dry Tor-TUGAS, a group of ten small, low, barren islands belonging to Florida, about 40 miles w. of the most western of the Florida Keys. On Loggerhead Key there is a lighthouse 150 feet high. Fort Jefferson, on one of the islands, was a penal station during the Civil war.

Torture (tor'tūr), the arbitrary and especially excessive infliction of pain judicially, whether to extort con-Torture has been common in all the nations of modern Europe, and it was also practiced by the ancient Romans. The practice was first adopted by the church practice was first adopted by the church in the early middle ages, and when the old superstitious means of discovering guilt (as in ordeal by fire and water) lost their efficacy torture became general in Europe. Though never recognized by the common law of England, it was employed there as late as the reign of Charles I, and in Scotland torture was not wholly abandoned till very near the close of the seventeenth century. Every reader is familiar with the horrid tortures inflicted on those accused of witchtures inflicted on those accused of witchcraft, and on many of the Covenanters, by means of thumbkins, the boot, etc., in order to discover alleged hiding-places and the like. In the German States tor-ture continued to be practiced under cer-tain restrictions till the close of the eighteenth century. The chief instru-ment of torture was the rack (which

Toru Dutt, a Hindu girl of wonder-ful precocity, born at Calcutta in 1856; died in 1877. She spent several years in England and

two British butterflies, the sman to toise-shell (Vanessa uritox) and the large tortoise-shell (V. polychloros), from the coloring of the wings.

Tortola (tor-to'la), a British West Virgin Islands; area, 26 sq. miles. It is bare and rugged, rising to a height of 1600 feet. It contains Roadtown, the capital of the group. Pop. 3431.

Tortona (tor-to'na), a town in Northern Italy, 12 miles east of Alessandria, in the province of Alessandria. The principal edifice is the cathedral (1575). Pop. 7889.

Tortosa (tor-to'xa), a fortified city of Snain, in Catalonia, 48 miles the Ebro. throne. The nickname, like its contemporaneous opposite, Whig, in coming into popular use became much less strict in its application, until at last it came simply to signify an adherent of that political party in the state who disapproved of change in the ancient constitution, and who supported the claims and authority of the king, church, and aristocracy; while their opponents, the Whigs, were in favor of more or less radical changes, and supported the claims of the democracy. In modern times the term has to some extent been supplanted by Conservative.

Totara (to-tä'ra; Podocarpus totara),
a timber-tree of New Zealand,

allied to the yew.

Totem (to'tem), a rude picture of some natural object, as of a the American Inbird or beast, used by the American Indians as a symbol and designation of a family or tribe. A similar practice has been found to prevail among other savage peoples, and some theorists have given it a very wide extension on purely

conjectural grounds.

Tongon (tou'kan; Rhamphastos), a Toucan (tou kan; Anumphosos), genus of scansorial or climb-



Red-billed Toucan (Rhamphastos erythrorhynchus).

ing birds of the family Rhamphastids. cause found in Lydia in Asia Minor. These birds inhabit the tropical regions series of needles (called touch-needles) These birds inhabit the tropical regions of South America, and are distinguished by a large keeled bill. The bill is about 8 inches long, and its substance is hollowed out into alr-cells, thus being comparatively light. The toucans feed on fruits, seeds, insects, etc. The prevailing colors among the toucans are yellow, black, and red. The bill is frequently very brilliantly colored.

Touch, the sense of feeling and the most widely diffused of the Polyporus igniarius. It is easily ignited, and is exercised through certain structures situated in the papills of the true skin and connected with terminal filaments of sensory nerves. These structures have some variety of form, and are called tactile cells, tactile corpuscles, compound tactile corpuscles, Pacinian corpuscles, etc. All the kinds are to be regarded as terminal organs of the sensory nerves, act-

ing as the media which impressions made on the skin are communicated to the nerve fibers. Although the sense of touch is diffused over the whole body, it is much more exquisite in some parts than in others. Experiment shows the tip of the tongue to be the most sensitive surface, points of the the fingers come next, while the red part of the tips follow in order. The neck, middle of the

back, and the middle of the arm and has a cathedral, originally Romanesque, thigh are the least acute surfaces. See Impations. Touch-me-not.

See Touchstone. Touch-needles.

Touchstone, a variety of extremely compact siliceous schist, used for ascertaining the purity of gold

series of needles (called touch-needles), of which the composition is known, are used for comparison with the article to be tested. When the color of the streak produced by both the needle and the trinket on the stone is the same the quantity of alloy they contain is supposed to be similar.

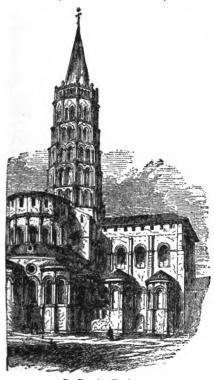
Touchwood, a soft white substance into which wood is con-

Toulon - sur-Mer (to-lonsur-mār). a seaport, and after Brest the important most naval station of France, in the department of the Var, situ-ated on a bay of the Mediterranean, 42 miles
E. S. E. of Marseilles. It is defended by numerous forts and redoubts. and strong forts and outworks occupy all the heights surrounding the

Tula.

of the eleventh century, a good town-hall, theater, etc., besides the arsenal and other marine establishments, which are on a most extensive scale. The chief harbors and docks are separated from the roadstead by moles, which are hollow and Touch-paper, paper steeped in salt-roadstead by moles, which are nonow and bomb-proof, and lined by batteries, and the storehouses, shipyards, workshops, etc., are most complete. The trade is not important. Toulon suffered severely at the hands of the republicans in 1793 after the withdrawal of the British, whom the and silver. Known also as black josper inhabitants had voluntarily admitted, and and basanite. It was called Lydian who destroyed here the French republistone, or lapis Lydia, by the ancients, becan fleet. Pop. 101,602.





St. Sernin, Toulouse.

Palais de Justice. Toulouse has university faculties, a Roman Catholic university, a lyceum, and other educational in-stitutions, public library of 60,000 vols., etc. It is the chief entrepôt of the dis-trict for agricultural produce and general trade, and is an important industrial center. It is a place of great antiquity, and rose to eminence under the Romans, who embellished it with a capitol, amphi-theater, and other edifices of which vestiges still remain. It was the capital of the kingdom of the Visigoths from 419 and some legal works.

Toulouse (tö-löz), a town of South- till 508, when Clovis gained possession of ern France, capital of the it. Subsequently it became the capital department of Haute-Garonne, on the of Aquitaine, was long governed by inde-Garonne (which is navigable and crossed pendent counts, and in the thirteenth by three bridges), 160 miles s.e. of Borcentury fell a prey to the cruel bigots of deaux. The streets are narrow and irregular, and the houses generally unpretentious. Among remarkable public French were defeated by the British under buildings are the cathedral, the church of St. Sernin, the Hotel de Ville, and the Touraco (tö-rak'ō), a name of insessorial birds of the genus Corythaix or Turācus, natives of Africa, and allied to the Scansores, or climbing



Touraco (Corythaix erythrolophus).

Their prevailing color is green, varied in some species with purple on the wings and tail. They feed chiefly on soft fruits, and frequent the highest branches of the forest trees.

Touraine (to-ran), an ancient prov-ince of France, bounded north by Maine, east by Orléanais and Berry, south by Berry and Poitou, and west by Anjou and Poitou. It now forms the department of Indre-et-Loire. Tourcoing (tör-kwan), a town of France, department of Nord, 9 miles N. N. E. of Lille; a well-built thriving manufacturing town, the staple manufactures being woolen, cotton, linen, and silk stuffs, besides dye-works,

rourgee GAR, novelist, besides dye-works, soap-works, sugar retineries, machine works, etc. Pop. 82,644.

Tourgee GAR, novelist, born at Williamsfield, Ohio, in 1838; died in 1905.

He served through the Civil war, and in 1866, preceded in the practice of law at 1866 engaged in the practice of law at Greensboro, N. C. He took an active part in the Constitutional conventions of 1868 and 1875, and was judge of the Superior Court, 1868-73. In 1897 he was appointed United States Consul of Parders France His best known parel Bordeaux, France. His best-known novel was A Fool's Errand. He wrote also Bricks Without Straw and other novels,

Tourguenieff (torgen'yet), IVAN SERGETEVITOH, a celebrated Russian novelist, born at Orel in 1818; died near Paris in 1883. He belonged to a noble and ancient family, and was educated at Moscow, St. Petersburg, and Berlin. In 1842 he obtained an appointment in the ministry of the interior; but having written an article displeasing to the authorities, he was shortly after-wards banished to his paternal estate. For some years he led the life of a country For some years he led the life of a country gentleman, gaining an intimate acquaintance with Russian peasant life. His first important publication was translated into English under the title of Russian Life in the Interior, or the Experiences of a Sportsman. It was followed by a great number of short tales and dramas, contributed principally to Russian periodicals. His earliest novels were A Nest of Nobles (1859), and On the Eve (1859). A powerful politicosocial novel, Fathers and Sons, was published in 1861, and met with much adverse criticism in Russia. His other verse criticism in Russia. His other works include Smoke, Spring Floods, Virgin Soil, etc., all of which have been translated into English. Tourguenief has been ranked with the greatest masters of fiction.

Tourmaline (torma-lin), a mineral occurring crystallized in three-sided or six-sided prisms, terminated by three-sided pyramids, the primary form being a rhomboid. It scratches glass easily, has a specific gravity of 3, and consists principally of a compound silicate and borate of alumina and magnesia. Tourmaline occurs most commonly in igneous and metamorphic rocks, espe-cially in granite, gneiss, and mica-slate. Some varieties are transparent, some translucent, some opaque. Some are colorless, and others green, brown, red, blue, and black. Red tourmaline is known as rubellits, blue tourmaline as indicolite, and black tourmaline as schorl. The transparent varieties include various well-known jewelvy stones as the Brevilless. The transparent varieties include various first and last extant works (1600-13). well-known jewelry stones, as the Brazilian sapphire, the Brazilian emerald, etc. The two plays on which his fame rests ian sapphire, the Brazilian emerald, etc. The Atheist's Tragedy (1607) and Prisms of tourmaline are much used in pelarizing apparatus, and it possesses powerful electric properties.

Tournai (tör-nā; in Flemish, Doornik, and of ligature twisted tight with of the Scheldt, which is here crossed by a stick forms a simple tourniquet.

of the Scheldt, which is here crossed by seven bridges and lined by fine quays. The streets are for the most part spa-cious, with well-built houses. Among the principal edifices are the cathedral, an

Martin, now used as a town-house. The leading manufactures are linens, woolens, cottons, and Brussels carpets.
Tournal is one of the oldest towns of Belgium, and was anciently the chief town of the Nervii, and afterwards the residence of some of the early Frankish kings. Pop. (1904) 36,744.

Tournament (tör'na-ment), or Tournament NEX, a common sport of the middle ages, in which parties of mounted knights encountered each other with lances and swords in order to dis-play their skill in arms. Tournaments reached their full perfection in France in the ninth and tenth centuries, where they first received the form under which they are known to us. They were introduced into England soon after the Conquest by the Normans. Jousts were single com-bats between two knights, and at a tournament there would often be a number of jousts as well as combats between parties of knights. The place of combat was the lists, a large open place surrounded by ropes or a railing. Galleries were erected for the spectators, among whom were seated the ladies, the supreme judges of tournaments. A knight taking part in a tournament generally carried some device emblematic of a lady's favor. Tournaments gradually went out with the decline of chivalry.

decline of chivalry.

Tournefort (ton-for), Joseph Pitton De, a French botanist, born in 1656. He was educated by the Jesuits, and in 1683 became professor of botany at the Jardin des Plantes, Paris. He visited Greece and Asia Minor, and wrote Voyage au Levent. His chief work is entitled Institutiones Rei Herbariæ (three vols., Paris, 1700). He died in 1708, being then professor of medicine in the Collège de France.

Tourneur (törner), Cyril, an English tragic poet, of whose existence we have little certain information beyond the respective dates of his first and last extant works (1600-13).

a stick forms a simple tourniquet.

Tours (tör), a town of France, capital of the department of Indreet-Loire, on the left bank of the Loire 145 miles by rail southwest of Paris. The Loire is here crossed by two susancient structure in the Romanesque The Loire is here crossed by two susstyle; the Church of St. Brice (twelfth pension bridges, a railway bridge, and a century); and the old monastery of St. fine stone bridge 1423 feet long. Many

of the streets are spacious and elegant, and there are several historic chateaux in the neighborhood. The principal edifice is the cathedral (Tours being an architectoria, finked by two towers, 205 to the bar in 1872; was admitted to the bar in 1878; became an officer and feet high, a fine building begun in the feet high, a fine building begun in the Martin of the old abbey church of St. Hungary. In 1899 he was made Ammartin of Tours only two towers remain. bassador to Russia, and in 1902 to Germany, returning in 1908. He is the of St. Joseph, the theater, and the museum. Manufactures include silk, cloth, the American Revolution. century. Of the old abbey church of St. Martin of Tours only two towers remain. The modern buildings include the Church of St. Joseph, the theater, and the museum. Manufactures include silk, cloth, carpets, chemicals, etc., and there is a large printing and publishing establishment. Tours was known to the Romans by the name of Cessarodunum. In later times it became famous for its silk manufactures, and had a population of 80 000

1660, became a captain in 1667, and was created vice-admiral in 1689. He defeated a Dutch-English fleet off the Isle of Wight in July, 1690. In 1692 he was ordered to attack a far superior Dutch-English fleet off La Hogue, and was defeated. He was created a marshal in 1693, and in 1694 destroyed a Dutch and English trading fleet off Cape St. Vin-

Toussaint-Louverture (tö-san-lö-ver-tür), a distinguished negro, born a slave in the Island of Hayti in 1743. After the insurrection of 1791 Toussaint served in the army of the blacks, and later rose to be their leader. He displayed great military and political ability, and in 1796 the French government appointed him gen-eral-in-chief of the troops in San Domingo. After a severe struggle with inmingo. After a severe struggle with insurrectionary movements he assumed supreme civil authority, and in 1801 was completely master of the island. He was appointed president for life of the Republic of Hayti, and under his vigorous government the commerce and agriculture of the island began to revive. But Napoleon did not choose to see him independent although professally lovel independent, although professedly loyal to France, and sent a powerful expedi-tion to subdue Toussaint, who was forced to surrender. After a vigorous re-sistance he was seized and sent to France, where he died in prison, on the 27th of April, 1808.

seum. Manufactures include silk, cloth, carpets, chemicals, etc., and there is a large printing and publishing establishment. Tours was known to the Romans by the name of Cæsarodunum. In later times it became famous for its silk manufactures, and had a population of 80,000, when the revocation of the edict of Nantes deprived it of nearly half its inhabitants, a blow from which it has never recovered. In 1870 Tours was the seat of the government of national defense. Pop. 61,507.

Tourville (tőr-vil), De Anne Hilabitation of the could be a collection of buildings of various ages on a somewhat elevated position on the north bank of the through the old city walls. It covers about 13 acres, and is surrounded by a battlemented wall flanked with massive towers, and encircled by a moat. There is also an inner line of circumvallation broken by towers, and interspersed with other buildings. In the center is the White Tower, the keep of the old fortress, around which are grouped the chapel, the jewel-house, barracks in 1701. He entered the navy in 1660, became a captain in 1667, and was served at once as a palace, a prison, and was a first-class medieval fortress, and served at once as a palace, a prison, and a place of defense. The White Tower was built by Gundulf, bishop of Rochester, for William I, in 1078. It was successively strengthened by various English sovereigns. The regalia, consisting of the royal crowns, scepters, etc., are now kept and exhibited in the jewel-house. The armory contains a fine collection of armor and weapons. In the part called the Bloody Tower the two young princes, sons of Edward IV, were murdered. The Tower is now chiefly used as an arsenal, and has a small military garrison of the yeomen of small military garrison of the yeomen of the guard. It is governed by a constable and deputy-constable. The governorship is still a post of distinction. The White Tower was slightly damaged on January 24, 1885, by an explosion, the work of Irish dynamitards. Town. See City.

> Town-clerk, the clerk to a municipal corporation, elected by the town-council. In the United States, an officer who acts as custodian of civic or municipal records, and enters all the official proceedings of a city, town, or borough. In England his chief duties are to keep the records of the borough and lists of burgesses and to take charge of the reting presers at municipal elecof the voting papers at municipal elec-

> Town-council, the governing body in a municipal cor-

poration elected by the legal voters. The principal duties of this body are to manage the property of the city, impose taxes for public purposes, pass laws for dotes. See the good government of the town, for the **Toxotes** prevention of nuisances, and the like.

Townshend (toun zend), CHARLES, second viscount, an English statesman, born at Rainham, Norfolk, in 1674; succeeded to the peerage in 1687, and took his seat as a Whig in the House of Peers in 1695. After acting as a commissioner for arranging the Scottish Union (1706), he was joint plenipotentiary with Marlborough in the conference at Gertruydenburg (1709), and then, as ambassador to the statesgeneral, signed the Barrier Treaty. For this he was censured by the House of this he was censured by the House of Commons, and declared an enemy to the queen and kingdom. He thereupon enqueen and singdom. He thereupon entered into communication with the Elector of Hanover, who, on his accession as George I, appointed Townshend secretary of state, 1714. In 1717 he became lord-lieutenant of Ireland; and he was again secretary of state from February, 1721, to May, 1730, when he retired on account of differences with his retired on account of differences with his to twenty rings brother-in-law and colleague, Sir Robert zones of gristly

Walpole. He died in 1738.

Townshend (toun zend), CHARLES, grandson of the above, born in 1725; entered the House of Commons in 1747, and became a commissioner forms of trade and plantations in 1749. He was a lord of the admiralty in 1754, member of the privy-council in 1756, secretary of war in 1761-63, chancellor of the avelegate in 1766. of the exchequer in 1766. He supported Granville's stamp-act (1765), and introduced the celebrated resolutions for taxing the American colonies (June 2, 1767). He died in 1767. From so often changing his political opinions he was known as the 'weathercock,' but he had a great reputation for oratory and ready wit.

(toun'ship), a subdivision gus D. Township (toun'ship), a subdivision gus D.

of a county, without refTracheotomy (tra-ke-ot'o-mi),
erence to its population. Townships
I LARYNGOTOMY,
in the central and western United States or Bronchotomy, an operation in which are frequently square areas of six miles an opening is made into the trachea or to a side. In England, a township is a larynx, as in cases of suffocation. division of a parish which has a contact of the stable, and may have overseers of the trachea (tracko'ma), a specific contagious form of inpoor belonging to itself.

Being the port of an immense territory, States. including several gold-fields and a large Trachyte (tra'kit), a compact volarea of pastoral country, there is a large canic rock, breaking with a

provements have been made. Pop. 12,717. Toxicology (tok-si-kol'ō-ji), the science of poisons and antidotes. See Poison.

(toks'o-tēz), an East Indies genus of fishes, with two species. See Archer-fish.

(tra'se-ri), the ornamental stonework in the head of a Tracery Gothic window, arising from the mul-

tions, and presenting various combinations, and presenting various combinations of curved or straight lines.

Trachea (trā'ke-a), or WINDPIPE, in anatomy, the name given to the tube extending from the larynx (which see) down into the chest to a point opposite the third dorsal vertebra, where the tube divides into two chief divides into two chief divides into two chief divides. where the tube divides into two chief divisions or bronchi (which see), one of which supplies each lung with the air necessary for respira-

tion or breathing. trachea in man is of cylindrical form, about 41 inches long, and from 2 to 1 inch in diameter, and is com-posed of from sixteen to twenty rings or or cartilaginous nature, separated and con-nected by fibrous tissue. Each cartilage яn being ring, behind, and having



Trachea - Secimperfect tion through part unclosed of face and neck.

the gristly edges merely joined by fibrous membrane. The windpipe is lined by delicate mucous membrane which is covdelicate mucous membrane which is covered by epithelial cells provided with delicate vibratile processes or cilia. All mammals, reptilia, and birds possess a trachea, but some amphibia want this organ; the lungs in such cases springing directly from the larynx. The cut shows the trachea A A, the epigiottis B, the larynx C, and the esopharus B

flammation of the conjunctiva of the eye. Townsville (tounz'vil), the chief It is associated with filthy conditions and municipality of North is common in Egypt, Arabia and parts of Queensland, Australia, on Cleveland Europe. Individuals suffering with the Bay, about 850 miles N. w. of Brisbane, disease are denied entry to the United

shipping trade. Extensive harbor im-rough surface, and often containing crys-

tals of glassy felspar, and sometimes some distinctive device, figure, emblem, hornblende and mica. This rock is ex- or design, or a written signature or copy

ing, so that a pen or pencil may be used in tracing the outlines of the original.

Tracy (trā'si), Benjamin Franklin, statesman, born at Oswego, New York, in 1830. He became brevet brigadier-general in the Civil war, United States district attorney in 1866, and judge of the New York Court of Appeals in 1889. In 1889 he became Secretary of the Navy under President Harrison. He was an unsuccessful candidate for mayor of New York in 1897. Died Aug. 6, 1915.

Trade, Board of. See Board.

Trade-mark, a peculiar mark used by a manufacturer to distinguish his own productions from those of other persons. Such marks can now be registered and protected in all the more important countries, and between these also there is a general reciprocity as to protection. Regarding trademarks many nice questions may arise, and it is not easy to define what constitutes a valid trade-mark. A mere cescriptive title or a geographical name will not constitute a proper trade-mark; what it is best to select is some invented

tremely abundant among the products of of such. Any mark or name calculated to mislead as to the real nature or origin of the goods will be vitiated. In the rent paper which enultied States trade-marks are registered ables a drawing or print to be clearly at the Patent Office, at a fee of \$25, seen through it when laid on the drawther ingress that a paper or papell may be used. at the Patent Office, at a fee of \$25, the right running for thirty years.

Tradescantia (trad-es-kan'she-a), a genus of lily-like plants,

in tracing the outlines of the original. It is prepared from smooth unsized white paper rendered transparent by a varnish made of oil of turpentine with an equal part of Canada balsam, nut-oil, or other oleo-resin.

Tractarianism (trak-tă'ri-an-izm), three petals, three-celled capsule, and the name usually given to a system of religious opinion virginica, a United States species, is and practice promulgated within the known by the name of spiderwort. It Church of England in a series of papers has succulent stems, shining grass-like entitled Tracts for the Times, and published at Oxford between 1833 and 1841.

Traction-angine See under Steam gardens. Other species are cultivated.

Traction-engine. See under Steam gardens. Other species are cultivated.

Traction-engine. Trades-unions. A trade society has been defined as 'a atthough trades-unions, are generally called, almost always have other objects in view in addition to that specified in the definition, ways have other objects in view in addition to that specified in the definition, that object is their distinguishing one.

Trade, Board of. See Board.

Trade Dollar, a silver dollar of the United States, containing 378 troy grains of silver and 42 troy grains of alloy. Dollars of this description, issued under Act of Congress of Feb. 12, 1873, were legal tender to the amount of \$5. Those issued under the Act of July 22, 1876, possessed no legal tender power. The trade dollars were intended for trade with countries doing business on a silver basis; hence the name.

Trade-mark, a peculiar metals of the silver and the funds of the silver and the funds of the name.

Trade-mark, a peculiar metals of the silver and the funds of the name. combination of workmen to enable each to secure the conditions most favorable for labor'; and although trades-unions, as they are generally called, almost always have other objects in view in addition to that specified in the definition, the insurance of tools, libraries, and undertake the insurance of tools, libraries, and reading-rooms; but their fund, to which every member must regularly contribute a stated sum, is principally reserved for enabling the men to resist, by strikes and otherwise, such action on the part of the employers as would tend to lower the employers as would tend to lower the rate of wages or lengthen the hours of labor. That trades-unions enable the men to benefit by the state of trade more than they otherwise would have done would appear from the fact that the worst-paid trades are those without unions. Trades-unions are also said to what it is best to select is some invented have furthered the safety of the laborer word or words, or a word or words having no reference to the character or the conditions in which he works. Some quality (though suggestive of excellence), hostility against trades-unions has been

Trade-wind

unions, or members of them, have been guilty, such outrages being directed against the property of employers, or against the persons and tools of non-union men. The Trades Unions of the United States originated within the last century, and have united into general organisations embracing large numbers of workmen. The oldest of these, the Knights of Labor, originated in 1869. The American Federation of Labor, organised in 1887, includes the great bulk of the local unions, both of the United States and Canada. It has a membership of about 2,000,000, representing about 27,000 local unions in the two countries. Britain has also a general Federation of Trades-Unions and similar organisations exist in other parts of Europe and elseexist in other parts of Europe and elsewhere. See Labor Organizations.

Trade-wind, one of those perpetual or constant winds which occur in all open seas on both sides of the equator, and to the distance of about 30° north and south of it. On the north of the equator their direction is from or the equator their direction is from the northeast (varying at times a point or two of the compass either way); on termed gum-drage the south of the equator they proceed It is the prodfrom the southeast. The origin of the uce of several trade-winds is this:—The great heat of species of the the torrid sone rarefies and makes lighter genus Astrogothes and the circum the southeast. the air of that region, and in consequence of this rarefaction the air rises and plants natives of ascends into the higher regions of the mountainous atmosphere. To supply its place colder regions of Westair from the northern and southern regions rushes towards the equator, which, also becoming rarefied, ascends in its canth occurs in turn. The heated air which thus assembly into the upper regions of the thread-like pieces, atmosphere being there condensed flows or in flattened contributed and southward to supply the cakes in color northward and southward to supply the deficiency caused by the under-currents blowing towards the equator. These under-currents coming from the north and south are, in consequence of the earth's rotation on its axis, deflected from their course as they approach the equatorial region, and thus become northequatorial region, and thus become northeast and southeast winds, constituting the trade-winds. The belt between the two trade-winds is characterized by calms, frequently interrupted, however, by violent storms. Trade-winds are constant only over the open ocean, and the larger the expanse of ocean over which they blow (as in the Pacific) the more steady they are. In some places the trade-winds become periodical, blowing one-half of the year in one direction and the other half in the opposite direction. See Monsoon.

produced by the outrages of a more or Tradition (tra-dish'un), in its gen-less serious nature of which some of the unions, or members of them, have been knowledge handed down from one generation to another by oral communica-tion. It plays a very important part in the Jewish and Roman Catholic churches. In theology, the term is specifically applied to that body of doctrine and discipline, or any article thereof, supposed to have been put forth by Christ or his apostles, and not committed to writing, but still held by many as an article of faith. faith.

Tragopan

Traducianism. See Croationism.

Trafalgar (commonly tra-fal'gar, more correctly tra-fal-gar'), a low and sandy cape on the southwest coast of Spain, at the northwest entrance of the Strait of Gibraltar. The famous naval battle in which Nelson lost his life, after defeating a larger French and Spanish fleet under the command of Villeneuve and Gravina, was fought off this cape, October 21, 1805. The Franco-Spanish fleet lost 19 ships out of 33.

Tragacanth (trag'a-kanth), a variety of gum familiarly termed gum-dragon or gum-tragacanth It is the prod-

genus Astragă-lus, leguminous cakes, in color whitish or yel-lowish, devoid of taste or smell.

It is demulcent, Tragacanth (Astragillus and is used in gummifer).

coughs and catarrhs, and to make lozenges and pills.



It is employed also in calico-printing. Tragedy (traje-di), a dramatic poem, representing an important event or a series of events in the life of some person or persons, in which the diction is elevated and the catastrophe melancholy. Tragedy originated among the Greeks in the worship of the god Dionysus or Bacchus. See Drama.

Tragopan (trago-pan), a name of certain beautiful birds of the genus *Octionnis*, and of the family Phasianide, closely allied to the commen

The term was afterwards applied to the London militia, from which the 3d regi-ment of the line originated, and in which

where he acquired so high a character that Nerva adopted him and created him Cæsar in 97.



Nerva died in 98, and Trajan, who was then in Germany, peaceably succeeded to the throne. He made peace with the German tribes, and pro-ceeded to introduce enlightened measures of reform into the public service. One of his greatest military achievements was his defeat of the Dacians, and

Trajan. the reduction of Dacia to a Roman province. It is supposed that it was in commemoration of this war that the erected at Rome the column which sons who cannot be classed as tramps, still remains under his name. In 103 in England laws have been enacted for he wrote the famous epistle to Pliny, many centuries for the regulation of governor of Pontus and Bithynia, direct-vagrancy. In the United States tramps for Christians have been enacted for the regulation of governor of Pontus and Bithynia, direct-vagrancy. In the United States tramps

fowl. O. satyra, a common species, is a anonymous charges. For some years native of the Himalayas. The plumage Trajan occupied himself with the work is spotted, and two fleshy protuberances of administration, but in 114 he set out hang from behind the eyes. When the on an expedition against the Parthians bird is excited it can erect these prowhich resulted in the reduction of tuberances until they look like a pair of Armenia to a Roman province. He died horns. A large wattle hangs at either side of the lower mandible.

See Goats' beard. Train-bands, a force partaking of the nature of both militia and volunteers, instituted by wish that he might be more formal.

The term was afterwards applied to the London militia.

London militia, from which the 3d regiment of the line originated, and in which the renowned John Gilpin was a captain.

Trains, Armored, railway trains of which the engine and carriages are protected from small-arm fire by armor in the shape of high parapets of iron or steel plating. Loopholes in the armor allow the men to use their riffes.

Training Colleges. See Normal Schools.

Trajan (trajan), in full, Marcus the Pruth E. to the Black Sea.

ULPIUS TRAJANUS, a Roman emperor, born in Spain 52 A.D., was the son of Trajanus, a distinguished Roman commander under Vespasian. He served against the Parthlans and on the Rhine, in farm produce. By means of a canal where he acquired so high a character vessels up to 300 tons can discharge

vessels up to 300 tons can discharge their cargoes within 100 yards of the town. Pop. 9687.

Trammel (tram'el), an instrument for drawing ovals, used by joiners and other artificers. One part consists of a cross with two grooves at right angles; the other is a beam-compass



carrying two pins which slide in those grooves, and also the describing pencil. Tramp, the colloquial name for va-grants or wanderers. The term 'tramp' in general use means a wandering, disorderly person, without visible means of support, though vagrant in a wider sense is applied to many pering him not to search for Christians, were formerly so few that before the but to punish them if brought before Civil war they received little attention. him; and on no account to listen to Later, partly owing to the disbandment of the armies, the scattering of the camp- of the main Caucasus ridge, and which followers, the disastrous times of 1873, includes the governments of Kutais, and the increase of foreign vagrants by Tiflis, Elisabethpol, Erivan, Kars, etc. and the increase of foreign vagrants by immigration, they increased so largely, besides becoming so dangerous and vibesides becoming so dangerous and vi-dious in character, that the evil was so the system of philosophy founded by great as to attract public attention. Kant to all those principles of knowlgreat as to attract public attention.

Now many of the states have promulgated vagrancy laws to abate the nuisance. It has been found, however, that severe treatment is not a great deterrent.

Tramway (tram'wā), the English name for street railways, which see; also Electricity and Trolley. Trance (trans), a condition resembling sleep, in which consciousness and many of the vital functions are suspended, and during which the action of the heart is diminished and the breathing reduced. The subjects of trance are usually hysterical, and in some cases it is induced by exhausting disease or emotional disturbance. In this condition the face is pale, the limbs relaxed, the mental functions are in abeyance, no effort at rousing will produce a return to consciousness, and this state may last from a period of several hours to many weeks or months. When the trance lasts for a lengthy period food is taken in a mechanical way at sort of ecstatic state in which some persons are said to fall.

Trani (tra'nè), a seaport in South Italy, province of Bari, on the Adriatic, 26 miles northwest of Bari, with old walls and bastions, and a cathedral. Pop. 34,688.

Tranquebar (tran-kwe-bär'), a seaport in the district of Tanjore, Madras Presidency, India, formerly a Danish settlement and a busy port. Pop. 13,142.

(trans-bī-kā'li-ā), a Siberian province, Transbaikalia E. of Lake Baikal; area, 240,780 sq. miles. It has an elevated, well-watered surface, and climate dry and extreme both in summer and winter. Agriculture and trade are limited; gold is found to some extent. Pop. 742,200.

Transcasnian Region

Transcaspian Region (trans-kas'pi-an), a territory to the E. of the Caspian recently annexed by Russia. It has an area of 220,000 sq. miles, mostly uninhabited desert, and is traversed by the Transcaspian Railway, which connects a, Mercury. The dotted line shows the path. Samarcand with the Caspian Sea.

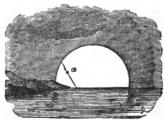
Transcaucasia (trans-ka-kā'shi-a), a phenomenon which is usually noted by that part of the a transit instrument. The determination lieutenancy of the Caucasus which lies & of the exact times of the transits of the

lieutenancy of the Caucasus which lies s. of the exact times of the transits of the

Transcendental (trans-sen-den'tal), edge which are original and primary, and which are determined à priori, such as space and time. They involve necessary and strictly universal truths, and so transcend all truth derived from ex-perience, which must always be contingent and particular. The term transcendentalism is now generally used in a sense not very different from mysticism, or for that which is vague and illusive in philosophy. In mathematics the term is applied to quantities that cannot be expressed in ordinary algebraic terms. Transept (tran'sept), in architecture, the transverse portion of a church which is built in the form of a cross; that part between the nave and choir which projects externally on each side, and forms the short arm of the cross in the general plan. See Cathedral.

Transfusion (trans-fū'shun), the transmission of blood from the veins of one living animal to those of except as from cone if the lower those of another, as from one of the lower animals into a man, or from man to man, intervals by the sleeper. Most cases with the view of restoring the vigor of recover. The term is also applied to a exhausted subjects. This operation is a very old one, but seems to have generally ended in failure until about 1824, the chief cause of failure probably being the want of due precautions to exclude the air during the process. It is now occasionally received. casionally resorted to as a last measure in cases of great loss of blood by hemorespecially in connection with rhage, labor.

> (tran'sit), in astronomy, (a) Transit the passage of a heavenly body across the meridian of any place,



heavenly bodies across the meridian of objects. In the teaching of the Brahthe place of observation enables the manic Hindus it has its foundation in astronomer to ascertain the differences the belief of the connection of all living of right ascensions, the relative situableings, and of the gradual purification of tions of the fixed stars, and the varied the spiritual part of man and its return motions of the sun, planets, and comets, to the common source and origin of all in respect to the configuration of the sun, planets, and comets, the celegial meridians. of right ascensions, and the varied to the fixed stars, and the varied motions of the sun, planets, and comets, to the common source and origin of all in respect to the celestial meridians.

(b) The passage of one heavenly body similar doctrine, but with them the over the disk of a larger one; but the ultimate goal of the soul is not absorpterm is chiefly restricted to the passage tion by the Deity, but annihilation, Nirof the inferior planets, Mercury and Venus, over the sun's disk. The transits of Venus are of great importance in The doctrine probably passed from Egypt astronomy, as they afford the best means into Greece, where it was never generally of determining the sun's parallax, and current, but was confined to the mysteries and some philosophic systems. over the disk of a larger one; but the term is chiefly restricted to the passage of the inferior planets, Mercury and Venus, over the sun's disk. The transits of Venus are of great importance in astronomy, as they afford the best means of determining the sun's parallax, and consequently the dimensions of the planetary system. These transits are of rare occurrence, four taking place in 243 years, at intervals reckoning from the transit of 1874, in the order of 8, 122, 8, and 105 years, which gives the transit years 1882 (Dec. 6), 2004, 2012, 2117. The transits of Mercury occur more frequently, but they are of far less astronomical interest, as they cannot be used for the same purpose, the planet being too distant from us. being too distant from us.

Transit Instrument, an imporment adapted for observing the exact time of the passage of heavenly bodies across the meridian. (See Transit.) It consists essentially of a telescope fixed at right angles to a horizontal axis, which latter has its ends directed exactly to the sect and west rounts of the horizontal axis. to the east and west points of the horizon, so that the line of collimation or optical axis of the telescope may move in the plane of the meridian. The instrument is susceptible of certain nice adjustments, so that the axis can be made perfectly horizontal, and at right angles to the plane of the meridian, in which plane the telescope must move. It is generally used in connection with the mural circle (which see).

Transkei (trans'ki), a division on the east coast of Cape Colony, Africa, extending southward from the Kei River to Tembuland, and bordering

it may be, through plants or inanimate and the troubles grew more prominent

into Greece, where it was never generally current, but was confined to the mysteries and some philosophic systems.

Transvaal (trans-väl'), now VAAL RIVER COLONY, was originally formed by part of the Boers, of Dutch descent, who left Cape Colony in 1836 for Natal, and quitted that colony on its annexation by Great Britain in 1845. Its independence was recognized by the British government in 1852. It lies north of the Vaal River and south of the Limpopo River, and is bounded or the west by Bechuanaland, east by Portuguese territory, Swaziland, and Zululand, south by Natal and the Orange River Colony. Area, 114,360 sq. miles. Its population is 1,686,212, of whom about 300,000 are whites. Its largest town is Johannesburg, with a population of 237,220. This city is a goldmining center. The region is a plateau of from 1500 to 6000 feet elevation. It is well suited to agricultural and stockraising pursuits, and large numbers of farm animals are kept. The great wealth of the region is in its mineral resources, notably gold, diamonds, and coal. The gold mines have the greatest output in the world, and the diamond product is of considerable value.

In 1877, owing to a war with the

output in the world, and the diamond product is of considerable value. In 1877, owing to a war with the Kaffirs, a British force assisted the Boers and the territory was annexed to Great Britain. Troubles ensued, the Boers rose in arms in 1880 and defeated the British in 1881 at Majuba Hill. Their independence was then recognized, though their foreign relations remained Kei River to Tembuland, and bordering on the Indian Ocean; area, 2552 sq. Their independence was then recognized, miles. The interior rises to an elevation though their foreign relations remained of about 9800 feet. It is a very fertile region, with dense forests. Many cattle and sheep are raised. Copper and coal brought new elements of difficulty into are found. Pop. 177,647; 1700 whites.

The remaining of the Soul, the problem, the Boers refusing to the multitude of foreign miners who sought their country any political privileges, or Metempsychosis, (met-emp-si-kō'sis), their country any political privileges, the passage which, according to the belief of many races and tribes at all Uitlanders (outlanders) led, in 1895, to times, the soul after the death of the an invasion of the republic by a party body makes through the bodies of the of British settlers under Dr. Jameson. lower animals or other human bodies, or, This was easily suppressed by the Boers, it may be, through plants or inanimate and the troubles grow more prominent.

should be instantly withdrawn and that no more troops should be sent to South Africa. This demand not being complied with, a Boer force at once invaded Natal, where they invested Ladysmith, and for a time had much success. In 1900 the tide of the war turned, the British forces increasing until nearly 250,000 men were in the field under Lord Roberts. Ladysmith and the other be-sieged towns were relieved, and though the Boers fought with great courage and the Boers fought with great courage and skill they were so largely outnumbered that their case grew hopeless. Bloemfontein, Johannesburg, and Pretoria were occupied, and the Transvaal Republic, with the Orange Free State, which had joined it in the war, were proclaimed British colonies. President Kruger fled to Europea, where he sought in vain for European intervention, and the war on the part of the Boers became a series of guerilla raids, continued until but a handful of fighting men were left. In May, 1902, a treaty of peace was signed, and the two republics passed under British rule, the terms granted them be-British rule, the terms granted them being very favorable. For the restoration and restocking of the Boer farms, which had been ruined during the war, £3,000,000 were given by the British government, which also agreed to make loans, free of interest for two years, for the same purpose, while no special tax was to be laid on the colonies to pay the war to Great Britain was about the war to Great Britain was about like roots. They yield edible seeds. T. £233,000,000 or \$1,165,000,000. In the years that have succeeded these events the possessions of the suffrage by the Boers has, in a measure, given them possession of the country again, they forming a majority of the inhabitants, this reing very favorable. For the restoration ing a majority of the inhabitants, this resulting in the election of one of their late leaders to the chief post of authority in the colony. The Transvaal and Orange Free State now form States of the Union of South Africa, organized in 1910.

Transylvania (tran-sil-va'ni-a; Ger-man, Siebenbürgen; Hungarian, Brdely), a grand-principality like a sickle, and hence its ancient belonging to the crown of Hungary, forming the southeastern portion of the lt has a cathedral of no great merit, Austrian Empire; area, 21,213 square lyceum, nautical school, etc. There is a miles. The surface is mountainous, the good trade, and the fisheries are extended that the surface is mountainous, the good trade, and the fisheries are extended that the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous, the good trade, and the fisheries are extended to the surface is mountainous.

as years went on until in 1899 a petition, and eastern frontier, and sending out signed by 21,000 British subjects, was numerous ramifications into the interior. Sent to the queen pointing out their The chief rivers are the Aluta or Alt, grievances. The negotiations which followed proved ineffective, and conditions grew so strained that the British government called out 25,000 of the reserve the vine flourishes everywhere, and the forces. In reprisal the Boer government compact the sill troops on the frontier flax, tobacco. The minerals are imporshould be instantly withdrawn and that the flourishes everywhere, and the forces. This demand not being compact to south lead, coal, salt and iron. The chief the force at once invaded that and Szamos-Ujvar. Education is towns are Hermannstadt, Kronstadt, Bistrits and Szamos-Ujvar. Education is in a very backward state. The population (2,456,838) is very mixed, including Roumanians, Magyars, Germans, Gypsies, Jews, Bulgarians and others. Since 1867 it has been an integral part of the Kingdom of Hungary.

Trap, a term rather loosely and vaguely applied by the earlier geologists to some or all of the multifarious igneous rocks that belong to the palæogoic

igneous rocks that belong to the palæosoic and secondary epochs, as distinct from granite on the one hand, and the recent volcanic rocks on the other. Trap-rocks often assume a terraced appearance, whence their name from trappa, the Swedish for a stair. Their composition may be described as consisting chiefly of felspar and hornblende. Trap-rocks of crystalline structure are distinguished as greenstones, basalts, clink-stones, compact felspar, and felspar porphyries; while the softer and more earthy varieties are known as claystones, claystone porphy-ries, amygdaloids, trap-tuffs, and wackes. Basalt (which see) is the most compact,

water-chestnuts in France, are ground into flour and made into bread in the south of Europe. T. bispinosa yields the Singhara-nuts of Northern India.

Trapani (tra pa ne; ancient, Drepd-non or Drepdnum), a forti-fied seaport town in Sicily, capital of the province of the same name, 47 miles w. s. w. of Palermo, on a peninsula shaped

town is Mount San Giuliano, the anthe valley of the Riesengebirge, with cient Eryz. (See Erys.) Pop. 68,986. flax-spinning and other industries. Pop. Trap-door Spider, a name given to 16,096.

Trap-door Spiders Travancore (trav-an-kōr'), a native

Trap-door Spider

in Southern Europe, Western United States, and elsewhere. The dwelling is lined with the silky substance spun by the insect, and the hinge of the door is formed of the same, the door itself being constructed sometimes of

and Nest. earthy particles con-nected by threads, sometimes of leaves, etc. Some species construct nests that have a main tube and one or more branches, the latter having a door where they join the main tube. Cteniza Sauvagei of Corsica, Ne-mesia (Mygale) comentaria of S. W. Europe, and Cteniza Californica of the United States are examples.

Trapezoid (trap'e-zoid), or Trapezoid zium, a quadrilateral figure of unequal sides,

and consequently unequal angles. It is different from a parallelogram, which is a quadrilateral figure with the opposite sides

equal. TRAPPISTS. Trappe, Trappe. See La

Trasimenus, Lago di. See Perugia,

Trass, a volcanic production, consisting of ashes and scorize thrown out from the ancient Eifel volcanoes, on the Rhine, near Coblentz. It is equivalent, or nearly so, to the puzzolana of the Neapolitans, and is used as a cement. The same name is given to a coarse sort of plaster or mortar made from several other argillo-ferruginous minerals, used to line cisterns and other reservoirs of water.

Traun (troun), LAKE OF, a small but beautiful lake in Upper Austria near the town of Gmunden. The river Traun passes through the lake and enters the Danube.

(trou'te-nou), a town of Northern Bohemia, in Trautenau

that have the tubular dwellings in the ground, sometimes a foot or more tin depth, and an inch or so in diameter, closed by a sort of hinged door. They belong to several genera, and are found in Southern Europe, principal products are iron. plumbaso.

Travancore (trav-an-kōr'), a native Indian state, subsidiary to the presidency of Madras, occupying the extreme southwest of the peninsula; area, 7091 square miles. It is for the most part hilly, and is bounded on the east by the Western Ghats, elsewhere chiefly by the sea, having Cape Comorin the extreme south. The climate is genera, and are found in Southern Europe, principal products are iron. plumbaso. principal products are iron, plumbago, timber, pepper, areca nuts, sugar, cocoa, coffee, tea, etc. Pop. 2,952,157.

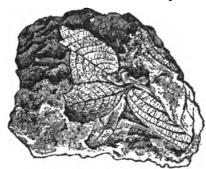
Traveler's Tree (Ravenala Madagascariensis Urania speciosa), an arborescent plant, native of Madagascar, having the appearance of a palm about 30 feet in height and forming the only species of the genus to which it belongs. Its trunk terminates in a bundle of leaves, each of which is borne by a petiole 6 or 8 feet in length and has a blade about 6 feet long. The seeds of this tree, ground into flour, are eaten by the natives, and the water contained in the cup-like sheaths of its leaf-stalks was formerly believed to be an aid to travelers.

Traveling Sidewalk, a platform pathway moving in a continuous manner with a uniform rate of speed for the purpose of transportation. It was first suggested in 1870, but not put to practical use until 1893, at the Columbian Exposition, Chicago. One with three parallel plat-forms was a feature of the Paris Exposi-tion, 1900. It was a belt or loop rail-way, with one or more intermediate steps between the first stationary and the third fast-moving platform, which was furnished with seats. Two speeds enabled a passenger to mount or alight easily on or from the rapid platform. In some cities this principle is taken advantage of in the large stores as a traveling stairway or escalator.

Traverse City (trav'ers), a city, county seat of

county seat Grand Traverse Co., Michigan, on the west arm of Grand Traverse Bay, 147 miles N. of Grand Rapids. It has a good harbor and is a summer resort. Here is the Traverse City State Hospital. The manufactures are fruit baskets, wooden dishes, furniture, etc., and it is a fruit and potato center. Pop. 12,115.

(trav'er-ten), a white concretionary limestone, Travertine usually hard and semicrystelline, de-



Travertine with impressions of leaves.

Italy, and a large proportion of the edifices of ancient and modern Rome are built of this stone.

Travnik (träv'nēk), a town of Bos-nia, on the Lasva. It has a garrison of Austrian troops. Pop. 6261. Trawling (tral'ing), a mode of fish-form of a large bag, with a strong frame-work keeping the mouth properly dis-tended, is dragged along the bottom of the sea. It is the mode chiefly adopted deep-sea fishing, and in British waters has largely developed in recent years, being much prosecuted by small steam vessels specially built for the purpose, but it is not allowed within three miles of the shore. Cod, whiting, and other white fish are taken by it in large numbers, and some kinds of flat fish, as soles, can scarcely be taken in any other way. Trawling can be practiced only on a smooth bottom, as a rough bottom would destroy the net. See Net.

Traz-os-Montes (träsh-os-mon'tāsh; Beyond the Mountains'), a northeast frontier province a term not exceeding two years with or of Portugal; area, 4260 square miles. The province is fertile in parts, and the without hard labor.

The province is fertile in parts, and the without hard labor.

Treasure Trove (tresh'ur trov), wine-growing district of Alto Douro is the native country of port. The chief towns are Villa Real and Braganza.

Braganza.

Braganza.

The province a term not exceeding two years with or of port. Treasure Trove coin, gold, silverthe native country of port. The chief towns are Villa Real and Braganza.

Braganza. Pop. 427,358.

Treacle (tre'kl). See Sugar.

posited from the water of springs hold- 25 feet wide, with steps on its external ing carbonate of lime in solution. Trav-surface, upon which criminals are placed, ertine is abundant in different parts of Their weight sets the wheel in motion, and they maintain themselves in an upright posture by means of a horizontal bar fixed above them, of which they keep hold while moving their feet from step to step. The power thus obtained may be applied to the same purpose as water-power, steam, etc. The tread-mill has recently been abandoned in most penitentiaries. It was introduced into the prisons of Great Britain about 1820.

Treason (tre'zn), High. Treason,

Treason (tre'zn), High. Treason, the crimen læsæ majestatis of the Roman law, is that crime which is directly committed against the supreme authority of the state, and is considered to be the greatest crime that can be committed. Formerly in England certain offenses against private superiors were ranked as petit or petty treason, and it was in opposition to such offenses that treason against the sovereign was called high treason; eventually high treason was made the only treason. In treason was made the only treason. In a monarchy it is considered to be the betraying or the forfeiting of allegiance to the monarch; but in a republic it has reference to the government or the whole community. The concealment of treason is called misprision of treason. (See Misprision.) In the United States treason consists in levying war by a citizen against the country, or adhering to its enemies. The penalty is death.

Treason-felony, a term commonly Britain to

designate such offenses as seeking or intending to deprive the sovereign of any of the royal powers or prerogatives, to levy war within the realm in order to forcibly compel a change in the royal measures, to intimidate either house of Parliament, or to excite an invasion in any part of the country. Treason-felony is punishable with penal serviseven years, or with imprisonment for a term not exceeding two years with or

earth or in any private place, the owner of which is not known. In Britain such treasure belongs to the crown; but if the Treacle (trek!). See Sugar.

Treacle-mustard, a name for the plant Erysimum the crown is known, or is ascertained after the treasure is found, the owner and not the crown is entitled to it. It is, how-cheiranthoides, also called worm-seed. ever, the practice of the crown to pay the finder the full value of the property on its being delivered up. On the other ment, of modern origin, hand, should the finder conceal or appropriate it he is guilty of an indictable offense punishable by fine and imprisonment. In the United States such treasure, under the common law, belongs to the government, though the right is sel-dom, if ever, enforced. If the treasure is found on the surface, not hidden in the earth, the law is construed that the finder, not the government, is entitled to it.

the Treasury, appointed by the President and Senate, and a member of the President's Cabinet. It has sole charge

signed by commissioners properly authorized, and ratified by the several soverreaties are of various kinds, as treaties for regulating commercial intercourse, treaties of alliance, offensive and defensive, treaties of peace, etc. In most monarchies the power of making and ratifying treaties is vested in the sover-sign; in resulting the second of the secon eign; in republics it is vested in the chief magistrate, senate, or executive council; in the United States of America it is vested in the President by and with the consent of the Senate. Treaties may be concluded and signed by diplomatic agents, but these, of course, must be furnished with full powers by the sovereign authority of their states. Among the most significant and important of reserve the constant of political significant and important of reserve the constant of political significant. cent treaties were two treaties of arbitration formed in 1911 between the United States on the one part and France and Great Britain on the other, providing for the peaceable settlement of almost any question that could arise between these nations, even those affecting so-called na-tional honor. Similar treaties have since been made with other nations, until they now number 30 in all.

Trebbia (treb'bë-ë), a river of North live for long periods out of water, but Apennines, and flows into the Po near Tree-ferns, the name given to several Placenza after a course of 55 miles.

Tree-ferns, the name given to several species of ferns which Here Hannibal defeated the Romans in attain to the size of trees, as the Also-

Asiatic Turkey, capital of a pashalic of the same name, on the Black Sea. It has an extensive trade, exporting silk, wool, tobacco, wax, oil, etc., from Asiatic Turkey; and silk fabrics, shawls, carpets, etc., from Persia. Pop. estimated at 40,000.

Treble (treb'l), in music, the highest vocal or instrumental part in Treasury (tresh'ur-i), the department a concerted piece, such as is sung by of a government which has women or boys, or played by instruments control over the management, collection, of acute tone, as the violin, flute, oboe, and expenditure of the public revenue. clarinet, etc., or on the higher keys of The Treasury department in the United the piano, organ, etc.: so called because States is in charge of the Secretary of it was originally a third part added to the Treasury, appointed by the Presi-the ancient canto fermo and the counterpoint.

resident's Cabinet. It has sole charge of the national finances, under the laws of Congress, collects the revenue, pays all expenditures, audits all accounts, has abergavenny, on the Sirhowy. Near it charge of public buildings, national banks, coinage and paper money.

Treaty (trë'ti), an agreement, league, tree'ti), an agreement, league, steel works. Pop. 18,497.

Tree (trè), a perennial plant having a more nations or sovereigns formally signed by commissioners properly authors.

which spring a number of branches, having a structure similar to the trunk. Trees are thus distinguished from shrubs, which have perennial stems but have no trunk properly so-called; and from herbs, whose stems live only a single year. It is difficult, however, to fix the exact limit between trees and shrubs. Trees are both endogenous and exogenous, by far the greater number both of indichief magistrate, senate, or executive viduals and of varieties belonging to the council; in the United States of America latter class. Those of which the whole it is vested in the President by and with foliage falls off periodically, leaving the consent of the Senate. Treaties may them bare in winter, are called deciduous; those of which the foliage falls only partially, a fresh crop of leaves being alpartially, a fresh crop of leaves being always supplied before the mature leaves are exhausted, are called evergreen. Trees are the longest lived organisms of the vegetable kingdom, and attain a great and indefinite age, far exceeding that of animals. See Arboriculture, Botany, Timber, etc.

Tree-crab, a crab of the genus Birgus, included among the landcrabs. It breaks open the shell of the

crabs. It breaks open the shell of the cocoa-nut, etc., by repeated blows of its great claws, in order to feed upon the soft pulp of the nut. Tree-crabs can live for long periods out of water, but deposit their eggs in the sea.

218 B.C., and in the vicinity the Austrians phila vestita, Cibotium Billardieri, etc. and Russians under Suvaroff defeated They are found in tropical countries. the French under Macdonald in 1799. A handsome species, Cyathea medullaris, Trebizond (treb'i-zond; anciently contains in its trunk a mucilaginous pulp rayesus), a seaport in comparable to sago, which is used extensively for food in Polynesia and New as far as Gainsborough, 25 miles, by Zealand.

vessels of 200 tons, and more than 100

Tree-frog, a name of frogs differing from proper frogs in the extremities of their toes, each of which is expanded into a rounded viscous pellet

leastets; examples, buckbean, clover, and medick. The same term is also applied to an ornamental foliation in Gothic architecture, used in the heads of win-

dow lights, tracery, paneling, etc.

Trematoda (trem-a-tō'da), a division of Scolecida, belonging to the group of Platyelmia or flat-worms, and represented by such forms as the flukes or Distomæ (see Distoma) and their allies. They are parasitic worms, usually of a flattened or rounded form, and are furnished with one or more suctorial

in long, prismatic crystals.

Trench, RICHARD CHENEVIX, ecclesistic and philologist, was born at Dublin, in 1807, and was graduated at Cambridge in 1829. He entered the church, and eventually became dean of Westminster (1856-63), and archbishop of Dublin, 1864. He was the author of a collection of poems, and a popular writer on philological and theological subjects. His works include popular writer on philological and theological subjects. His works include subjects. His works include 1, 1862, on the demand of the British Notes on the Parables (1841), Notes on government, and permitted to proceed to the Miracles (1846), On the Study of Europe. The affair created intense ex-Words (1851), Proverbs and their Lescitement at the time, but Secretary sons (1853), Synonyms of the New Testament (1854), English Past and adoption of the American doctrine which Present (1855), On Plutarch (1874), denied the right to search, and on that Lectures on Mediaval Church History basis gave up the captives. The demand, (1878), and many others. He died March 28, 1886. (1878), and m March 28, 1886.

the name given in general Trenches, are used in attacking a fortress. See

Siege, Sap, Fortification.

Trent, a river of England which rises railro 5656. of Burslem. It flows through the counties of Stafford, Derby, Nottingham, and Lincoln, and falls into the Humber after a course of 144 miles. It is navigable navigation, 29 miles N. E. of Philadelphia.

miles by barges.

(German, Trient', Latin, Tri-dentum), a town in the Tyrol, Trent is expanded into a rounded viscous pellet Austria, picturesquely situated on the that enables the animals to adhere to left bank of the Etsch or Adige. It is the surface of bodies and to climb trees, fortified, and has a castle, formerly resithe surface of bodies and to climb trees, forthed, and has a castle, formerly resiwhere they remain during the summer
feeding upon insects. Hyla versicolor,
of the Northern and Middle United
States, is very noisy towards evening.

Trefoil (tre'foil), a distinctive title
applied to plants of various
kinds on account of a peculiarity of the
form of the leaf, which consists of three
leaflests: examples, buckban, clover, and
868. 868.

Trent, COUNCIL OF, a celebrated œcumenical council of the Roman Catholic Church, convened to settle various controversies that were agitating the church during the Reformation period, and for the reform of abuses. It met during the pontificate of Paul III at Trent in 1545, but the wars in Germany caused its transference to Bologna in 1546, when it dispersed. Pope Julius III again convoked it at Trent in 1551, but it dispersed a year later on the apare turnished with one or more suctorial put it dispersed a year later on the appores, like minute cupping-glasses, for adhesion to the tissues of their hosts.

Tremolite (trem'u-lit), a mineral, a by Pius IV, and it finished its labors in variety of hornblende. It is a silicate of calcium and magnesium, the doctrines of the Roman Catholic is white or colorless, and usually occurs.

Trent Affair. In October, 1861, Capt. Charles Wilkes, United States Navy, intercepted at sea the British mail steamer Trent bound from Havana to St. Thomas, and took off two Confederate commissioners, accredited to France, Messrs. Mason and Slidell, who were among her passengers. They were taken to Boston, and imprisoned at Fort Warren, but were released on Jan.

Trenton (tren'tun), a city, capital of Grundy Co., Missouri, is on a branch of the Grand River, 102 miles N. E. of Leavenworth, Kansas. It is the seat of Ruskin College and has railroad shops and flour mills. Pop.

It is laid out with great regularity, and such officers may maintain possession if has a state-house, court-house, state-prison, state hospital for insane, armory, pass is a willful, malicious, or misreform home for girls, normal and model chievous injury of private or public schools, and a Roman Catholic college. The manufactures are large and numerous, including extensive pottery works, The manufactures are large and numerous, including extensive pottery works, wire-cable and other iron works, stam turbines, and various others. Pop. educated at Harrow, was graduated at 108,000. The battle of Trenton, perhaps more than any other, decided the Indian civil service by competition. the morning of December 25, 1776, Wash-terval always followed Gladstone's lead, ington, with about 2500 men, crossed holding several cabinet positions. He is the Delaware River from the Pennsylthe author of the Life and Letters of vania side, eight miles above Trenton. Lord Macaulay, Early History of Charles After a forced march, he surprised Col. James Fox, History of the American Rall, the Hessian general, and captured his entire force.

Treves (tre-pang'), the sea-slug, a marine animal of the genus Holothuria. belonging to the

Holothuria, belonging to the class Echinodermata, order Holothuridæ, popularly known as 'sea-cucumbers,' or

bêches-demer. Trepanning (tre-pan'ing), the operation of cutting a circular opening into the skull by means of a surgical instrument called a trepan or trephine. This consists of a handle, to which is fixed a small hollow steel cylinder, of about 1 to 1 Trepang inch in diameter, having teeth (Holothucut on its lower edge so as ris edilis). to form a circular saw. Tre-

panning is especially resorted to for the purpose of relieving the brain from pressure, as in fracture of the skull or in cerebral abscess.

property of another, but is more especially applied to a peaceable but unlawful entry upon the property of another, the remedy for which is by action of damages. Any injuries committed against land or buildings are in the most ordiland or buildings are in the most offul nary sense of the word trespasses, as Trevithick (trav'i-thik), RICHARD, entering another's house without permission, walking over the ground of another, born in Cornwall in 1771; died in 1883.

success of the Revolution, by giving new He was elected to parliament in 1865, courage and confidence to the people. On and with the exception of a short in-the morning of December 25, 1776, Wash-terval always followed Gladstone's lead,

considered the oldest city in Germany, and contains many Roman remains. It is surrounded by walls, and is indifferently built. The chief buildings are the cathedral, built at various times from the sixth century downwards, and containing the Holy Coat (see Holy Coat of Treves); the Liebfrauenkirche, or Church of our Lady an alogant or Church of our Lady, an elegant Gothic structure; and the old archiepiscopal palace, now used as a barracks. The Roman remains include an amphitheater, the Porta Nigra (Black Gate), baths, etc. Treves became a Roman colony under Augustus, and subsequently it was the residence of several emporors. It rose to great splendor under the archbishop-electors, who exercised great political influence in Germany. From 1473 to 1797 it had a university. Pop. 43,324.

Trespass (tres'pas), in law, a term Treviso (tra-ve'zō), a town of Italy, which is applied generally to any offense against the person or Treviso, 15 miles N. N. w. of Venice, on the Sile. It is a walled town with spacious streets and large squares, and has a great number of handsome buildings. The manufactures consist chiefly of silk and cotton goods, machinery, and cutlery. Pop. 16,983.

sion, walking over the ground of another, born in Cornwall in 1771; died in 1833. or suffering any cattle to stray upon it, In 1797 he succeeded his father as a or any act or practice which damages the leading engineer in Cornish mining, property, or interferes with the owner's Among his first inventions was an improved pump, which soon came into itor or customer can be ordered away by universal use in deep mining. He next a householder or shopkeeper, and even perfected a high-pressure steam-engine, the civil courts have no power to give a and began to experiment in the conright of entry to officers intrusted with struction of locomotive engines. Passenthe execution of legal processes, though gers were first conveyed by steam by

Triad Trichina

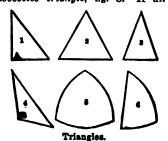
and the application of steam to agricul-ture. His request for recognition and reward for his numerous inventions was disregarded by the government, and he

died in poverty. Triad (tri'ad), a trinity, a unity of Trigonometrical Survey.

Triad three. In Welsh literature, the Trias, TRIASSIC SYSTEM. See Geology. name is given to a class of ancient com-

prising enumerations of particulars bound together in knots of three. The Hindu Triad, Trimurti, or trinity, con-sists of the three deities Brahma, Vishnu, Trial. See Jury and Procedure, Civil.

Triangle (triang-gl), in geometry, a figure bounded by three lines and containing three angles. The three angles of a plane triangle are equal



means of his road locomotive in 1801, lines of a triangle are all curves, the and he soon after successfully worked triangle is said to be ourvilinear, as and he soon after successfully worked triangle is said to be conversely, as a tramroad locomotive. His ideas were fig. 5. If one or two of the sides are afterwards taken up and developed by straight and others or other curve, the Stephenson. He was the first to recogtriangle is said to be mistilinear, fig. nize the value of iron in shipbuilding, 6. If the sides are all arcs of great circles of the sphere, or arcs of the same circle, the triangle is said to be spherical.

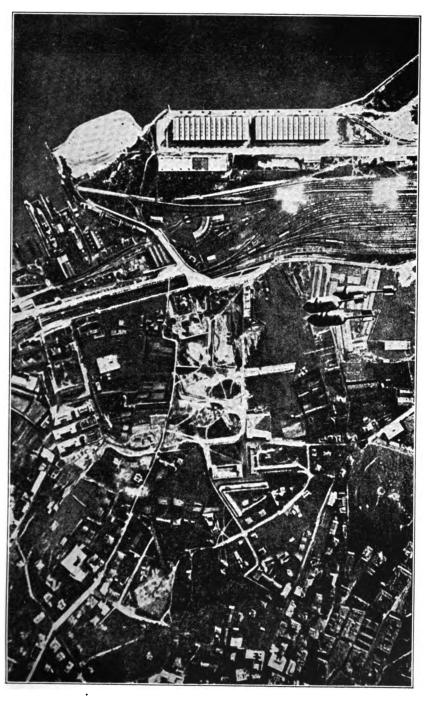
Triangulation, a method used in see rveying. See

positions — moral and historical—comprising enumerations of particulars of man antiquity, originally an bound together in knots of three. The officer connected with a tribe, or who Hindu Triad. Trimurti, or trinity, conpresented a tribe for certain purposes; especially, an officer or magistrate chosen and Siva, considered as an inseparable by the people to protect them from the unity.

Trial See Jury and Procedure, Civil. and to defend their liberties against any attempts that might be made upon them by the senate and consuls. These magistrates were at first two, but their num-ber was increased to five and ultimately to ten. This last number appears to to two right angles or 180°, and its have remained unaltered down to the area is equal to half that of a rectangle end of the empire. There were also or parallelogram of the same base and military tribunes, officers of the army, altitude. The triangle is the most imeach of whom commanded a division or altitude. The triangle is the most imeach of whom commanded a division or portant figure in geometry, and may be legion, and also other officers called considered the element of all other tribunes; as, tribunes of the treasury, of figures. If the three lines or sides of the horse, etc. See Rome (History). a triangle are all straight, it is a plane or rectilinear triangle, as in figs. 1, 2, 4. If all the three sides are equal, it is an equilateral triangle, as in fig. 2. tissue of the voluntary muscles of man, If two of the sides only are equal, it is giving rise to a disease since known as an isosceles triangle, fig. 3. If all the trichiniasis or trichinosis. The worm is common also to several other mammals. trichiniaisis or trichinosis. The worm is common also to several other mammals, especially to the pig, and it is generally from it that man receives the disease. When a portion of flesh, say of the pig, containing larvæ is taken into the stomach the larvæ in a few days become developed into procreative adult worms, having in the meantime passed into the intestines. The male worm is about 1/20th of an inch long, the female about a half more. The female produces embryos in extraordinary numbers. embryos in extraordinary numbers, which gain entrance into the muscles by penetrating the mucous coat of the intes-Triangles.

penetrating the mucous coat of the intestine and entering the capillaries, whence they are carried to their habitat by the circulation. There they disorganise the same time morbid action in the system, angled, as fig. 1, having the right angle manifested by swelling of the face, body, at A. If one of the angles is obtuse, and limbs, fever, pains, etc., and result-the triangle is called obtuse-angled, as fig. 4, having the obtuse angle B. If they become quiescent, are encased in a all the angles are acute, the triangle is cyst covered with calcareous matter, and acute-angled, as figs. 2, 3. If the three

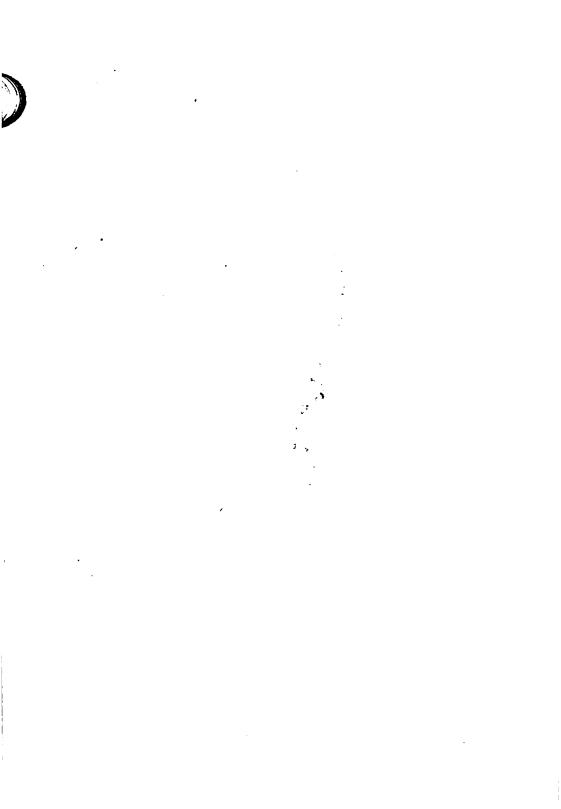




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BOMBS FROM A FRENCH AEROPLANE FALLING ON TRIESTE

In the upper center of this remarkable photograph can be seen three aerial torpedoes just released by the aeroplane from which the photograph was taken. Far below is the great Austrian Naval Base with its wharves and docks and the great railway station upon which the bombs are falling.



cooking kills the trichinæ, and thus pre- Tridacna.

Trichiniasis, Trichinosis (trik-i-ni'a-sis, trik-i-nō'sis), a painful and sometimes fatal disease

Trichinopoly (trich-in-op'o-li), a town of British India, capital of district of same name, in the presidency of Madras, on the right bank of the Cavery. It is a military station, and contains a citadel on a granite peak 500 feet high, which commands the sur-

Tricolor (tri'kul-ur), the French na-tional flag, or one formed after the model of it. The French tricolor is blue, white, and red in equal vertical sections, the blue being next the flag-staff.

Tricoupis, Trikupis (trī-kö'pis), Charilaos, a Greek statesman, born at Nauplia in 1832; died in 1896. He became minis-ter of foreign affairs in 1866, and premier in 1875 and on several later occa-

mier in 1875 and on several later occasions, and was active in efforts for the development of Greece. Failing in his efforts to relieve the country from its financial difficulties, he was crushingly defeated in the election of 1895.

Tricycle (trt'si-kl), a three-wheeled variety of velocipede, introduced about 1878, and therefore subsequently to the bicycle. The earliest patterns were rear-steering, but were soon superseded by front-steering machines, the latter being steadier. Tricycles were first worked by pedaled levers, but this form soon gave way to the rotary action, which is produced by a cranked axle to which the pedals are fixed. This axle is connected by chains running on is connected by chains running on toothed wheels with the driving axle.

The positions and sizes of the wheels, and the steering gear, vary nearly in every make.

See Clam.

(trik-i- Tridentine Council, the Council of Trent. See a paintul and sometimes fatal disease produced in man by eating meat, especially the flesh of pigs, either raw or insufficiently cooked, infested with triching. See Triching. of same name, at the northeastern extremity of the Adriatic. The old town, on an acclivity crowned by a castle, has steep and narrow streets, but in the new town the streets are spacious and well paved, and there are handsome thoroughfares and squares. The chief buildings are an ancient cathedral in the 500 feet high, which commands the surrounding country. The native town lies at the foot of the rock, and beyond it are the European quarters, barracks, hospitals, St. John's Church, with the tomb of Bishop Heber, a Roman Catholic chapel, etc. Pop. 122,028.

Triclinium (tri-klin'i-um), among the Romans the dining-room where guests were received, furnished with three couches, which occupied three sides of the dinner table, the pied three sides of the dinner table, the ringress and egress of servants. On these ingress and egress of servants. On these of tricilinium, the guests reclined at dinner or supper. Each couch usually accommodated three persons.

buildings are an ancient cathedral in the Byzantine style, and the exchange block of buildings, which is a handsome edifice. Triest is the chief Austrian port, and the most important trading place in the Adriatic, and has now very extensive harbor accommodation. Triest is the headquarters of the Austro-Hungarian Lloyd's shipping company, who have extensive shipbuilding and other establishments here. Triest existed under the Roman empire (Latin name Tergeste or Tergestum), but did not rise to important trading place in the Adriatic, and has now very extensive harbor accommodation. Triest is the Adriatic, and has now very extensive harbor accommodation. Triest is the Adriatic, and has now very extensive harbor accommodation. Triest is the Adriatic, and has now very extensive harbor accommodation. Triest is the Adriatic, and has now very extensive harbor accommodation. Triest is the Adriatic, and has now very extensive here did in the properties of the Adriatic, and has now very extensive the Adriatic, and has now very extensive harbor accommodation. Triest is the Adriatic, and has now very extensive here. Triest existed under the Roman empire (Latin name Tergeste or Tergestum), but did not rise to important trading place in the Adriatic, and has now very extensive harbor accommodation. Triest is the Adriatic, and has now very extensive here are considered in the Adri

Trifolium (tre-fo'li-um), the Trefoil or Clover, a genus of low herbs, with the leaves, as a rule, digitately trifoliate and with red, purple, white, or yellow flowers, rarely solitary. There are about 150 species, chiefly found in the northern hemisphere, abounding in Europe and many of them natives of the United States. Several of the species are very useful in agriculture, both as pasture plants and from their power of enriching the soil. This arises from their roots being infected by certain nitrogentiating the soil. fixing germs, through the action of which the clovers add to the nitrogenous con-tents of the soil. The true clovers have herbaceous, not twining stems, roundish heads or oblong spikes of small flowers, the corolla remaining in a withered state until the ripening of the seed. The most important to the farmer is the common important to the farmer is the common Red Clover (T. pratense), a native of Europe, but naturalized in all parts of the United States, widely cultivated and growing freely in meadows and pastures. The White or Dutch Clover, Creeping Trefoil, or Shamrock (T. repens) is found in most parts of North America and Europe, nearly always springing up where a herron heath is turned with the where a barren heath is turned with the spade or plough. It is a valuable feeding plant in dry and thin soils, and its spontaneous growth in a meadow is hailed as a sign of improving conditions. In laying down permanent pastures, except in strong land, it should be somewhat

dustries. Pop. 10;204.

Trinidad, one of the British West division of certain musical compositions. India Islands, and, excepting Jamaica, the largest and most valuable. It is the most southerly of the Windward group, lies immediately off the northeast coast of Venezuela, and is Sweden, and the Netherlands against about 55 miles long by 40 miles broad; Louis XIV; the second in 1717 by Great area, 1755 square miles. There is a lake of mineral pitch, 104 acres in extent, containing an almost inexhaustible supply. dustries. Pop. 10,204. area, 1755 square miles. There is a lake of mineral pitch, 104 acres in extent, containing an almost inexhaustible supply. The chief products are sugar, cocoa, molasses, rum, cocoanuts, pitch, timber and fruits. The climate is healthy, and, though hot, is well suited to Europeans. Trinidad is a crown colony, the public affairs being administered by a lieutenant-governor, assisted by an executive and a governor, assisted by an executive and a legislative committee. It was discovered by Columbus in July, 1491, and taken from Spain by the British in 1797. The capital, Port of Spain, on the northwest side of the island, is one of the finest towns in the West Indies. Pop. (1912) 340,000. Trinidad, a town near the southern coast of Cuba, in Santa Clara province. It is one of the seven original cities established by Diego V asquez; founded in 1514. Pop. 12,000. Trinitrotoluene (trin-i'tro-to'lu-ēn), line substance, insoluble in water, but soluble in alcohol, ether and benzine. It has recently been adopted as the base of bronze altar consist-shell-fillers instead of prussic or ammo- ing of a caldron nium nitrate compounds. It is not dangerous to handle, burns without exploding, and has no bad effects physiologically. Trinity (trin'i-ti), a theological name altar of Apollo sive of the Christian doctrine of the Triune nature of God, the union of the Father, the Son, and the Holy Spirit as Three Persons, and One God. The doctrine of the Trinity is nowhere expressly taught in the Old Testament, but in the New Testament it is clearly the sales altar of Apollo so fine workmanship in precious metals were placed in Apollo's temple. in the New Testament it is clearly taught, though the word Trinity does not occur. A comprehensive statement of the doctrine of the Trinity is found in the Athanasian Creed, which asserts that 'the Catholie faith is this: That we worship one God as Trinity, and Trinity in Unity and another of the Holy Ghost. But the Godhead of the Father and of the Son, and of the Holy Ghost is all one; the glory Equal; the majesty co-eternal. Difference in interpretation of the doctrine of the Trinity led to the division of the Church into the Eastern and Western.

stock raising region. Has railway shops, Trio (tre'o, tri'o), a musical composition for three voices or for three instruments. Also a record or subordinate

tria, Germany and Italy. From this Italy withdrew during the European war.

Triple Entente (on-tent'), an alliance between Great Britain, France and Russia. Great Britain remained for long outside of alliances, but at the opening of the twentieth century, owing chiefly to the efforts of Edward VII, began to enter into formal ententes, first with France and then with Russia. The Triple Entente—or Understanding standing—arose from a Dual Alliance between Russia formed in 1887, an informal understanding between Britain and France in 1904, and a similar understanding between Britain and Russia in 1907. Triplet (trip'let), in music, a combination of three notes to be played in the time of two. They are joined by a slur and distinguished by having the figure 3 above them.

(tri'pod), anciently a Tripod raised on a threelegged stand of bronze. Such was the

Tripoli (trip'o-li),a the north of Africa, in largely desert; is



Antique Tripod.

bounded on the north by the Mediterranean, by the Mediterranean, west by Tunis, south by Fezzan and the Libyan Desert, and east by the Libyan Desert and Barca; area, about 410,000 square miles. —neither confounding the persons nor dividing the substances—for there is one person of the Father, another of the Son, and another of the Holy Ghost. But the or Greater Syrtis, has only one harbor, that of the capital, Tripoli. The eastern part of the interior is mostly barren sand, but in the south and west it is diversified by mountain ranges, attaining a height of about 4000 feet. The richest tract of

Tripoli is that which stretches about 15 it was the capital of Morea, but Ibrahim miles along the coast, and includes the Pasha took possession of it in 1828 and capital. It is productive of wheat, barrazed it to the ground. It has been ley, millet, and Indian-corn; oranges, partially rebuilt. Pop. 10,465. ley, millet, and Indian-corn; oranges, partially rebuilt. Pop. 10,465. pomegranates, lemons, figs, apricots, **Tripos**. See Cambridge, University of. pomegranates, lemons, figs, apricots, plums, and other fruits. Abundant rains fall from November to March, while from May to September the heat is intense, the ing, or other representation ing, or other representation ing, or other representation ing. may to september the neat is intense, the sirects of the blows, and the thermometer in three compartments side by side; rises at times to a high figure. The most frequently such as is used for an population, which in the outlying districts consists of Berbers and Bedouins, and in the town chiefly Moors, is estimated at about 1,000,000.— Traipoli, the capital, stands on a tongue of land procapital, stands on a tongue of land projecting into the sea, has a moderately good harbor, and consists of a great number of narrow and uneven lanes, the chief buildings being the governor's castle, the great mosque, a handsome structure, synagogues, bazaars, public baths, etc. The trade across the desert extends as far as Timbuctoo and Bornou. The chief manufactures are carpets, long cele-brated, other woolen goods, and leather. Tripoli, originally held by the Phænicians, became in time part of the Roman province of Africa, and in the 8th century was conquered by the Arabs. It was taken by Spain in 1510, and assigned to the Kristban of St. John who had been been supplied to the Kristban of St. John who had been su taken by Spain in 1510, and assigned to the Knights of St. John, who had been driven from Rhodes by the Turks. The Knights surrendered to the Turks in 1551 and it remained a province of Turkey until 1714, when its bey became largely independent. Turkey subdued it again 1835, and it remained a vilayet of the Ottoman empire until 1911, when Italy, which had long sought to extend its interests in Africa, invaded it and after a war continuing until October, 1912, obtained possession. At present the possession is limited in great measure to the narrow strip of coast held by the Italian army of occupation. Pop. of the capital about 30,000.

Trimul Tarabolus, or Tripolis, as usually complete in itself. The subdiary designs on either side are smaller, and frequently correspond in size and frequently correspond in size



about 30,000.

Tripoli, TARABOLUS, or TRIPOLIS, a seaport of Syria, capital of a pashalic of the same name, situated on are two kinds of trismus, one attacking the Mediterranean, 48 miles northeast of Beyrout. There is a trade in siik, their birth, and the other attacking perwool, cotton, tobacco, galls, etc. Pop. sons of all ages, and arising from colds or a wound. See Tetanus.

wool, cotton, tobacco, galls, etc. I'op. sons of all ages, and arising from colds or a wound. See Tetanus.

Tripoli, a mineral originally brought
Tristan D'Acunha (da-kun'yà).

polishing metals, marbles, glass, etc. It three islands in the South Atlantic (the is a kind of siliceous rottenstone, of a others being Nightingale and Inaccessible yellowish-gray or white color, rough to Island), about 1300 miles s. w. of St. the touch, hard in grain but not compact, and readily imbibes water. It is peak rises to the height of 7640 feet. The island was taken possession of by Great Britain in 1817. Pop. less than Tripolitza (tripu-lit'sa), a town of Southern Greece, province Triticum (trit'i-kum), the genus of grasses including wheat,

See Newt. Triton.

Tritonidæ (tri-ton'i-dē), a family of marine nudibranchiate, gasteropodous molluscs, many of which are found on the coast of England, France, and other European countries.

Tritons (tri'tonz), in Greek mythology, the name of certain sea-gods. They are variously described, but their body is always a compound of the human figure above with that of a fish below. three of the seven liberal arts—gram-They carry a trumpet composed of a mar, rhetoric, and logic. The other four, shell, which they blow at the command consisting of arithmetic, music, geometry,

shell, which they blow at the command of Poseidon to soothe the waves.

Triumph (tri'umf), in Roman antiquity, a magnificent procession in honor of a victorious general, and the highest military honor which he could obtain. It was granted by the senate only to one who had held the office of dictatof, of consul, or of prætor, and after a decisive victory or the comtant of the command of Poseidon to soothe the waves.

Trough (trö'ka), derived from the Greek and meaning a circle.

As known in Cuba, during the insurption of 1895-98, it was a barrier, example and after a decisive victory or the comtant of the command of Poseidon to soothe the waves.

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Trough (trö'ka), derived from the Greek and meaning a circle.

As known in Cuba, during the insurption of the command of t and after a decisive victory or the com-plete subjugation of a province. In a Roman triumph the general to whom this honor was awarded entered the city of Rome in a chariot drawn by four horses, crowned with laurel, and having a scepter in one hand and a branch of laurel in the other. He was preceded by the senate and the magistrates, musicians, the spoils, the captives in fetters, etc., and followed by his army on foot, in marching order. The procession advanced in this order along the Via Sacra to the Capitol where a bull Via Sacra to the Capitol, where a bull was sacrificed to Jupiter, and the laurel wreath deposited in the lap of the god. Banquets and other entertainments concluded the solemnity. A naval triumph differed in no respect from an ordinary triumph, except that it was upon a smaller scale, and was characterized by the beaks of ships and other nautical trophies.

Triumphal Arch. See Arch.

Triumvir (trī-um'vir), one of three men united in office. The triumvirs (L. triumviri) of Rome were either ordinary magistrates or officials, or else extraordinary commissioners who were frequently appointed to execute jointly any public office. But the men best known in Roman history as triumvirs were rather usurpers of power than properly constituted authorities. than properly constituted authorities. Cave
The term triumvirate is particularly applied in Roman history to two famous coalitions, the first in 59 B.C. between Aby
Cæsar, Pompey, and Crassus; the second ing and Lepidus. See Rome (History).

Trivandrum (trē-vān'dröm), a town of India, the capital of ers.

Travancore state, Madras presidency, situated about two miles from the sea. The town is of considerable importance, has a fort containing the rajah's palace and other buildings, an ancient temple, college with European instructors, medical school, hospitals, Napier museum, cal school, nospitais, ivapier museum, various handsome buildings, and a military cantonment. Pop. 57,882.

Trivium (triv'i-um), the name given in the middle ages to the first

at times three and even five deep, to which barbed wire was strung. Behind this stockade the Spanish soldiers fought. United States officers speak of its dire effectiveness.

Trochee (trö'kē), in prosody, a foot of two syllables, the first long and the second short, as Lat. fama, or Eng. nation.

Trochilidæ. See Humming-bird.

Trochu (tro-shii), Louis Jules, a French general, born in Brittany in 1815; educated at St. Cyr; engaged in the Algerian, Crimean, and Italian campaigns; published a pamphlet entitled L'Armée Française on 1867, and showed the weakness of the French stray by which he forfeited the favor snowed the weakness of the French army, by which he forfeited the favor of Napoleon. At the outbreak of the Franco-German war (1870), however, he was made governor of Paris, and when the republic was proclaimed he was intrusted with the defense of the city, a position which he held until the capitulation. He wrote Pour la Vérité et pour la Justice, and L'Armée Française en 1879. He died in 1896.

Troglodyte (trog'lu-dit), a cave-dweller; one dwelling in a cave or underground habitation. The ancient Greeks gave the name troglodyte to various races of savages inhabiting caves, especially to the cave-dwellers on the coast of the Red Sea and along the banks of the Upper Nile in Nubia and Abyssinia, the whole of this district being known by the name Troglodytike. It is shown by archæological investigations that cave-dwellers in all localities probably preceded house-buildTroglodytes (-tēz), the generic trumpet kind, consisting of three tubes; also that of the gorilla and chimpanzee. tached, and the third, which terminates Trogon (tro'gon), a genus of birds, in a bell-shaped orifice, are placed side

rivers. It has various thriving industries. Pop. (1913) 18,000.

Trolley (trol'li; electric railway). A

Trolley truck which travels along overhead wires conveying an electric current, and forms a means of connection between them and a railway car. Cars moved by this system have come very widely into use and are commonly known as trolley cars. See Electric Railway.

Trollope (trol'op), ANTHONY, an English novelist, a younger son of Frances M. Trollope, was born in London in 1815; died in 1882. In 1841 he was appointed clerk to a postoffice surveyor in Ireland, where his experiences gave him material for his first novels, The Macdermote of Ballycloran (1847), and The Kellys and the O'Kellys (1848) neither of (1848), neither of which was successful. Meanwhile he was appointed inspector of rural post-offices in Ireland and parts of England, and continuing his and parts of England, and continuing his novel-writing his first success was The Warden (1855), followed by Barchester Towers (1857), Dr. Thorne (1858), and numerous others. He also published accounts of his travels, including The West Indies and the Spanish Main (1859), Australia and New Zealand (1873), South Africa (1878), besides a Life of Cicero (1881), etc.—THOMAS ADOLPHUS TROLLOPE, eldest brother of the above, was born in 1810; resided chiefly in Florence; and was the author of Impressions of a Wanderer in Italy of Impressions of a Wanderer in Italy (1852), Tuscany in 1849-59 (1859), History of Florence (1865), etc. He died in 1892.—FRANCES MILTON TROL-LOPE, mother of the above, was born about 1790, and died in 1863. She was the author of Domestic Manners of the Americans (1831), The Refugee in America (1832), books which were very severe upon American life and customs. Trolls (trols), in Northern mythology, a name of certain supernatural beings, in old Icelandic literature represented as a kind of giants, but in modern Scandinavia regarded as of diminutive size, and represented as a kind of mis-chievous imps or goblins.

Trois Rivieres (trwit-ri-vyar; 'three rivers'), an old city of Quebec, Canada, situated at the junction of the St. Lawrence and St. Maurice rivers. It has various thriving industries. Pop. (1913) 12 000



1, Valve Trombone. 2, Slide Trombone.

length, and the pitch accordingly varied, The trombone is of three kinds, the alto, the tenor, and the bass; and some instruments are fitted with pistons, when they

ments are fitted with pistons, when they are known as valve trombones.

Tromp, MARTIN HARPERTZOON, the son of a Dutch naval officer, was born at Briel in 1597. He went to sea with his father in 1607; received the appointment of lieutenant-admiral; gained a decisive victory over the Spanish and Portuguese fleet near Dunkirk in 1639; encountered Blake and Monk in 1653, and in the same year he again encountered Monk and was killed in the encountered Monk and was killed in the battle.— His son, Cornellus, born at Rotterdam in 1629, was also distinguished in the naval service of his country. He died in 1691.

Tromsö (trom'seu), a seaport of Norway, capital of the province of Tromsö, situated on a small island of the same name off the west coast. It has an extensive trade in fish, train-oil, etc. Pop. 6955.

Trondhjem (trond'hyem), a seaport on the west coast of Norway, the ancient capital of the country, situated on a bay at the mouth of the Nid, on the south side of the Trondhjem-fiord. It possesses strong fortificarocky island of Munkholm. The chief buildings are the cathedral, which in some parts is as old as 1033; the Kongsgaard, or palace of the old Norwegian kings; and a museum, including a picture of the control of the co ture-gallery, and a library with some rare MSS. The trade consists chiefly in exports of timber, dried and salted fish, tar, and copper. Pop. (1910) 45,335.

Troop (tröp), a body of cavalry, usually consisting of sixty troop-

Trombone (trombon), a deep-toned ers, under the command of a captain and brass instrument of the two lieutenants.

from the blowing of trumpets in the temple with more than usual solemnity. Trumpet-shell. See Conch.

Trumpet-weed, a large South African sea-weed, Ecklonia buccinalis, the stem of which being hollow is used as a siphon, and also as a trumpet.

Trumpet-wood. See Cecropia.

See Ostracion. Trunk-fish.

Trunk-hose, a kind of short wide breeches gathered in above the knees, or immediately under them, and distinguished according to their



Trunk-hose. Charles IX of France, 1550-1574.
 Robert Carr, Earl of Somerset, died 1645.

peculiar cut as French, Gallic, or Venetian. This garment prevailed during the time of Henry VIII, Elizabeth, and James I.

Truro (tru'rō), an episcopal city, seaport, and municipal borough of England, county of Cornwall, at the consultation of the Kenwyn and St. Allen, by miles N. of Falmouth. The principal edifice is the new cathedral (the first Protestant cathedral, except St. Paul's, built in England) consecrated in 1887. built in England), consecrated in 1887, when Truro was established as a bishopric. The smelting of tin is carried on to a great extent. Pop. 11,325.

Truro, Nova Scotia, on the Intercolo-nial Railway. It has manu-

further protrusion, and for other pur similar forfeiture in the case of the other

poses.— In building, a combination of timbers, or of iron-work, or of both totimbers, or of iron-work, or of both together, so arranged as to constitute an unyielding frame. The simplest example of a truss is the principal or main couple of a roof, in which the tie-beam is suspended in the middle by the king-post to the apex of the angle formed by the meeting of the rafters. See Roof.

Trust.

In law, a trust is a peculiar species of ownership, in which real or personal is invested in

property, real or personal, is invested in one or more persons for the benefit of others. The person who holds the propothers. The person who holds the property is a trustee; the person for whose benefit it is held is called cestui que trust (he that has the benefit of the trust). Trusts, as originally employed in England, applied to real estate only, but in recent times have been extended to personal property, and before the middle of the nineteenth century the latter form developed into what are known as commercial trusts, great trade combinecommercial trusts, great trade combina-tions ostensibly intended to cheapen expenses, regulate production, and remove competition, but practically going beyond those ostensible purposes. Trusts of this kind quickly made their way to the United States, where they have developed more rapidly and greatly than in England, some of them having become immense in the amount of capital involved, so much as to be regarded by the community at large with hostility as threatening the foundations of honorable industry. As so regarded, the term trust is applied to cases foreign to its original application, being employed to designate trade combinations in general, irrespective of their form and mode of creation. As such the term corporation is also commonly applied. The combinations now in existence have ceased to be normal trusts from the fact that the trustees have come to control, not the real and personal property of the corporations involved, but the shares of their stockholders. This gives the trustees the power of managing, though not the legal ownership of, the property control of the pr cerned. Against these great combina-tions of financial and commercial property a vigorous enmity has arisen, and the governing powers have pro-ceeded against them in various instances as law-breakers and foes of the comruro, nial Railway. It has manumunity. Thus suits were brought against factures of foundry materials, lasts and pegs, hats and caps, knit goods, etc. Standard Oil Company in Ohio, and the Pop. 6107. (See Truro.)

Chicago Gas Company in Illinois, and the illegality of these combinations was ratus used in cases of hernia to keep up the reduced parts and hinder in each case, with the liability to a further protrusion, and for other pure similar forfeiture in the case of the other

corporations concerned, operated effectually to dissolve these trusts in their earlier forms. This preliminary battle against the trusts simply changed, without destroying them. They were quickly ation Tax has been imposed since 1909. The Clayton Anti-Trust Bill, passed by and continued in operation. They disappeared as corporate trusts, but continued to exist as combinations held together by contract. And their old methods of injurious procedure were continued: the stifling of competition of minor concerns, the procuring of special rates and privileges in railroad trassportation, the issue of watered stock, Trustee (trus-te'), in law, a person to continued: the stifling of competition of minor concerns, the procuring of special rates and privileges in railroad trages portation, the issue of watered stock, increasing the sum of floating capital far beyond the value of the property; all these tending to keep alive the enmity of the community at large. There have special purpose. See Trust. No one is been many new suits at law brought against the trusts, and legislative investigations by the House of Representatives, the New York Senate, and the Canadian Parliament. Anti-trust laws even passed in a number of the states, and in 1890 Congress passed a National Anti-trust Act. It cannot be said that these had much beneficial rusted in trust for the benefit of some other party or parties, or for some other party or parties, the creation of the Interstate Commerce Commission, for the purpose of dealing with all illegal practices of the trusts. Unfortunately this Commission was long hampered by lack of full powers of action, a weakness only recently removed by new legislation. Of late years it has proceeded actively against the trusts and won some notable victories. A spectacular one of these was the decision given by a Federal court in 1907, fining the Standard Oil Company the immense sum of \$29,240,000 for accepting illegal rebates in railroad freights. This decision was afterwards reversed by a United States Circuit Court of Appeals, a United States Circuit Court of Appeals, cases the trustee has to exercise due but it went far to do away with the evil of rebating, which is now strictly forbidden by law. Another notable suit was against the Sugar Trust, in the operation of which fraudulent methods of weighing imported sugar had been discovered. In a decision rendered (also called Chimú) in the north of Peru, March 5, 1909, the trust was fined \$134,116 for these practices, and in 1910 near the coast, and having as its port \$314,116 for these practices, and in 1910 near the coast, and having as its port \$314,116 for these practices, and in 1910 near the coast, and having as its port \$314,116 for these practices, and in 1910 near the coast, and a good trade. Pop. 000 for fraudulent weighing. The two most important suits were those brought against the Standard Oil and the Amertwas compelled to disgorge over \$2,000,000 for fraudulent weighing. The two
most important suits were those brought
against the Standard Oil and the American Tobacco corporations in 1911.
These were both decided adversely to the
trusts, which were found guilty of
stifling competition and ordered to dissolve. Steps have been taken by the
sample Salaverry. It was founded by Pizarro,
has a university, and a good trade. Pop.
about 8000. (3) The capital of the state
of Truxillo, Venezuela, 90 miles s. w. of
Barquisimeto. Extensive coal deposits
exist in the vicinity. Pop. 10,000.

Truxton (truks'tun), Thomas, naval
officer, born on Long Island
in 1755; died in 1822. He commanded
a privatear and took valuable private.

compelled to undertake a trust, but if he once accept he cannot renounce it unless the trust-deed contains a provision enabling him to do so, or a competent court grants him a discharge, or by the consent of all those beneficially interested in the estate. Trustees are liable for the consequences of any breach of trust however innocent, and the estate of a trustee deceased, who has misapplied the trust fund, is liable for the deficiency; but generally speaking, the law only requires of a trustee the same amount of care and prudence he would be expected to display in managing his own affairs. to display in managing his own affairs. Where there are several trustees each is liable for his own acts and receipts only, unless there is common agreement. Trusts are generally to protect the interests of married women and children, by placing in the hands of trustees for them the legal rights which they would be incapable of exercising. Frequently trusts involve the sale or purchase of lands, or investment of funds, in which cases the trustee has to exercise due caution, as he may be rendered liable for any loss.

solve. Steps have been taken by the a privateer and took valuable prizes in companies to obey the orders of the court, the Revolution. In 1794 he was made but how effective their breaking up into captain in the navy and in the naval

Music was founded at St. Petersburg, pal edifices are the Protestant and Rohe gave up an official position to devote man Catholic cathedrals, the bishops' himself to music, studying under Anton palaces, and the college of St. Jarlath. Rubinstein and Zaremba. From 1866 to Pop. 3012. 1878 he taught in the conservatory; then Tuamotu Islands (t & -a - m o't &), retired to devote himself to composition. He is best known by his symphonies.

Archipelago, an extensive group of is-

retired to devote himself to composition. He is best known by his symphonies.

Tsetse-fly (tset'se), a South African dipterous (two-winged) inthe Society Islands and south of the sect (Glossina morsitans), akin to the gad-fly, whose bite is often fatal to horses. French protection, and have a population dogs, and cows, but was long considered of 7000. They export pearls, mother-of-innoxious to man and wild beasts. It has pearl, trepang, etc.

been discovered that the same insect carries the germs of the deadly sleeping sick
Tuaricks (tö'a-rikz), Tuaregs, or ries the germs of the deadly sleeping sick
Tawariks, a race of no
Tawariks, a race of nories the germs of the deadly sleeping sick. TAWARKS, a race of noness, which has long been known in parts mads supposed to be connected with the ness, which has long been known in parts made supposed to be connected with the of Africa and of late years has proved Berbers in their origin, and inhabiting a especially fatal to the natives of Uganda. great part of the Sahara desert between Active efforts are now being made to 5° w. lon. and 13° E. lon. They are of check the ravages of this disease by pre-a handsome and muscular physique, of ventive methods, the habits of the fly war-like habits, fierce and cruel disposibility of the control of the fly war-like habits, fierce and cruel disposibility and the control of the fly war-like habits, fierce and cruel disposibility and the control of the fly war-like habits, fierce and cruel disposition, and Mohammedans in religion.

of remarkable political acumen, she raised herself to the position of co-empress. On the emperor's death she put her son, Tung Chi, on the throne, acting as regent during his minority. From that time forward she was the practical ruler of China. On the death of Tung Chi, in 1875, she placed her nephew, Kwang Seu, an infant, on the throne, she again becoming regent. When he sne again becoming regent. When he (Orchis mascula). 2, Didymous grew up and assumed control, his at-ranunculoides). tempted reform movements led to his being deprived of authority by his despotic or roundish body, of annual duration, aunt, backed by the conservative party, composed chiefly of cellular tissue with and from that time to her death the gov- a great quantity of amylaceous matter,

war with France (1799-1800) captured ernment remained in her hands, the emthe French frigates L' Insurgente and peror being kept in a virtual captivity.

La Vengeance. The latter victory She opposed reform, encouraged the Boxer brought him a gold medal from Congress.

Trygonidæ (tri-gon'i-de), the family the Russo-Japan war, became herself a name of the stingrays (which see). Tsaritsyn, a Russian city in Saratov ods of education. In many respects a province, on the Volga. woman of unusual powers, the tendency of historians is to class her among the Pop. (1910) 100,847.

Tsarskoye-selo (tsär'skō-yē sye-lō), great women rulers of the world. From ZABSKOJE-SELO the death of her husband in 1861 to the ('Czar's Town'), a town of Russia. in time of her death, a period of nearly half the province of St. Petersburg, containing a century, she was practically the ruler the summer residence of the imperial family. Pop. 22,353.

Tschaikovsky (chi-kof'ski), Peter Tuam (tô'am), a town of Ireland, county of Galway, 129 miles in composer, born in 1840; died in of the Bishop of Tuam, and also of the 1893. In 1862, when the Conservatory Roman Catholic archbishop. Its principal was founded at St. Petersburg.

war-like habits, fierce and cruel disposition, and Mohammedans in religion. Tsi-nan, the Ta-tsin River. Glass and silk wares made. Pop. 300,000.

Tsze Hsi An, the late dowager empress of China, born in Manchuria. She became one of the wives of the emperor Hsien Fung, who ascended the throne in 1850. A woman



Tuberous Roots.

1, Palmate (Orchis maculata). 2, Didymous

opaque, yellowish or cheesy material, carrying the normal tissue with it in its destructive change. Tubercles may be developed in different parts of the body, but are most frequent in the lungs and mes-entery. The tubercle bacillus in the lungs is the cause of the well-known fatal disease. pulmonary consumption.

Tuberculin, a sterile liquid containing the growth products of the tubercle bacillus, put forth as a cure for tuberculosis by Dr. Koch in 1890. It failed as a cure, but is used in diagnosing of cettles of the cettles.

nosing tuberculosis of cattle.

Tuberculosis (th-her-ku-lo'sis) is the name applied to an infectious, contagious disease due to inoculation by a rod-shaped, microscopical germ, the Bacillus tuberculosis, measuring in diameter 0.25 and in length 1.5 to 3.5 micromillimeters. There are two varieties, the human and the bovine, the former being the longer. The tubercle bacillus attacks chiefly the warm-blooded animals being common among the dobacilius attacks chieny the warm-biocacu animals, being common among the domestic creatures — fowls, cows, pigs, etc.; the horse is only slightly susceptible to infection. The guinea-pig, while comparatively immune to infection, is very susceptible to inoculation.

The bacilius gains entrance into the bacilius the air inhaled.

intended for the development of the stems or branches which are to spring from it, and of which the rudiments, in the form of buds, are irregularly distributed over its surface. Examples are seen in the potato, the Jerusalem artischen in the potato, the Jerusalem artischen, according to their forms, into didymous (in pairs), palmate (handlike), fasciculate, globular, oblong, etc.

Tubercle (ttber-kl), a small aggregation of round cells and the center undergoes a cheesy degeneration, due to lack of blood supply in the cubercle bacilli which tend to spread and invade surrounding tissues. In doing so it breaks down in the center into an opaque, yellowish or cheesy material, car-

Any injury may provide an entrance for the germs, as they may be floating in the air at the time. A person may inhale them at any moment, since a tuberculous person may be exhaling them in the vicinity or they may be wafted by the breeze from a distance. Or a tuber-culous person may avectors them and culous person may expectorate them and after the sputum has been desiccated after the sputum has been desiccated they may then be blown about. The mere inhalation of the germs, however, will not produce the disease, as the tissues of the body may be able to destroy or cast off the bacilli. Attendants in tuberculosis hospitals, exercising proper care, do not become infected. But should a sickly person inhale them, his likelihood of searning the disease is not so likelihood of escaping the disease is not so good, and if a well person harboring the germs becomes ill of some acute inflammatory disease—cold, pneumonia, influenza, etc.— tuberculosis may then start up. Prolonged exposure to the exhalations from tuberculous persons in poorly ventilated apartments, as in crowded ten-ements; the faulty disposal of tubercu-lous sputum; the coughing by the tu-berculous into non-tuberculars' faces; infecting the pockets by placing spit-cloths therein, are modes of infection. Foul air, overcrowding, lack of sunshine, dark beyong demoners combined with dark houses, dampness, combined with low altitude and insanitary conditions generally are all potent factors in the propagation of the disease. Direct contagion by kissing is possible and also may occur by using eating and drinking utensils after a tuberculous person that have not been sterilized. Infection by unbarrulous meat eaten in a partially The bacillus gains entrance into the body through wounds, the air inhaled, or food ingested. It reaches the blood generally are all potent factors in the stream, where the bacilli multiply and are carried throughout the body, no organ or tissue being exempt from their ravages. The bacilli produce a toxin, which is disseminated throughout the various tissues the bacilli lodge and multiply and around them is formed the characteristic tubercle, which gives the name to the bacillus and the disease. The tubercle is source of intestinal tuberculous meat eaten in a partially raw condition has been frequently demonstrated, as well as by contaminated undercle, which may be white, gray, or yellow in color. The smallest tubercles are called miliary. These may be many or few in any particular area. The tubercle is a mass of epithelioid cells wigilance in this direction must not be rewith large, oval nuclei and glistening, not hereditary, but a predisposition is

transmitted to offspring.

Tuberculosis is to be prevented by strict attention to hygienic rules. Tuberculous persons should not swallow their sputum nor expectorate it on the tneir sputum nor expectorate it on the ground or pavement or into cuspidors, but carefully eject it into impermeable receptacles, without soiling their hands, clothes, or the receptacle. All the sputum receptacles should be destroyed by fire. All eating utensils of the tuberculous should be sterilized by thorough boiling, as also should all their clothes, though the latter may be fully sterilized. boiling, as also should all their cionies, though the latter may be fully sterilized by exposure to formaldehyde gas for twenty-four hours. All meat and milk should be freed from tubercle by veterinary inspection of herds. All excreta from the tuberculous should be sterilized by fire 5 per carbonic said solution. by fire, 5 per cent. carbolic acid solution, or 4 per cent. chlorinated lime solution. Much fresh air should be admitted to rooms which human beings and animals inhabit. The tuberculous should avoid kissing and fondling others. Bedrooms should be cleansed with moist cloths and not have the dust swept into the air. Sunlight and fresh air are the enemies of

Tuberculosis is the most widespread and fatal disease to which man is heir, about 40 per cent. of deaths in cities being due to it. Longitude and latitude have but slight influence upon its prevalence, though altitude appears to exert a more or less controlling influence upon

the life of the tubercle bacillus. Tuberculosis of the skin is called lu-pus and contains tubercles. Eventually large areas of skin are transformed into reddish, ulcerated patches, more or less deep, with pockets of yellowish, purulent matter. It is treated by X-ray, Finsen's phototherapy, radium, surgical removal, and caustics. The lymph glands are attacked and enlarge and finally degenerate, surgical removal being required. The surgical removal being required. The mucous membrane of the alimentary canal may become affected, tubercles, ulcerations, hemorrhages and weakness resulting. If the ulceration is sufficiently deep to produce perforation, peritonitis or fistual may result, which latter is frequent in and around the rectum. The liver, pancreas, spleen, kidneys, and other viscera may be affected similarly.

The great tuberculous disease. however is tuberculous and in the room occupied. Personal hygiene is imperative, as are the preventive measures already given. An impermeable sputum flask should receive the expectoration. The tubercular requires good nourishment. Milk, cream, meat, eggs, butter, vegetables, and game should be liberally provided. Tuberculin is administered sometimes by hypodermic injection until the person no longer reacts to it.

Tuberose (tuberculosis Polyanthes tuberculosis of tube

cooked to kill all germs that may have the diseased areas. As the affection found a lodgment therein. The disease is progresses the nodules enlarge and become more numerous, finally coalescing to form large masses of consolidated matter. When this liquefies, cavities are formed. If, with this infection, there is added some of the pus-forming bacteria, a more rapid variety is the consequence, and an irregular fever results. In the acute disease there is a sudden chill, fever, pain in the side, cough, and bloody sputum. In a fortnight a mucopurulent expectoration occurs, which may contain the ba-cilli. Then are found chills, fever, and drenching sweats; the fever is higher in the evening than in the morning; the heart is weak and rapid, breathing is difficult, and the tubercular gradually sinks. The chronic disease begins usually as a bronchitis, though it may come on stealthily with no prodromal signs. People usually describe it as a severe cold that settles on the chest and cannot be gotten rid of. There is some cough, dry at first, but later profuse expectoration, fever, and emaciation occur. There are gradual loss of strength and appetite, anæmia, profuse or slight homorrhage. This may con-tinue for a long period of time or suddenly get worse.

It is treated by cold, dry air at an elevation of 2000 or 3000 feet above sea level, which is stimulating to the tissues, arousing Nature's forces to repel the bacteria and excrete the toxins. They should remain outdoors the entire time. summer and winter, if possible, only pro-tected from storms. Buildings with re-movable sides, or large sashes, constructed of a material to withstand strong chemical disinfectants, should be occupied, and the body will adapt itself to the environment, provided warm clothing is worn. At a lower altitude in damp weather ventilation is secured by having open the windows in an adjoining apartment and an open fireplace in the room occupied. Personal hygiene is impera-

the great tuberculous disease, however, other Linaux, originary cultivated in two varieties of the disease—acute and American gardens both for its perfume chronic—and three successive stages. and for its beautiful white flowers. It In this disease small nodules are scathas a bulbous root, and an upright tered more or less profusely throughout branchless stem growing to the height

(which see); in tubes composed of sand and fragments of shell connected together by a glutinous secretion, as in terebella; or in a tube composed of granules of sand and mud, as in sabella.

Tübingen (til'bing-in), a town of Würtemberg, in the circle of the Schwarzwald (Black Forest), on the Neckar, 18 miles southwest of Stuttgart. It is irregularly built, and the streets are for the most part steep and narrow, but the environs are picturesque. There are various manufactures, but the town is supported chiefly by the university, which was founded in 1477. It has a library of 300,000 vols., a botanic garden, chemical laboratories, collections of zoölogy and comparative anatomy, of minerals, of coins and medals, etc. The number of teachers is nearly 100, of students over 1200. Reuchlin and Melanchthon were professors here, as was also F. C. Baur, who founded the Tübingen school of theology, a school which has been distinguished by its critical method, and its tendency to the rejection of the supernatural element in Christianity. Pop. 16,309.

Tubipora (tu-bip'o-ra), a genus of corals belonging to the order Alcyonaria, and represented by the familiar organ-pipe coral (T. musica), and narrow, but the environs are pictur-

familiar organ-pipe coral (T. musica), and by other species.

Tubuai Islands (tö-bö-l'), a group in the Pacific Ocean, south of the Society Islands, and, Ocean, south or the Elike them, under France.

See Bridge.

Tubular Bridge.

Tuckahoe (tuk-a-hō'), a singular vegetable found in the southern seaboard section of the United States, growing underground, like the European truffle. It is also called *Indian bread* and *Indian loaf*. It is referred to

a genus, Pachyma, of spurious fungi, but in all probability it is a peculiar condition of some root, though of what plant has not been properly ascertained.

Tucker (tuk'er), ABRAHAM, an English miscellaneous and philosophical writer, born in 1705; died in 1774. He was educated at Oxford, lived the life of a private country gentleman, and published his chief work, The Light of Nature, under the pseudonym of Edward Search. It has been frequently republished.

of 3 or 4 feet. It is cultivated for the perfumers in France and Italy.

Tubicolæ (tū-bik'u-lē; 'tube-dwell-ers'), an order of annelids, comprehending those which live in entered the William and Mary College, calcareous tubes, composed of secretions from the animal itself, as in serpula studied law, and during the Revolution-(which see); in tubes composed of sand and fragments of shell connected together in 1778 he married Mrs. Randolph, by a glutinous secretion, as in terebella; mother of the celebrated John Randolph of Ronoke. After the war he dolph of Roanoke. After the war he became a judge and also professor of law in William and Mary College, was made judge of the State Court of Appeals in 1803, and of the United States Court for the eastern district of Virginia in 1813. He published numerous works in prose and verse, and was especially happy in vers de societé.—HENRY ST. GEORGE TUCKER, his son, was born in Virginia in 1781; died in 1848; studied law under his father, and like him became eminent in the profession. He was professor of law in the University of Virginia, chancellor of the fourth judicial district, president of the State Court of Appeals, and a member of Congress 1815-19. He wrote Lectures on Constitutional Law and other legal works.—
BEVERLEY TUCKER, another son, born in 1784; died in 1851. He also became a lawyer, and served as a judge in Missouri from 1815 to 1830. From 1834 to his death he was professor of law in William and Mary College. He wrote legal works and several novels, one of which, The Partisan Leader, published in 1836, in a measure foreshadowed the secession movement of 1861. In the convention at Nashville in 1850, his vigorous invectives against the North revigorous invectives against the North recalled the speeches of his half-brother,
John Randolph of Roanoke.—George Tucker,
was born in Bermuda in 1775; died in
1861. He came to Virginia in 1787,
studied law under his uncle at William
and Mary College, and was a member of
Congress from 1819 to 1825, when he
became professor of ethics and political
economy in the University of Virginia,
holding this position for twenty years.
He wrote a standard Life of Thomas
Jefferson; a History of the United
States, down to 1840; The Valley of the
Shenandoah, a novel, and A Voyage to Shenandoah, a novel, and A Voyage to the Moon, a satirical romance. Most of his later life was spent in Philadelphia.

Tuckerman (tuk'er-man), HENEY THEODORE, an American man of letters, born at Boston in 1813; died in 1871. His writings are very numerous, and consist mainly of monographs relating to biography, literature, and art. Among the best known are

have to do with mining and stock-raising. Hides, wool, and metals are dealt in. Pop. 13,193.

Tucum (tö'kum), a species of palm (Astrocaryum vulgāre) of great importance to the Brazilian Indians, who make cordage, bow-strings, fishing-nets, etc., from the fine durable of the projection of the project of the species of the project of the species of the s fiber consisting of the epidermis of its unexpanded leaves. The name is also given to the fiber or thread, and to an oil

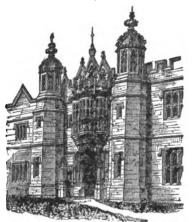
obtained from the plant.

Tucuman (tö-ku-man'), or SAN
MIGUEL DE TUCUMAN. a
town of the Argentine Republic, capital of the province of the same name, in the northwest of the country, near the foot of a mountain range on the Upper Rio Dulce. It is a rising place, connected by railway with Buenos Ayres. Pop. about 55,000. The province is fertile, and has a fine climate; area, 8950 sq. miles. Pop. 263,079.

Tudela (tö-thā'là), a city of Spain, province of Navarre, on the right bank of the Ebro, 156 miles northeast of Madrid It has an ancient cast

east of Madrid. It has an ancient cathedral and other churches, a medical Pop. 9499. college, etc.

Tudor (tū'dur), the family name of an English royal line founded by



Tudor Architecture, Hengrave Hall, Essex, 1588.

Italian Sketch Book; Artist Life; The Owen Tudor of Wales, who married the Optimist; Characteristics of Literature; widowed queen of Henry V. The first Essays, Biographical and Critical, etc. of the Tudor sovereigns was Henry VII;

Tucson (tuk'sun), a city, the capital the last, Elizabeth. See England.

Tucson of Pima county, Arizona, 130
Tudor-flower, a trefoil ornament miles s. E. of Phœnix. It is the seat of the University of Arizona and of St.

Joseph's Academy. The chief industries stalk, and is employed in long rows as stalk, and is employed in long rows as a crest or ornamental finishing on cornices, ridges, etc.

Tudor Style, in architecture, a name frequently applied to the latest Gothic style in England, being the last phase of the perpendicular, and sometimes known as *Florid Gothic*. The period of this style is from 1400 to 1537; but the term is sometimes extended so as to include the Elizabethan period also, which brings it down to 1603. It is the result of a combination of the Italian style with the Gothic. It is character-ized by a flat arch, shallow moldings, and a profusion of paneling on the walls.

Tuesday (tůz'dā), the third day of our week, so called from the Anglo-Saxon god of war, Tis. See Tyr.
Tufa (tů'fa), or Tufr, the name originally given to a kind of volcanic rock, consisting of accumulations of scoria and ashes about the crater of a volcano. The name is now applied to any porous vesicular rock; thus rounded fragments of greenstone, basalt, and other trap-rocks, cemented into a solid mass, are termed trap-tuff, while a vesicular carbonate of lime, incrusting and incorporating twigs, moss, shells, and other objects that lie in its way, is called oalctuff.

Tuileries (twe'le-ris; from Fr. twile, a tile, because the spot on which it is built was formerly used for the manufacture of tiles), the residence of the French monarchs, on the right bank of the Seine, in Paris. Catharine de' Medici, wife of Henry II, began the building (1564); Henry IV extended it, and founded the old gallery (1600); and Louis XIV enlarged it (1654), and completed that gallery. The side towards the Louvre consisted of five pavilions and four ranges of buildings; the other side had only three pa-vilions. During the revolution of 1830 the palace was sacked. It was restored by Louis Philippe to its former splendor, but in 1848 it was again pillaged. The Tuileries then became successively a hospital for wounded, a picture gallery, and the home of Louis Napoleon in 1851. On May 23, 1871, it was almost totally destroyed by fire (the work of the communists), and the remaining portions were removed in the year 1883.

Tula (tö'là), a government of Central compact, and fine-grained, and is em-Russia; area, 11,954 square miles. ployed for various useful purposes. The The surface is generally flat, and the bark, especially of the roots, has an principal rivers are the Oka, the Upa, aromatic smell and bitter taste, and has and the Don. By canal there is com-pensation with the Relic the Rich febrituse principal rivers are the Can, the Back and the Don. By canal there is communication with the Baltic, the Black febrifuge.

Sea, and the Caspian. Much grain is produced, and vast numbers of horses, cattle, and sheep are reared. Iron is smelted and manufactured to a large extent. Pop. 1,662,600.—Tula, the capital, is situated on the Upa, 107 miles south of Moscow. It is the residence, both of a civil and a military governor, the see of a bishop, and has extensive manufactures of firearms, as also cutlery. ornamental steelworks, platina parrow strips, and much used on ladies' manuactures of nrearms, as also cut-lery, ornamental steelworks, platina snuff-boxes, silks, hats, soap, candles, cordage and leather. Pop. 136,530.

Tula-metal, an alloy of silver, with small proportions of lead and copper, forming the base of the cele-brated. Pursion songli-boxes proportions

brated Russian snuff-boxes popularly called platinum boxes.

Tule (tö'le), a large species of rush or sedge, Scirpus validus, nat. order

species are bulbous herbaceous plants, inhabiting the warmer parts of Europe and Asia Minor, and are now extensively cultivated in gardens. About cessor to Numa Pompilius (B.C. 670-forty species have been described, of 638), a warlike monarch, in whose reign which the most noted is the common took place the combat of the Horatii and garden tulip (T. gesneriana), a native of the Levant, now an ornament in American gardens. Upwards of 1000 Tultcha mania, on the Danube, which varieties of this plant have been enumerated. The wild tulip (T. sylvestris) thas a good trade. Pop. 18,880. has yellow flowers, and blooms in April Tulsa, a city in Tulsa Co., Oklahoma, and May. The sweet-scented tulip (T. Tulsa, 14 miles N. N. E. of Sapulpa. It and May. The sweet-scented tulip (T. and May. The sweet-scented tunp (T. swaveolens), prized for its fragrance, is grown in the United States. About the middle of the seventeenth century an extraordinary tulip mania prevailed in Holland. Enormous sums were given for bulbs, the ownership of a bulb being often divided into shares in which men often divided into shares, in which men speculated as they do in ordinary stocks or shares. The close of this mania led to great losses.

Tulip-tree, an American tree bearing flowers resembling the tulip, the Liriodendron tulipifera, nat. order Magnoliaceæ. It is one of the most magnificent of the forest trees in the temperate parts of North America. Throughout the States it is generally

candles, narrow strips, and much used on ladies'

caps, etc.

Tulloch (tul'uk), John, theologist, born in 1823 at Bridge of Earn, Perthshire; died in 1886. He was an influential leader in the councils of the Scotch Church, was for many years principal of St. Mary's College, St. An-Tule (tö'le), a large species of rush or sedge, Scirpus validus, nat. order drews, and was the author of the Burnet Cyperaces, which grows to a great height, and covers large tracts of marshy land in parts of California, being also found generally throughout the United States.

Tulip (tū'lip), a genus of plants (Tu-tury (1872), Pascal (1878), Facts of Religios, nat. order Lillacese. The Religious Life (1877), etc. species are bulbous herbaceous plants, inhabiting the warmer parts of Europe and Asia Minor, and are now extensively cultivated in gardens. About cessor to Numa Pompilius (B.o. 670-forty species have been described, of 638), a warlike monarch, in whose reign

It has a good trade. Pop. 18,880.

Tulsa, a city in Tulsa Co., Oklahoma,
14 miles N. N. E. of Sapulpa. It is the center of a vast oil-producing region. Among the industries are: oil refining, coal mining, wheat milling, etc. Pop. 28,240.

Tumbrel (tum'brel), TUMBBIL, with two wheels, which accompanies troops or artillery, for conveying the tools of pioneers, cartridges, and the like.

Tumor (tü'mur), in surgery, in its widest sense, a morbid enlargement or swelling of envy part of the

ment or swelling of any part of the body or of any kind; more strictly, how-ever, it implies a permanent swelling ocmost magnificent of the forest trees in casioned by a new growth, and not a the temperate parts of North America. mere enlargement of a natural part, Throughout the States it is generally which is called hypertrophy. Tumors known by the name of tulip poplar, white may be divided into two well-defined wood, or canoe-wood. The wood is light, classes: (a) Simple, benign, or innocent

tumors, the substance of which has name wolfrom). It has a grayish-white anatomical resemblance to some tissues color and considerable luster. It is britof the body; they gradually increase in size, and generally only produce inconvenience from the great bulk they sometimes attain; a complete cure may be effected by simple excision. (b) Malignant tumors, which bear no resemblance in substance to normal tissue; they are exceedingly liable to ulceration, they invade all the textures of the part in which they occur, affecting the mass of the blood, and terminate fatally; when excised they are apt to recur not only in the immediate neighborhood of the previous site, but also in remote parts of the body. This recurrence in remote of the body. This recurrence in remote parts is due to transference of some of the elements of the tumor by means of lymphatic or blood vessels. Hence if a malignant tumor is to be excised it must be done early to avoid such secondary infection if possible. Innocent tumors are often named from the tissues in which they occur, as adipose or fatty tumors, fibrous tumors, cartilaginous tumors, bony tumors, and the like. Of the malignant class cancer is a well-known example. See Cancer.

Tumuli (từ/mũ-li), artificial mounds of earth or stone raised to mark the resting-place of the dead. They are very abundant in parts of the United States, the work of prehistoric Indians.

See Barrows.

Tun, an old measure of capacity. The English tun of wine contained four hogsheads, or 252 gallons, but in English-speaking countries the gallon is now the highest legal measure of capacity. four hogsheads, or 252 games and the highest legal measure of capacity.

Tunbridge Wells, a market town and watering-place of England, partly in Kent, partly in Sussex, 32 miles s. s. e. of London, 4 sound of a certain fixed pitch. The ordinary tuning-fork sounds only one note parade, a town hall, corn exchange, public halls, Pump Room for visitors take waters, Convalescent Home for are made with a slider on each prong, which the waters of toys and to which the produced.

(tü'nis), a country of North now a French protecto-arth and north-arch. 35,703.

(tun'dras), a term applied to the immense stretches of Tundras flat, boggy country, extending through the northern part of Siberia and part of Russia, where vegetation takes an Arctic character. They are frozen the greater part of the year, and are very difficult to cross when not frozen.

color and considerable luster. It is brit-tle, nearly as hard as steel, and less fusible than manganese. The ores of this metal are the native tungstate of lime and the tungstate of iron and manganese, which latter is also known by the name wolfram.

Tungûs (tun'gus), a term applied to certain Mongolian tribes in the northeast of Asia, consisting of nomadic and hunting peoples, spread over Eastern Siberia. In a wider sense the term Tungusians is used to include the Manchus, who conquered China in 1644.

Tunic garment in constant use among the Romans the the Greeks. Among the Romans the tunic was an under garment worn by both sexes (under the toga and the palla), and was fastened by a girdle or belt about the waist. The term is also used ecclesiastically to denote a dress worn by the sub-deacon, made originally of linen, reaching to the feet, and then of an inferior silk, and narrower than the dalmatic of the deacon, with shorter and tighter sleeves.

Tunicata (tū-ni-kā'ta), an order of Molluscoida or lower mollusca, which are enveloped in a coriace-ous tunic or mantle, provided with two orifices, the one branchial and the other anal, and covering beneath it a second tunic, which adheres to the outer one at the orifices. These animals are popularly named sea-squirts, and are found

Tunis (tū'nis), a country of North Africa, now a French protecto-rate, is bounded on the north and northeast by the Mediterranean, on the south-east by Tripoli, and on the west and southwest by Algeria; area, estimated about 51,000 square miles. The coastline presents three indentations, forming the Bay of Tunis on the north and those part of the year, and are very difficult of Hammamet and Cabes or the Lesser to cross when not frozen.

Syrtis on the east. The northwest portungsten (tung'sten), a metal distion of the country is traversed by the covered in 1781; atomic Atlas Mountains, which on their lower weight 184; symbol W (from its other slopes have many fertile tracts, partly under culture. Between these mountains and the Gulf of Hammamet on the east stretches the extensive plain or plateau of Kairwan. The only river of any consequence is the Mejerdah. Agriany consequence is the Mejeruan. Agri-the of culture is very much neglected; the palace principal crops are wheat, barley, and the braize; olive plantations are numerous, der leading to the constant of the coast the fisheries, 250,000 in cluding that of Jews.

are valuable. coral, The manufactures ture of Moors and Arabs, along with Berbers, here called Berbers, Kroumirs, occupying the elevated tract north of the valley of Mejerdah. In an-cient times Tunis belonged to the Carthaginians, afterwards formed part of the Roman province of many rel-Africa, and many relics of Roman architecture remain. It was subdued about 675 by the Arabs, became a powerful state under independent rulers in thirteenth century, and in 1575 was incorporated with the Ottoman Em-



the port of Goletta, there being another salt lake on the other side of the city. Both Tunis and Goletta are built of the Both Tunis and Goietta are built of the materials of ancient Carthage. Almost the only building of importance is the palace of the bey in the Moorish style; the bazaars are also interesting, and under French direction a cathedral and other buildings have been erected, and cathedral are established. Pop. about schools, etc., established. Pop. about 250,000, nearly half being Christians and

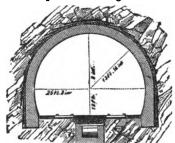
See Dunkers. Tunkers.

consist chiefly of **Tunnel** (tun'el), a subterranean pas-woolen fabrics, soap, sage cut through a hill, a rock, woolen fabrics, soap, sage cut through a hill, a rock, dyed skins, and ordi- or any eminence, or under a river, a nary and morocco town, etc., to carry a canal, a road, or leather. The inhabi- a railway in an advantageous course. In tants consist of a mix- the construction of canals and railways



subdued St. Gothard Tunnel. Section showing construction in soft strata.

tunnels are frequently had recourse to in order to preserve the desired level and for various other local causes. when not pierced through solid rock,



creased, the means of trainst have been improved, and a number of primary schools established. The resident army of occupation numbers 10,000 men. have usually an arched roof and are Pop. estimated at nearly 2,000,000.— lined with brick-work or masonry. The Tunts, the capital city, is situated on a salt lagoon connected with the Bay of Among the greatest works of this kind Tunis by a narrow channel, where is are the tunnels of St. Gothard, Mont



Cenis, the Arlberg, the Simplon, and the recently constructed Loetschberg, in the Alps. In Britain the Severn and Mersey tunnels are noteworthy, while in America the Hoosac tunnel and that through the Cascade range in the State of Washington are of much interest. (See the various headings.) Many important tunnels under rivers have been recently constructed, the most interesting being those under the Hudson and East rivers at New York, especially the great Pennsylvania Railroad tunnel, which passes under both rivers and under the city of New York. Another of interest is the tunnel under the Elbe, Germany, at Hamburg. Two great tunnels, through the Pyrenees from France to Spain, were completed in 1913. Tunny (tun'i), a fish of the genus Thynnus and family Scomberide, the T. vulgāris, closely allied to the mackerel. These fish live in shoals in almost all the seas of the warmer and temperate parts of the earth. They are taken in immense quantities on the Mediterranean coasts, where the fishing is chiefly carried on. The flesh is delicate and somewhat resembles veal. The common tunny attains a length of from 4 feet to even 20 feet, and sometimes exceeds half a ton in weight. Its times exceeds half a ton in weight. Its color is a dark blue on the upper parts, and silvery white below. The American tunny (T. secundo-dorsālis) is found on the American coast from New York to Nova Scotia. The albacore (T. pacificus) and the bonito are allied species.

Tunstall (tun'stal), a town of England, in Staffordshire, 2½ miles N. E. of Newcastle-under-Lyme. It has rapidly risen from a hamlet to a has rapidly risen from a hamlet to a considerable town, with manufactures of china and earthenware, bricks and tiles, etc. The district is rich in coal and iron-stone. Pop. of district 39.292.

Tupaia (tū-pē'ya), a genus of remarkable mammals. See Banaring. Tupelo (tű'pe-lő), a North American forest tree of the genus Nyssa, the N. denticulata, nat. order Santalacess. It is a lofty tree of great beauty. The same name is given to other species of the genus, some of which are also called black gum, sour gum, gum tree, eineridae etc. piperidge, etc.

Tupper (tup'er), SIR CHARLES, a Canadian statesman, born at Amherst, Nova Scotia, in 1821; died Oc-

ways, 1879-84, he promoted the construction of the Canadian Pacific Railway. He was one of the commissioners who formed the fishery treaty of 1887-88, and

was made a baronet in the latter year.

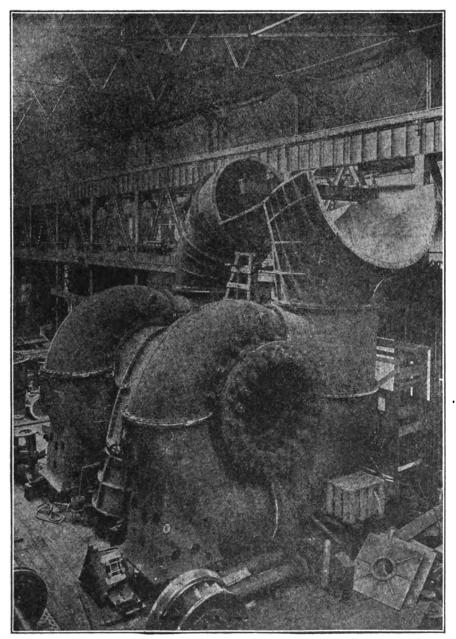
Tupper, MARTIN FARQUHAR, writer, born in London in 1810; died in 1889. He was educated at the Charterhouse and Christ Church, Oxford; studied law, and was called to the bar at Lincoln's Inn. He published a number of novels and plays, but his fame rests upon his Proverbial Philosophy (1838), a work in a kind of blank verse (1838), a work in a kind of blank verse which has gone through numerous editions. His reminiscences are to be found in My Life as an Author (1886).

Turanian (tū-rā'ni-an), a term appellative of one of the great

classes into which human speech has been classes into which human speech has been divided, and including the Ugrian or Finnish, Samoyedic, Turkish, Mongolian, Tungusic, and possibly the Dravidian. It is called also Altaic and Soythian. It is characterized as agglutinate and polysynthetic, from the fact that its words are polysynthetic or server of the server of t are polysynthetic, or composed of several distinct words, each, even in composition, retaining its significance. See *Philology*. Turban (tur'ban), a form of head-dress worn by the Orientals. It varies in form in different nations, and different classes of the same nation. It consists of two parts: a cap without brim, fitted to the head; and a sash, scarf, or shawl, usually of cotton or linen, wound about the cap, and sometimes hanging down the neck.

Turbellaria (tur-be-laria), an order of Annuloida, of the class Scolecida, almost all the members of which are aquatic and non-parasitic. There are two sub-orders, Planarida and

Nemertida. See these articles.
Turbine (turbin), a kind of horizontal water-wheel, made to revolve by the escape of water through volve by the escape of water through orifices, under the influence of pressure derived from a fall. Turbines are now made after a large variety of patterns. The oldest and simplest is the Scotch turbine, or Barker's mill (which see). In another common form the water than the common form the passes vertically down through the wheel between the fixed screw blades, which gives it a spiral motion, and then strikes similar blades attached to a mov-Amherst, Nova Scotia, in 1821; died Oc- able spindle, but placed in the opposite tober 10, 1915. He was a representative direction, so that the impact of the water for Nova Scotia in the British Parlia- communicates a rotary motion to the ment for many years, was premier of blades and spindles. Or the water may Nova Scotia, 1864-67, held various posts be passed from the center horizontally in the Dominion cabinet, and become outwards through fixed curved blades, se premier of Canada in 1896, losing his as to give it a tangential motion, and post the same year. As minister of rail- thereby cause it to act on the blades of



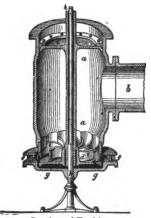
Courtesy of the I. P. Morris Co.

HYDRAULIC TURBINES

One of four 9000 horse power machines in course of erection. The water head required to operate them is 66 feet and the speed 150 revolutions per minute.



the wheel which revolves outside. In the annexed cut the water is introduced into a close cast-iron vessel a by the pipe b, connecting it with the reservoir. Here, by virtue of its pressure, it tends to escape by any aperture which may be presented; but the only apertures consist of those between a series of curved float-boards, ff, fixed to a horizontal plate g, mounted upon a central axis h, which passes upwards through a tube



Section of Turbine.

connecting the upper and lower covers, o and d, of the vessel a. Another series of curved plates ee, is fixed to the upper surface of the disk d, to give a determinate direction to the water before flowing out at the float-boards, and the curves of these various parts are so adjusted as to render the reactive force of the water available to the utmost extent in producing a circular motion in the disk and the axis h with which the machinery is connected. The turbine has, to a considerable extent, replaced the old-style water wheel, and has been adapted to steam engine purposes by substituting steam for water as the moving agent. See Steam Turbine, Gas Turbine.

style water wheel, and has been adapted to steam engine purposes by substituting steam for water as the moving agent. See Steam Turbine, Gas Turbine.

Turbot (turbot), a well-known and highly esteemed fish of the genus Rhombus or Pleuronectes (R. or P. maximus), family Pleuronectides or Rat-fishes. Next to the halibut, the turbot is the largest of the Pleuronectide found on the European coasts, and is the most highly esteemed for the table. It is of a short and broad form, brown on the upper side, which is usually the left side, and attains a large size, sometimes weighing from 70 to 90 lbs. The

American or spotted turbot (Rhombus maculatus), common on the coasts of New England and New York, attains a weight of 20 lbs.

Turdus (turdus), the genus of birds to which the thrush belongs.

Turenne (tu-ren), Henrid de La Tour d'Auvergne, Vicomte de de da Tour d'Auvergne, duke of Bouillon, and of France, born in 1611 at Sedan, was the second son of Henri de la Tour d'Auvergne, duke of Bouillon, and of Elizabeth, princess of Nassau-Orange. He learned the art of war under his uncles Maurice and Henry of Nassau in the Dutch service, entered the service of France in 1630, served with distinction in Germany and North Italy, and in 1643 received the command of the army of the Rhine in the Thirty Years' war, and was made a marshal. His successes in this post, as in the battle of Nördlingen (1645), greatly contributed to the close of the war. During the disturbances of the Fronde the victories of Turenne led to the termination of the civil war. In the war against Spain he also distinguished himself, and after its close in 1659 he was named marshal-general of France. When war was renewed with Spain in 1667 he conquered Flanders in three months. In the Dutch war of 1672 Turenne had the chief command. He first marched against the Elector of Brandenburg, and having driven him back as far as the Elbe forced him to sign the Treaty of Vossem in 1673; while in the brilliant campaign of 1674-75 he destroyed two Austrian armies by the battles of Mühlhausen and Türkheim, and conquered and devastated the Palatinate. In 1675 he was killed while making preparations to engage Montecuculi.

Turgot (turgo), Anne Robert Jacques, was born at Paris in 1727, and died in 1781. He was educated for the church, but renouncing this purpose he studied law, and in 1671 was appointed intendant of Limoges, which post he occupied for twelve years. Shortly after the accession of Louis XVI, in 1774, Turgot was appointed comptroller-general of France, and in order to reform the political and financial condition of the country he moderated the duties on articles of the first necessity, freed commerce from many fetters, and encouraged industry by enlarging the rights of individuals, and abolishing the exclusive privileges of companies and corporations. Such, however, was the opposition of the clergy and nobility to his reforms that he was dismissed from office in 1776, and retired into private

Turgueneff. See Tourguenieff.

Turin (tū'rin; Italian, Torino), a city of North Italy, capital of province of same name, at the confluence of the Dora Riparia with the Po, and between those two rivers. The city is essentially modern, the streets being broad and regular, and many of them lined with arcades, while there are numerous wide squares and gardens. The chief buildings are the cathedral, a renaissance building, completed in the beginning of the sixteenth century, and remarkable for its marble façade; the royal palace, a plain brick building, which contains the king's private library, with valuable MSS., and the royal ince of same name, at the confluence of which contains the king's private library, with valuable MSS., and the royal armory; the university, a fine edifice recently constructed, in which there is a large library; the Palazzo dell' Accademia delle Scienze, with a picture gallery and museums of natural history and antiquities; the Palazzo Carignano, used at one time by the Serdingra and gamery and museums of natural history and antiquities; the Palazzo Carignano, the rivers and on the slopes of the hills, used at one time by the Sardinian and Italian parliaments when they met here (1848-05), and now given up to a collection of natural history; the Madama Palace, an old and interesting building, and several theaters. The environs of the city are beautiful, and offer many objects of interest. Among the educational establishments, in addition to the university, which is attended by about cotton are cultivated in the cases along and antiquities; the plazzo Carignano, the rivers and on the slopes of the hills, and trade has greatly increased since the Russian occupation. Pop. estimated at between 5,000,000 and 6,000,000.

Turkestan, a town of Asiatic Russia, in Syr Darya province, and its mosque, built by Tamerlane, is one of the most striking edifices in Centuriversity, which is attended by about tional establishments, in addition to the university, which is attended by about tral Asia. Pop. 11,592.

2700 students, are an episcopal seminary, a royal military academy, a polytechnic school, and various other colleges and schools. The manufactures consist, besides the staple of silk, chiefly of woolens, cottons, linen, paper, ironmongery, and in this portion is situated the capital of a tribe called the Taurini, and under the Roman Empire one was called Augusta Taurinorum. anciently the capital of a tribe called the Taurini, and under the Roman Empire was called Augusta Taurinorum. It was long the capital of Savoy, then of the Sardinian kingdom, and from 1881 to 1865 of United Italy. Pop. 427,106.

Turkestan (tör-kes-tän'), a wide region of Central Asia, roughly divided into two portions, Eastern Turkestan and Western Turkestan. Eastern or Chinese Turkestan is inclosed on three sides by lofty mountain ranges (Thian-Shan, Karakorum, Kuenranges (Thian-Shan, Karakorum, Kuen-Lun), and on the east has the desert of Gobi. Near the center is the basin of the Lob-nor, a lake fed from the west

with silk, which the country produces abundantly, are exported to India, Kashmere, and Tibet; while opium, tea, linens, and woolens are imported. The inhabitand woolens are imported. The inhabitants, who are mostly Mohammedans, are very mixed. In 1863 a rebellion broke out, and after a war of several years Eastern Turkestan succeeded, under Yakoob Beg, in effecting its separation from the Chinese Empire, but after his assassination, in 1877, it was again brought under Chinese sway. The chier towns are Kashgar and Yarkand, and the pop. is estimated at about 2,000,006.

— WESTERN TURKESTAN comprises the Trans-Caspian districts, the Turkoman steppes, the khanates of Bokhara and Khiva, and the oasis of Merv. This im-Khiva, and the oasis of Merv. This immense region, under the government or protection of Russia, is watered by the Oxus or Amu Darya, and the Jaxartes or Syr Darya. Maize, millet, rice, and cotton are cultivated in the oases along

directly under the sultan's rule, until the Balkan war extended from Montenegro, Bosnia, Servia, and Bulgaria on the north to the Ægean and Greece on the south, and from the Black Sea to the Adriatic, the Straits of Otranto, and the Ionic Sea. The Treaty of Berlin in 1878 greatly reduced the Adriatic Sea. duced the area under direct Turkish rule, estdes confirming the independence and extending the limits of several of the formerly tributary states; and the Treaty of Bukharest in 1913, still further reduced the limits and power of Turkey. (See Ottoman Empire and Balkan War. The immediate presented in Turney horses the Loo-nor, a take ted from the west Ottoman Empire and Balkan War. The by the Tarim and its tributaries. The immediate possessions in Europe have an greater part of this area is uncultivated area of 11,100 sq. miles, pop. about 2,000, steppe, but there are fertile portions 000; in Asia, 682,960 sq. miles, pop. watered by the rivers Kashgar, Yarkand, 17,000,000; in Africa, 400,000 sq. miles, and Karakash. The products include pop. 9,821,100. Egypt, however, has cereals, root-crops, and cotton in large ceased for the present to be part of Turquantities, partly manufactured in the key and Tripoli has come under Italian souncry. Carpets and felt cloths, along rule. The island of Crete or Candia, in the Ægean Sea, formerly possessed by Turkey, was at the close of the Balkan War left autonomous, its annexation by Greece being foreseen.

being foreseen.

European Turkey.—European Turkey was by the Treaty of Bukharest at the conclusion of the Balkan War (1913) reduced to a very small area, including, however, the great strongholds of Constantinople and Adrianople. It stretches from the new eastern limits of Bulgaria and the Black Sea on the west and north to the Ægean and the Sea of Marmora on to the Ægean and the Sea of Marmora on the east and south. Until 1913 Turkey included the provinces of Adrianople, Macedonia and Albania. (See Balkan War.) In 1908 the Turkish provinces of Bosnia and Herzegovina, which had been administered by Austria since the Congress of Berlin, in 1878, were formally annexed by the latter country. Turkey protested. but eventually accepted a payment of but eventually accepted a payment of \$12,500,000 from Austria as compensation for the provinces. In 1909 the independence of Bulgaria was also recognized by Turkey, on the assumption by Russia of \$9,000,000 of the Ottoman national debt. The climate of European Turkey as Moditars and with substractical rains is Mediterranean, with sub-tropical rains and summer droughts. The temperature is variable, and owing to the cold northother Mediterranean countries in the same latitude. There are few manufactures ex-cept in Constantinople and Adrianople. The special industries are tanning (recently established) and manufactures of fine muslins, velvets, silks, carpets and ornamental weapons. Until the outbreak of the Balkan War, Turkey was making substantial advance in agriculture.

Turkey in Asia comprises the peninsula of Asia Minor, the country intersected by the Euphrates and the Tigris, the mountainous region of Armenia between their upper courses and the Black Sea, the ancient lands of Syria and Palestine, and the coast strips of Arabia along the Red Sea and Persian Gulf. Omitting Arabia, the country consists mainly of (1) a high plateau traversed by the mountains of Taurus and Anti-Taurus, and stretching from the Archipelago to the borders of Persia; (2) a plateau of less elevation and extent (Syria and Palestine) traversed by the double range of Lebanon; and (3) the extensive plain of Mesopotamia on the Lower Tigris and Euphrates. (See Asia Minor, Armenia, Kurdistan, Mesopotamia of Mesopotamia Commits (Mesopotamia) Minor, Armenia, Kurdistan, Mesopota- and at their head is the Sheik-ul-Islam, mia, Syria, and Palestine.) The islands who governs a judicial and ecclesiastical Chios, Lesbos, Rhodes, etc., belong to body called the Ulemas. The second Turkey in Asia, while the island of class consists of the 'officials of the Samos is a tributary principality, and Cyprus is held by Britain. The chief and at their head is the grand-vizier or

towns in Asiatic Turkey are Smyrna, Damascus, Bagdad, Aleppo, and Beyrout. Commerce, Communications, etc.— The chief exports are raisins, figs, and dates, silk, cotton, wool, and mohair, opium, coffee, wheat, wine, valonia, oliveoil, and tobacco; while the imports are cotton, woolen, and silk goods, metals, iron, steel, glass wares, etc. Accounts are usually kept in grush or piastres, the value of which is something less than 4) cents; a hundred plastres make a Turkish bira or gold medjidie (value about 36 cents), and 500 make a purse. The unit of weight is the ohe, equal to about 28 lbs. avoirdupois. The usual linear measure is the arshin, equal to 30 inches.

People.—The inhabitants of the Ottoman Empire are of very diverse races. First in order are the Osmanli Turks, who, as the dominant race, are diffused over the country. They are proprietors of the greater part of the soil, fill all the civil and military offices, live generally in towns employed in various trades, and are seldom agriculturists. The Greeks form the bulk of the population tion over great part of the Ægean coasts and islands, and constitute to a very considerable extent the mercantile and east winds is much colder than that of trading community of Turkey. Arnauts, other Mediterranean countries in the same or Albanians, are found in the west throughout Albania; the northwest is oc-cupied by Servians; and Bulgarians in-habit the district south of the Danube and east of Servia and Albania. In Asiatic Turkey the Turks are an im-portant element, but there are also numbers of Armenians, Arabs, Kurds, Jews, Greeks, Circassians, etc. The Turkish language belongs to the Turanian family anguage belongs to the Turanian ramily of languages, and is allied to the Hungarian and the Finnish. The literature is considerable in bulk, but not very original, consisting in great part of translations from the Persian and the Arabic, and in recent times from European literature.

Government.-The head of the government of Turkey is a monarch, usually designated the sultan, regarded by the Turks as the caliph or head of Islam. His edicts bear the name of Hatti-sherif, and his government is often designated as the Sublime Porte. The public officers who conduct the administration under the sultan are divided into three classes. The first class is that of law and religion,

Sadrasam. The third class includes the officials of the sword, at their head being the Seraskier or minister of war, and the Capudan Pasha or minister of marine. The supreme deliberative body is the divan or privy-council, with the grand-visier at its head, other members being the Sheik-ul-Islam and the ministers of war, marine, finance, justice, education, commerce, etc. The immediate possessions of the Turkish Empire are divided into general governments or vilayets, at the head of each of which is a governor bearing the title of vali. The vilayets are themselves subdivided into sanjaks, administered by mutessarifs; and these again into kazas administered by kaimakans. Military service is obligatory on all Mohammedans. The service lasts twenty years: six with the Nizam and first reserve, eight years in the Redif, and six in the Mustafiz (equivalent to the German Landsturm). The army on a peace footing comprises about 375,000 of all arms and ranks; if put on a war footing it might contain 500,000 more. It is organized on a new system dating from 1887.

Finances.—The financial condition of Turkey is thoroughly unsound. From 1854 the state had contracted a series of foreign loans, the total nominal capital of which amounted to about \$1,140,000,000 in 1877. In 1875 the government announced that they would pay half the interest on the debt, but in 1876 they declared themselves unable to pay anything. In 1881 an arrangement was effected by delegates of the bondholders who met at Constantinople. The capital of the debt was reduced to \$532,-185,000, and the Turkish government agreed to hand over the excise revenues to a commission representing the bondholders, so that interest to the extent of 1 per cent. has been paid since 1882. In addition to the foreign debt the country is burdened with an internal and floating debt. At the end of 1910 the debt remained about as above stated, with no immediate prospect of liquidation.

remained about as above stated, with no immediate prospect of liquidation.

Religion and Education.—The established religion of Turkey is Mohammedanism, but Christianity under the Greek form is professed by a large majority of the Greeks and Bulgarians, while part of the Albanians are Roman Catholics. The educational system of Turkey, in accordance with the law of 1869, provides for the erection of elementary schools in every commune, and of secondary schools in the larger towns. The University of Constantinople, officially founded in 1900, has not yet been opened. There are law, military, and medical

schools in that city. Roberts College, in the Christian section of the capital, is an important institution, of American origin.

History.— See Ottoman Empire.
Turkey, a large gallinaceous bird (Meleagris gallo pavo), well known as an inmate of the poultry yard. It is a native of North America, and was introduced into Europe in the sixteenth century. Wild turkeys abound in some of the forests of the United States, where they feed on berries, fruits, insects, reptiles, etc., their plumage being a golden bronze, shot with violet and green, and banded with black. On account of its size and the excellence of its flesh and eggs the turkey is one of the most valued kinds of poultry. There is another species, the Honduras or West Indian turkey (Meleagris coellata), which derives its specific name from the presence of bright eye-like spots on the tail-coverts. It is not so large as the common turkey, but its plumage is more brilliant.

Turkey-buzzard, or Turkey Vulture, a rapacious bird belonging to the vulture family (Vulturidæ) and the genus Cathartes (C. aura): so named from its bearing a distant resemblance to a turkey. It is about 2½ feet long, and with wings extended about 6 feet in breadth, general color black or brownish. It inhabits a vast range of territory in the warmer parts of America. It is of importance in the cities of the southern United States as a destroyer of carrion, and is protected on account of its useful services in this direction.

Turkey-carpet, a carpet made entirely of wool, the loops being larger than those of Brussels carpeting and always cut. The cutting of the yarn gives it the appearance of velvet.

Turkey-red, a brilliant and durable red color produced by madder upon cotton cloth, and introduced from the East about the end of the eighteenth century. The processes which a fabric undergoes in receiving this dye are numerous, and vary in different establishments, but the most essential is the preliminary treatment of the fabric with oils or fats, combined with certain other substances, such as carbonate of potash or soda.

Turkey-stone, a very fine-grained silate, commonly of a greenish-gray, sometimes of a yellowish- or brownish-gray color. When cut and polished it is used for sharpening small cutting instruments.

Turkey, the Turkomans, Kirghiz, Us-colossal; no man has displayed at the becks, Yakuts, etc., all belong to the same time such great powers of general-Turkish race. See Turkey, Ottoman izing and concentrating the beauties of Empire, etc.

Turks Islands constitute the s. r. portion of the Ba-

Turmeric yields a yellow color, which has great brightness but little durability.

Turner, CHARLES TENNYSON. See under Tennyson.

Turner (turner), JOSEPH MALLORD WILLIAM, a great English landscape-painter, was born in London in 1775; died in 1851. His father, who was a hair-dresser, proposed to teach the

Turkomans (tur'kō-manz), a no-madic Tartar people occupying a territory stretching between following year appeared his Liber Stuthe Caspian Sea and the Sea of Aral, diorum, or Book of Studies, which the khanates of Khiva and Bokhara, Charles Turner, Mr. Lupton, and others Afghanistan, and Persia. They do not engraved. Other works by him which form a single nation but are divided into ware engraved are his illustrations of Afghanistan, and Persia. They do not engraved. Other works by him which form a single nation, but are divided into numerous tribes or clans.

Turks, a widely spread race, supposed Lord Byron's and Sir Walter Scott's poems; Roger's Italy and Poems; The Rivers of England; The Rivers of Turkestan or Siberia, but now extending France, and Scenery of the Southern from European Turkey through Asia to Coast. 'The reputation of Turner,' the shores of the Northern Ocean. Besides the Ottoman Turks or Osmanli of scape-painters stands alone, solitary, Turkey, the Turkomans, Kirghiz, Usbacks Valuate at all belong to the same time such great powers of generalizing and concentrating the beauties of nature. For half a century Turner produced a succession of great works, from 1790 to 1840. After this period, he fell, hama chain, and along with the Caicos for the most part, into that vague trifling Islands are a dependency of Jamaica, with mere effects of light and shade and having a government of their own. The color which has done so much for a time having a government of their own. The chief island is Grand Turk, about 7 miles to almost destroy the great reputation long and 2 broad. Their chief export is salt. See Caicos Islands.

Turmeric (tur'me-rik), the dried tubers or rhizomes of Curcabers of the Bost of his early works results of the Bost of his early works results of the Claude was his model; and ger). It is largely employed in India and China as an important ingredient in curry powder. Unsized white paper, steeped in an alcoholic solution of the Hesperides, the Shipwereck, and the turmeric, when dried, is employed as a Sun Rising in Mist, illustrating the test to detect alkalies, which change its first; Crossing the Brook, the Morning color from yellow to reddish brown.

Turmeric yields a yellow color, which Apuleius, his second or Claude style; the color from yellow to requise prown. Of the charge, and appears of specific of the has great brightness but little durability. Rise, and the Fall of Carthage, 1815 and It is also used medicinally in the East 1817, showing his transition from this as a carminative. which the Bay of Baix, Caligula's Bridge, and Childe Harold's Pilgrimage, painted between 1823 and 1832, are grand examples; and lastly, the Fighting Temeraire, painted in 1839, may be instanced as the indication of the point of final transition from the sublime to what was a hair-dresser, proposed to teach the boy that trade, but afterwards allowed him to follow his inclination, and in 1789 he entered the Royal Academy as a student. After remaining there for five years, and working actively at his profession for another five, during which period he sent to the exhibition no less than fifty-nine pictures, he was elected in 1799 an associate of the Royal Academy. In the two following years he exhibited fourteen pictures, and in 1802 was elected an academician. Till 1847. Educated at a private school in this date he had chiefly been known as clerkenwell, he was articled to and bethis date he had chiefly been known as Clerkenwell, he was articled to and bea landscape-painter in water-colors, but came an attorney in the Temple, but subthenceforth he turned his attention to sequently devoted his time to historical oil-painting, and in the ensuing half-century produced at the Academy ex-works are: History of the Anglo-Sasons hibitions upwards of 200 pictures. In (three vols., 1799-1805); History of

England (nine vols., 1799-1829); Saturnips. It is cred History of the World (three vols., meadows from Ap 1832); and Rickard Third, a poem be recognized by (1845).

Turnhout (turn-hout'), a town of also given to a hymenopter, the Athalia Belgium, province of Ant-centifolia. The larvæ of this fly, popuwerp, 26 miles E.N.E. of the town of Antwerp. It has manufactures of linen, woolen, and cotton fabrics, colored paper, playing-cards, and various other industries. Pop. (1904) 22,162.

Turning (turning), the art of giving circular and other forms to

articles of wood, metal, bone, ivory, etc., by making them revolve in various manners in a machine called a lathe, and applying cutting instruments so as to produce the form required; or by making the cutting instrument revolve when the substance to be operated upon is fixed.

See Lathe.

Turnip (tur'nip), the common name of the Brassica Rapa, a cruciferous, biennial plant, much cultivated on account of its esculent root, and of the same genus as the cabbage, cauliflower, and broccoli. The turnip, as a culinary vegetable and as a cattle food, was well known to the Greeks and Romans. The root is generally used as a

Turnip.

culinary vegetable in all temperate climates. and in some countries the vegetable is cultivated on a large scale for feeding stock, the root being invaluable for this purpose. In the field culture of the larger-rooted va-rieties the most advantageous mode vantageous mode is by drills. The roots of the turnip have often a tendency to divide and become hard and worthless — a condition known as finger-and-toe, or dactylorhiza. The dactylorhiza. plant thrives best on a rich and free soil and in moist cloudy weather. There are

several varieties, all_apparently the result of cultivation. The Swedish turnip, which forms a valuable field crop, is probably a hybrid between B. campestris and B. Rapa or Napus, rape. B. Napus yields rape, cole, or colza seeds, from which a well-known fixed oil is expressed.

Turnip-fly, Turnip-flea, the Haltica nemorum, a small coleop-

common in British meadows from April to October, and may be recognized by two yellow stripes on its wing-cases. The name turnip-fly is



Striped Turnip-fly (Haltica nembrum). a.a., Natural size. b b, Magnified. c, Larva, natural size.

larly known as niggers, are very destructive to the leaves of the turnip. Turnpike (turn'pik), a gate that may be set across a road, and is watched by a person appointed for the purpose, in order to stop carriages, carts, wagons, etc., and sometimes travelers, till toll is paid, for the cost and upkeep of the road. Such roads are called turnpike-roads, or simply turn-pikes, and formerly were common in the Atlantic States, but recently tolls on roads have been very largely abolished. See Roads.

Turnspit (turn'spit), a name given to a variety of terrier dogs, from their being trained to turn the spits or roasting-jacks in mansions. The breed is now practically extinct.

Turnstone, a grallatorial bird of the plover family (Strepsilas collaris.) The length of the bird is about 9 inches. It takes its name from its practice of turning up small stones in



Turnstone (Strepeilas collàris).

search of the marine worms, minute crustaceans, etc., on which it feeds. It appears in most parts of the globe, and is found throughout North America, on the Atlantic and Pacific coasts.

Turn-table, in railways, a circular platform of iron and wood, supported on rollers, and turning terous insect, very destructive to young upon a center without much friction, even



when loaded with a considerable weight. Turret (tur'et), in architecture, a It is used for removing single carriages kind of small tower. Turrets from one line of rails to another, and also for reversing engines on the same line of rails.

Turpentine (turpen-tin), an oleo-resinous substance flowresinous substance flowing naturally or by incision from several species of trees, as from the pine, larch, fir, pistacia, etc. Common turpentine is obtained from the *Pinus sylvestris* or Scotch fir, and some other species of pine. Venice turpentine is yielded by the larch, *Laris Europæa*; Strasburg turpentine by *Abies picea* or silver fir; Bordeaux turpentine by *Pinus maritima* or maritime pine; Canadian turpentine, or Canada balsam, by *Abies balsamifera* or balm of Gilead fir; and Chian turpentine by *Pistacia Terebinthus*. All the tine by Pistacia Terebinthus. All the turpentines dissolve in pure alcohol, and by distillation yield oils which are termed spirits of turpentine. Oil or spirits of turpentine is used in medicine externally as an excellent rubefacient and counter-irritant, and internally as a vermifuge, stimulant, and diuretic. It is also much used in the arts for dissolving resins and oils in making varnishes. Large quantities of it are obtained from the pine forests of the South Atlantic States.

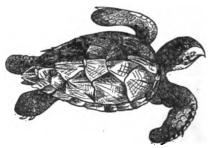
Turpentine-tree, the name given to some species of trees of the genus Pistacia, nat. order Anacardiaceæ, which yield turpentine, as the P. Terebinthus, the Chian or Cyprus turpentine tree, P. lentiscus, the Mount Atlas mastic or turpentine-tree, etc. See Pistachio.

Turpeth (tur'peth), the root of Convolutes Turpethum or Ipomæa Turpethum, a plant of Ceylon, Mahabar, and Australia, which has a cathartic property. It is sometimes and the control transfer to distinct in the control transfer. cathartic property. It is sometimes is used to ramps and for dressing realier. called vegetable turpeth, to distinguish it The hawk's-bill turtle (*C. imbricata*) is remarkable for the beautiful imbricated Turpeth-mineral (Hg SO₄ 2 Hg horny plates covering the carapace, and O), a name given constituting the tortoise-shell of comto the yellow basic sulphate of mercury. It acts as a powerful emetic, but it is not now used internally. It is a very useful errhine in cases of headache, amaurosis, etc.

Turquoise (tur'koiz, tur'kwas), a cious stone, consisting essentially of a and more slender than the domesticated phosphate of alumina, containing a little pigeons, and their cooing note is plaintive oxide of iron and oxide of copper. The and tender. true or oriental turquoise, a favorite or-namental stone in rings and other articles of jewelry, is found only in a mountain region of Persia, and was originally brought into Western Europe by way of Turkey (hence the name).

are chiefly of two kinds, such as rise immediately from the ground, as staircase turrets, and such as are formed on the upper part of a building by being car-ried up higher than the rest. See Ironclad Vessels. Turret-ship.

Turtle (tur'tl), the name given to the marine members of the order Chelonia, being reptiles which differ but little from tortoises, the name turtle or tortoise being in some cases applied in-differently. They are found in all the seas of warm climates, and feed chiefly on marine plants. The most important species is the green turtle (Chelonia mydas), which is from 6 to 7 feet long, and weighs from 700 to 800 pounds. Its flesh is highly esteemed as a table luxury.



Hawk's-bill Turtle (Chelone imbricate).

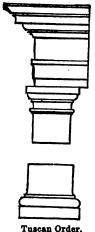
It is a native of the tropical parts of the Atlantic as well as of the Indian Ocean, being especially abundant near Ascension Island. The logger-head turtle (Chelone or Chelonia caretta) yields an oil which is used for lamps and for dressing leather. horny plates covering the carapace, and constituting the tortoise-shell of commerce. See *Tortoise*.

Turtle-dove (Turtur communis), a small variety of pigeon, about 11 inches in length, color pale brown marked with a darker hue above, a purple tinge pervading the feathers of the breast. They are in general smaller and more slender than the domesticated

Tuscaloosa (tus-kå-lö'så), a city, capital of the county of that name, Alabama. It was once the capital of the state. It is situated on the Black Warrior River, 56 miles s.w. of Birmingham. Here is the University

of Alabama and various other educational institutions. It is engaged in the coal and iron industries, has cotton manufacof Alabama and various other educational Tusculum (tus'kö-lum), an ancient institutions. It is engaged in the coal and iron industries, has cotton manufactures, and is an important cotton shipping miles s. E. of Rome. It was the birth-place of the colder Cotton and its contents. center. Pop. 8407.

Tuscan Order of Architecture,



one of the five orders architecture, according to Vitruvius and Palladio. It admits of no ornaments. never fluted. Otherwise it differs so little, however, from the Doric, that it is generally regarded as being only a variety of the latter. See Doric.

Italy; area, 9289 Bengal silk-worm. See Silk. square miles. Pop. Tragilogo (tus-si-la'zō)

Tuscan Order.

a considerable portion of its northern boundary, the sea being its boundary on the west. The principal river is the Arno. Cereals cover a large area, and vineyards, oliveyards, and orchards are numerous. The manufacture of silk is considerable. The marble of Tuscany, especially that of Siena, is well known. Tuscany corresponds to the ancient Etruria, which was, however, of wider Etruria, which was, however, of wider extent. (See Etruria.) After the fall of the Western Empire (476) it passed successively into the hands of the Ostrogoths, Byzantine Greeks, and Lombards. Charlemagne made it a French province, and it was governed by marquises or dukes until the twelfth and thirteenth centuries, when it became broken up into a number of small republics, four of a number of small republics, four of which were Florence, Pisa, Siena, and Lucca. From the first Florence occupied the leading place, and it gradually ex-tended its territory. In 1569 Pope Pius I granted to Cosmo I the title of Grand-I granted to Cosmo I the title of Grandduke of Tuscany, and this position was
September, and emerges as a moth in
retained, with interruptions, by the
Medici family (which see) until 1737,
When it passed to Francis Stephen, duke
of Lorraine. In 1859, when under his
descendant, the grand-duke Leopold, it
was annexed to Sardinia by a popular
vote, and in 1861 became, with Sardinia,
part of the kingdom of Italy.

Mericany, and this position mer, becomes a nairy chrysalis about
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the following spring.

Tutenag
(tu'te-nag), Chinese white
copper, an alloy of copper
copper, an alloy of copper
copper, an alloy of copper
copper, an alloy of

place of the elder Cato, and a favorite residence of Cicero. Many fine remains have been dug up in recent times, among them being the so-called Villa of Cicero, the Forum, theater, amphitheater, and ancient castle or citadel.

Tuskegee Institute (tus-kē'gē), a and the columns are al, non-sectarian institution at Tuskegee, Alabama, founded by Booker Washington in 1881 for the instruction of colored students in industrial pursuits. Aided by charitably disposed persons and managed with burneys block a billing it has been seen as a second with the state of the second with the aged with remarkable ability, it has played an important part in the develop-ment in industry of the negroes of the South. It has now 167 instructors and over 1600 gtudents, with an endowment Tuscany (tus'ka- over 1600 studenow, ni; Ital- of nearly \$2,000,000.

ian, Tososna), for Tussar-silk (tus'ar), or Tussar-merly a grand-duchy, now a department of tained from the cocoons of a wild native

square miles. Pop. Tussilago (tus-si-la'go), colt's-foot, a about 2,500,000. The Tussilago g e n us of broad-leaved about 2,500,000. The chain of the North-plants, nat. order Composites, sub-order ern Apennines forms Corymbifers. The species are natives a considerable portion of its northern (common colt's-foot) is found in the being its boundary Northern and Middle States. See Colt'sfoot.

Tussock-grass (tus'uk; Dactylis caspitosa), a large grass, of the same genus as the cock's-foot grass of the United States, a native of the Falkland Islands, Fuegia, and South Patagonia. It grows in great tufts or tussocks sometimes 5 to 6 feet in height, the long tapering leaves hang-ing over in graceful curves. The plant is a useful food for cattle, and several attempts have been made to establish it for that purpose.

Tussock-moth, a grayish-white moth about an inch long, the caterpillars of which do great mischief in hop grounds, and are known as hop dogs. The caterpillar is delicate green in color, with brush-like tufts of yellow hairs on several of the segments. It feeds on leaves throughout the summer, becomes a hairy chrysalis about September, and emerges as a moth in the following spring.

(tů'tur), (1) in many universi-Tutor tites, the name given to scholars attached to the various colleges, by whom, assisted by private tutors, the education of the students is chiefly conducted. They are selected from the college. (2) In Scots law, the guardian of a boy or girl in pupilarity. By common law a father is tutor to his children. Failing him there may be three kinds Failing him there may be three kinds of tutor, a tutor-nominate, a tutor-at-law, or a tutor-dative.

Tuttlingen (töt'ling-en), a town of Würtemberg, on the Danube, near the Baden frontier. Pop. (1905) 14,627.

Tutuila (tö-tö-e'la), one of the largest of the Samoan or Navigators' Islands. It rises about 2000 feet above the sea, is covered with vegetation, and has the excellent harbor of Pango Pango, or Pago Pago. It was annexed to the United States in 1899. Pop. about 4000. Tuyere (tû-yêr', or twê'yār). See Blast-furnace.

Tver (tvyār), a town of Russia, capital of the government of the same name, situated in a plain on the Volga, 96 miles northwest of Moscow. It conby miles northwest of Moscow. It consists of the Kremlin or fortress, surrounded by an earthen wall, and the town proper. The manufactures are numerous and varied. Pop. 45,644.— The government of Tver has an area of 25,225 square miles, and a population of 2,053,000. Rye, barley, hemp, and flax are largely cultivated, and the forests are extensive. extensive.

Twain, MARK. See Clemens.

an oasis group in the Sahara, southeast of Morocco, to which Twat, it is considered as belonging. The inhabitants are about 300,000 in number, partly Arabs, partly Berbers, and are fanatical Mohammedans.

Tweed (twed), a river of Scotland, which rises in the south part distance, and then enters the North Sea at Berwick; total length, 97 miles. Its waters abound with salmon and trout, and its name is celebrated in connection with some of the best literature of Scotland.

Tuticorin (tö-të-kor'in), a seaport of India, a terminus of the South Indian Railway, 33 miles east of Tinnevelly, Madras. The roadstead is good, and the trade considerable. Pop. spirit was William M. Tweed, who be-28,048. came the head of the Tammany organizacame the head of the Tammany organiza-tion. He was brought to trial in 1873 and sentenced to prison for 12 years. He escaped in 1875, but was captured and brought back, and died April 12, 1878. Twelfth-day, the twelfth day after Christen of Epipheny which is held the festival of Epiphany (which see). On the evening of this day, called Twelfth-night, various social rites and ceremonies are observed in difrites and ceremonies are observed in different countries. One of these is the
baking of a cake, into which a bean is
introduced, the person who receives the
bean being made king for the occasion.

Twickenham (twiken-am), a town
in Middlesex, England,
on the Thames, nearly 11 miles
s. w. of London. In the 18th century
it was a fashionable resort. Pop. 29,374.

Twilight (twi'lit), daylight which
continues after sunset, occasioned by the reflection of sunlight from sioned by the reflection of sunlight from the higher parts of the atmosphere which are still illuminated after the sun has become invisible from ordinary heights, and which contain floating matter which reflects the sun's beams. It is supposed to last till the sun is about 18° below the horizon, but is much influenced by the state of the atmosphere as to clouds, etc. The light preceding sunrise is also given this name. In low altitudes (that is, near the equator) there is little twilight. Twilight Sleep, a method of induc-birth, worked out in the medical clinic of the University of Baden, and in 1914 reported to have been used successfully in 5000 cases in Freiburg, Germany. The 'twilight sleep' is a borderland condition between sleeping and waking induced has between sleeping and waking, induced by the hypodermic injection of a small quan-tity of a combination of two drugs, scopolamine and morphine, which produces an unusual delicately balanced condition of consciousness in which the body loses all sense of pain, but retains the power of muscular contraction.

of Peeblesshire, forms the boundary line between England and Scotland for 16 miles, runs through England for a short and under the warp-threads in regular distance, and then enters the North Control of the control of succession, as in common plain weaving,

but pass over one and under two, over one and under three, etc.

Twin Falls, a city, county seat of Twin Falls Co., Idaho, near the Snake River, 120 miles S. w. of Tweed Ring, a political combination Pocatello. It is in an agricultural district. Pop. 8000.

He was educated at Oxford; became a fellow and tutor in his college; was appointed successively professor of political economy at Oxford (1842-49): professor of international law, King's College, London (1852-55); professor of where, after fire and pillage, they were civil law in Oxford (1855-70); and advocate-general of the crown (1867-72). His chief works are: The Oregon Question Examined (1846), View of the Progress of Political Economy in Europe (1847), Lectures on the Science of International Law (1856), the Law of Nations (1863), and Belligerent Right where, for his apparent insolence in the royal presence, he was stabbed by William (1857).

Tyburn (ti'burn), a turnpike at the west end of Oxford Street, London, noted for the public executions of man and civilization: became president and civilization and civilization.

Tyler (ti'ler), a town of Texas, capital of Smith Co., 19 miles N. W. tal of Smith Co., 19 miles N. W. of Troup. It has cotton and oil mils and other industries. Pop. 10,400.

Tyler, United States, was born in Virginia, March 29, 1790. He studied law, was elected to Congress in 1816, and in 1825 became governor of Virginia and also succeeded John Randolph as United States. Senator. He subsequently he-States Senator. He subsequently be-came identified with the Whig party, and in 1840 was elected Vice-President under the presidency of General Harrison. On Harrison's death in 1841 he succeeded as President, and as such came into col-lision with his party on the National Bank Bill and other questions. The an-

Twin Screw, a propeller of a steamvessel, composed of
two separate and parallel screws which
fessor of English literature in Michigan
revolve in opposite directions, thus giving increased power over a single screw literary editor of The Christian Union,
propeller. The twin-screw system is
1872-74. He became priest in the
normany modern vessels.

Twiss, SIR TRAVERS, born in Westminster, England, in 1810.

He was educated at Oxford; became a
fellow and tutor in his college; was appointed successively professor of political economy at Oxford (1842-49); proof 1881 against the poll-tax (which see).

Tyburn (tf'burn), a turnpike at the land, in 1832. He devoted himself with much success to researches in the history for the public executions of man and civilization; became president of metropolitan malefactors which long took place near it. The turnpike was dent of the Anthropological Society, took place near it. The turnpike was removed in 1829.

Tyche (tf'kē). See Fortuna.

Tyco Brahe. See Brake.

Tyco Brahe. See Brake.

Tyler (tf'er), a town of Texas, capitand for the Early History of Mankind; Primitive Culture; and Anthropology. He was made professor of the Troup. It has cotton and oil mills Tympannum (tim'panum). (1) a

Tympanum (tim'pa-num), (1) a cavity of an irregular shape situated in the ear. (See Ear.) (2) In architecture, the triangular space in a pediment included between the cornices of the inclined sides and the horizontal cornice; also, any similar space, as above a window, or the space included between the lintel of a door and the arch above it. The tympanum is often ornamented with carving or sculpture.

Tyndale, WILLIAM. See Tindall, William.

Tyndall (tin'dal), John, physicist, born in 1820 at Leighlin Bank Bill and other questions. The anaexation of Texas was the chief event of his term of office, at the end of which he retired into private life. On the outbreak of the Secession war he espoused the cause of the South, and was a member of the Confederate congress. He died in Richmond in January, 1862.

Tyler, Moses Coit, historian, born at Tyler, Griswold, Connecticut, in 1835. along with Huxley, and made repeated He graduated at Yale University in 1857, investigations in that country subse-

quently; lectured throughout the United States in 1872; and presided over the British Association in 1874 at Belfast. His chief works are: The Glaciers of the Alps (1860); Heat Considered as a Mode of Motion (1863); On Radiation (1865); Sound (1865); Light (1870); The Forms of Water (1872); Floating Matter in the Air (1881), etc. He died December 4, 1893.

Tyne (tin), a river of England, formed by the junction near Hexham of the North Tyne, which rises in the Cheviota, and the South Tyne, which rises in the east of Cumberland. The united stream enters the sea at Tynemouth after a course from Hexham of nearly 30 miles. The Tyne has, since 1854, here the subject of large engineer. 1854, been the subject of large engineering operations, consisting of extensive dredging, the construction of piers at its mouth, the formation of large docks, and the building of a swing-bridge at Newcastle. These improvements have resulted in a great increase in its trade. See Newcostle-on-Tyne.

See Newcastle-on-Tyne.

Tynemouth (tin'mouth), a borough of England, county of Northumberland, at the mouth of the Tyne on its north bank. There are many handsome buildings, a parade nearly a mile long, the ruins of a picturesque old priory, an aquarium, wintergarden, baths, etc., and the place is much frequented for sea-bathing. The port of North Shields and several villages are included within the borough. Pop. 58, 822. 822.

smooth surfaces; the term is also used collectively. Types must be all of a uni-form height, and perfectly true in their

shown in figure are notches made on one side of the type to assist the compositor in dis-tinguishing the bottom from the top; the groove (e) is a channel made in the bottom of the type to make it stand steadily. From the character of the letters types are known as CAPITALS, small

or lower-case letters, italics, scripts, etc. From their size they receive the following names, the titles ranging from brilliant, which, however, is rarely used, to English, the largest type used in ordinary book work:—

Brilliant........ Willem Coates was the first Be DiamondWilliam Oneten was the Stret Backleb Pri PearlWilliam Caxton was the first English Pri RubyWilliam Caxton was the first Englis NonparellWilliam Caxton was the first Englis Minion William Caxton was the first Eng Pica.....William Caxton was English......William Caxton
Brovier.......Black Letter or Gld English

Late in the nineteenth century the point' system was adopted generally by printers. The old names with their nearest equivalent in the point system are as follows:

Brilliant	point
Pearl	4
Nonpareil 6	"
Minion	4
Bourgeois	"
Small Pica	44 44
English14	4

Types are made by casting (which is Type (tp), a rectangular solid of now done by machinery), the letter being metal, wood, or other hard material having a raised letter, figure, and the punch then driven into a piece punctuation mark, or other character on of copper, which forms the matrix or that upper end, which, when inked, is used bottom of the mold intended to produce to make impressions on paper and other the letter. Type-metal is an alloy of smooth surfaces; the term is also used lead, antimony, and tin. See Printing. Type-setting Machine,

angles, otherwise they could not a mechanical device for setting type. be locked firmly together to be machine for this purpose was pater printed from. The nicks d d d in England as early as 1794, but a mechanical device for setting type. A machine for this purpose was patented in England as early as 1794, but the first in any way available was the Churd machine of 1822. This cast the types as well as set them. Various other machines were subsequently produced, but it was not until the last quarter of the century that any was invented that the century that any was invented that competed profitably with hand-setting. Of those now in use that set previously-cast types, there are two which may be named, the Thorne and McMillan machines. The first of these sets and distributes the type, while the second has separate machines for setting and distributing. Of type-casting machines. tributing. Of type-casting machines, there are two in common use, the

Merganthaler and the Lanston. The feet, eyes, or ears. It is a native of Merganthaler machine, perfected in 1884, is known as the Linotype, from the fact Typhoid Fever (tt'foid), called also that it casts a line of type instead of single types. It has long been widely used in newspaper offices and is now sembling typhus, but essentially different. largely employed in book setting. The Lanston, known as the Monotype, casts the bowels, and is not infectious in the single types, a keyboard being used as in the Linotype, each key controlling one person to another by breath or by the casting of a special type-letter, mark, space, etc. This is in considerable use, and there are other single-type machines on the market.

Typhaceæ of monocotyledonous no delirium. In the treatment of the plants, characterized by their calyx being three-sepaled and half-glumaceous, or a mere bundle of long hairs, by their calyx being lax filaments, clavate anthers, solitary pendulous ovules, and peculiar habit. The order includes two genera, which are abundant in the northern parts of the world. They are herbaceous ditches. See Reed-mace.

Typhline (tif'lin), a curious lizard belonging to a family in which the eyes and ears are hidden under the skin. In the typical species, the common typhline (or blind acontias—Typhline Cwvierii), the limbs are entirely wanting, and the animal looks utterly helpless, having no apparent legs,

Lanston, known as the Monotype, casts the bowels, and is not infectious in the single types, a keyboard being used as sense that it can be communicated from in the Linotype, each key controlling one person to another by breath or by the casting of a special type-letter, mark, space, etc. This is in coasiderable use, and there are other single-type machines on the market.

Typewriter, a machine intended to be used as a substitute for the pen, and by which the letters are produced by the impression of inked used to wash milk dishes. When these types. The essential elements in such germs gain access to the alimentary canal machines are a movement to bring the transport of the machine has a series of letter being into position, an inking device, an impression movement, and means for letter and line spacing. A successful form of the machine has a series of letter keys arranged in rows, to be worked by the fingers of both hands, a letter being the machine lass a series of letter being fine printed on the paper (which moves automatically) each time a key is struck. In recent years many type-writers have been brought before the public, such as a lever to which is attached a capital commond, Bar-Lock, etc., and improvements are made from time to time. In these there are two rows of keys, 29 in all. Each key works a lever to which is attached a capital eleters and the figures are brought into play by means of two small shift stops, and the printing as it is performed is in full view of two small shift stops, and the printing as it is performed is in full view of two small shift stops, and the printing as it is performed is in full view of two small shift stops, and the printing as it is performed is in full view of two small shift stops, and the printing as it is performed is in full view of two small shift stops, and the printing as it is performed is in full view of two small shift stops, and the printing as a ten devertion of the bowels may take the operator. In others, as the Caligraph, Yost, and Smith Premier, there ducible.

Typhaceæ (ti-fa'se-ē), a nat. order the bowels, no spots on the skin, and of monocotyledonous no delirium. In the treatment of the plants, characterized by their calyx bedisease the most important thing is the



Japan and the neighboring archipelago. Tyrant (tf'rant), originally, in an-They occur from May to November, but clent Greece, one who had are most frequent and disastrous during usurped the ruling power without the the months of July, August, and Sep-consent of the people or at the expense tember.

Typhus Fever (ti'fus), known also as hospital fever, transmitted by germs carried by lice or other vermin. Free ventilation is the least favorable condition for the spread of typhus. Before the symptoms show themselves a period of from five to twelve days may pass after the person is infected. Then there is generally a shivering, followed by a hot, dry skin, a suffused condition of the eyes, a small pupil, thirst, a dull, stupid expression, event prostration and contive howels. great prostration, and costive bowels. About the seventh day a rash of irregushown by the patient falling into a sound sleep, from which he awakes with the fever gone. In unfavorable cases the prostration increases, the feverishness is heightened, convulsions may occur, and at length the patient sinks into uncon-sciousness. The treatment consists in

Tyrannus (tI-ran'us), a genus of in-sessorial birds. The best-known species is the tyrant fly-catcher (T. Carolinensis), which is remarkable for its bold and pugnacious disposition. It is a native of the United States, feeds on insects, and is not afraid to attack birds of prey much larger than itself. It is also called tyrant-shrike and king-

of the existing government. Such a ruler, although he obtained his power illegally, did not always use it oppresas hospital fever, illegally, did not always use it oppres-jail fever, etc., is essentially a fever of sively and violently; on the contrary, it the poor, ill-fed, and badly-housed in-habitants of large cities. It is infec-tious, and the infection is believed to be transmitted by germs carried by lice or ern times the word has a different other vermin. Free ventilation is said significance, indicating a cruel or oppressive ruler.

Tyrant Fly-catcher. See Tyran-

Tyre (tir), one of the most celebrated cities of ancient Phœnicia, and with its elder sister, Sidon, long a great trading mart. It was built partly on an island and partly on the mainland; and the insular fortifications formed its chief strength when besieged and taken About the seventh day a rash of irregu-chief strength when besieged and taken lar spots and of a dusky hue appears by Alexander the Great in B.C. 332. A over the chest and back, but sometimes mole or causeway then constructed to this is entirely absent. As the disease the island was the origin of the isthmus advances the patient's strength becomes which now connects it with the mainexhausted, the urinary secretion is land. Tyre was famous in the tenth scanty, if not entirely suppressed, decentury B.C. under Hiram, the friend of lirium sets in, and the disease is often Solomon; was besieged in vain by the complicated by bronchitis, pneumonia, or Assyrians in 725-720 B.C., and by pleurisy. About the fourteenth day, in Nebuchadnezzar, 585-572 B.C., and refavorable cases, the turn of the fever is mained an important place till it came mained an important place till it came mained an important place till it came into the hands of the Turks. It was famous for a dye (the Tyrian purple) obtained from the shell-fish Murcs (which see). The modern Tyre or Sur is an insignificant place of 6000 inhabitants, under the government of Beirut. See also Phanicia.

at length the patient sinks into unconsciousness. The treatment consists in keeping the patient in a well-ventilated room, and preventing exhaustion by a light and wholesome diet. Milk, beefught and west by should be given to the patient in small quantities at short intervals.

Typography (ti-pogra-fi). See Typography (ti-pogra-fi) in magnificence of scenery Typol is only inferior to Switzerland, east by Salzburg and Illyria, south, east, and west by Venetia and Lombardy; area, 11,325 square miles. In magnificence of scenery Typol is only inferior to Switzerland, of which it is a continuation. The Alps enter it from the government of Palact See also Phamicia.

Typol (tir'ol), or Tirot', a province of Austria (including Typol proper and Vorarlberg), is bounded north by Switzerland, east by Salzburg and Illyria, south, east, and west by Venetia and Lombardy; area, 11,325 square miles. In magnificence of scenery Tyrol is only inferior to Switzerland, of which it is a continuation. The Alps enter it from the government. is the only navigable river; that of South Tyrol is mostly conveyed to the Adriatic by the Adige. About one-third of the surface is practically inaccessible, another third is occupied by forests. The vine and cereals are cultivated, and minerals, especially iron and salt, are extensively worked. Silk, metal wares, wood articles, lace, and embroidery, are

among the manufactures. Innsbruck. Pop. 850,062. Tyrone in the province of Ulster; by Londonderry, Donegal, bounded by Londonderry, Donegal, Armagh, Monaghan, and Fermanagh; area, 1260 sq. miles. The surface is hilly, rising into mountains in the north and south, and declining to a level towards Lough Neagh. The soil in the lower districts is fertile, and the county is watered by numerous branches of the Royle and Research Foyle and Blackwater. Agriculture generally is in a backward state. Coal is mined to a small extent near Dungannon in the eastern portion of the county; linens, woolens, earthenware, whiskey, beer, chemicals, etc., are made. Principal towns, Strabane and Dungannon. Pop. 150,567.

Tyrone, a borough of Blair Co., Pennata River, 14 miles N. E. of Altoona. It has extensive coaling interests, railroad shops, lumber and paper mills, etc.

Pop. 8200.

Tyrrhenian Sea (tir-re'ni-an), the name given to the part of the Mediterranean Sea adjoining the southwest coast of Italy, and extend-ing to Corsica, Sardinia, and Sicily.

Tyrtæus (tir-tē'us), a Greek lyric poet of the seventh century B.C., a native of Attica, celebrated for his war songs written for the Spartans.

mons (1761-67); and in 1784 was ap- James the First, etc.

The capital is pointed a curator of the British Museum. manufactures. The capital is pointed a curator of the British Museum.

Pop. 850,062.
Among his writings were: Observations on some Passages of Shakespere (1766); in the province of Ulster; an edition of Chaucer (1775); and an edition of the so-called Rowley's Poems, in the appendix of which he exposes the gag. miles. The surface is fraud of Chatterton.

Tyssens (trees), Peter, a distinguished Flemish painter, born at Antwerp in 1625; died in 1692. He excelled both in portraits and historical painting. Among the latter is The Assumption of the Virgin.— His sons, NICHOLAS and AUGUSTINE, were also talented artists, the former painting birds and flowers, the latter landscapes of great

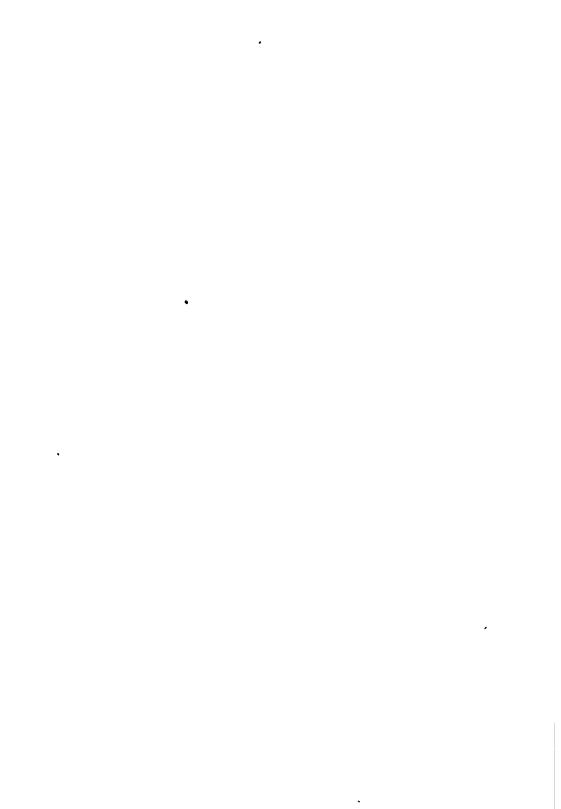
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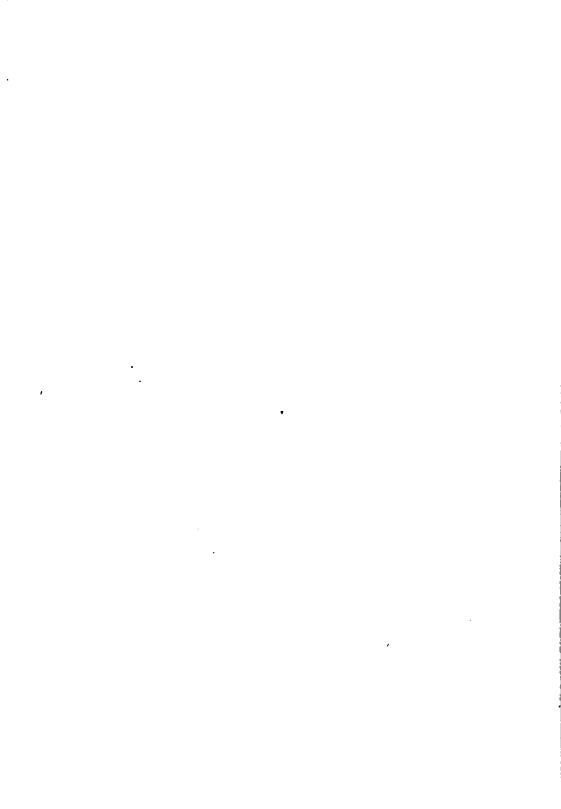
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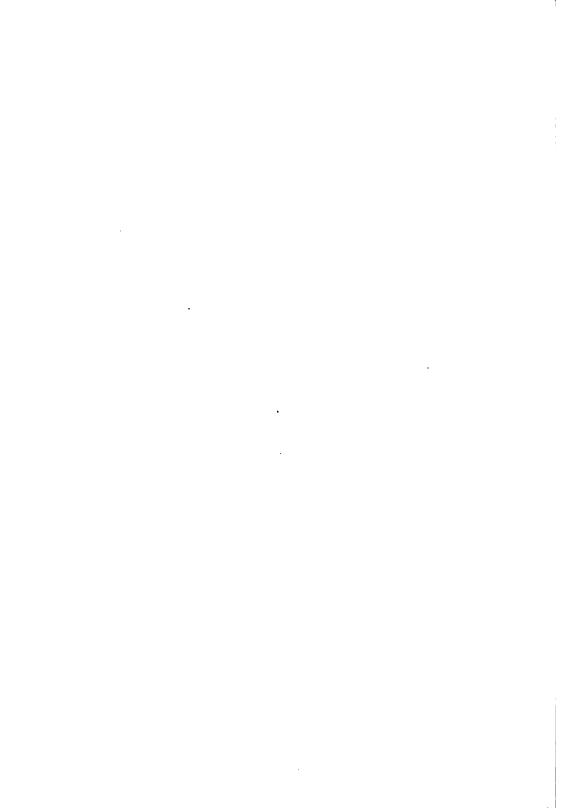
Tytler, Patrick Fraser, fourth son Tytler, of Alexander Fraser Tytler (Lord Woodhouselee), was born at Edinburgh in 1791, and died in 1849. He was educated at the University of Edinburgh, became a lawyer, and finally engaged in literature, writing his chief work, the History of Scotland, 1823-43. Among his other works are his biographies of the Admirable Crichton, Wicklyff, and Sir Walter Raleigh.—His father, ALEXANDER FRASER TYTLER (Lord Woodhouselee), Scotch judge, was born at Edinburgh in 1747; died in 1813. His chief work is the Elements of General History. He also contributed papers eral History. He also contributed papers to The Mirror, The Lounger, etc.—Lord Woodhouselee's father, WILLIAM TYTLER, of Woodhouselee, born in 1711; Tyrwhitt (ter'it), Thomas, born in of Woodhouselee, born in 1711; London in 1730; died in died in 1792, published an Inquiry into 1786. He was educated at Eton and at the Evidence Against Mary Queen of Queen's College, Oxford; became a fellow Soots, Criticisms of Hume's and Robert-of Merton; clerk to the House of Com-son's Histories, the Poetical Remains of



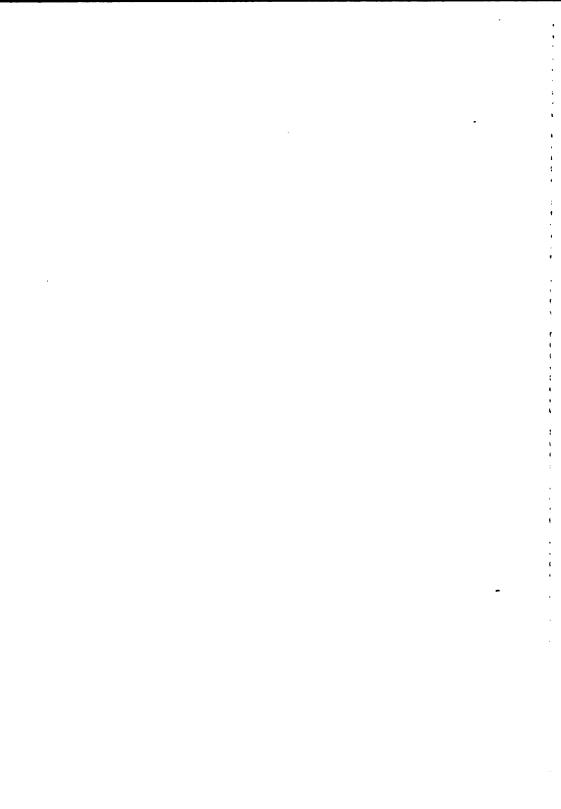
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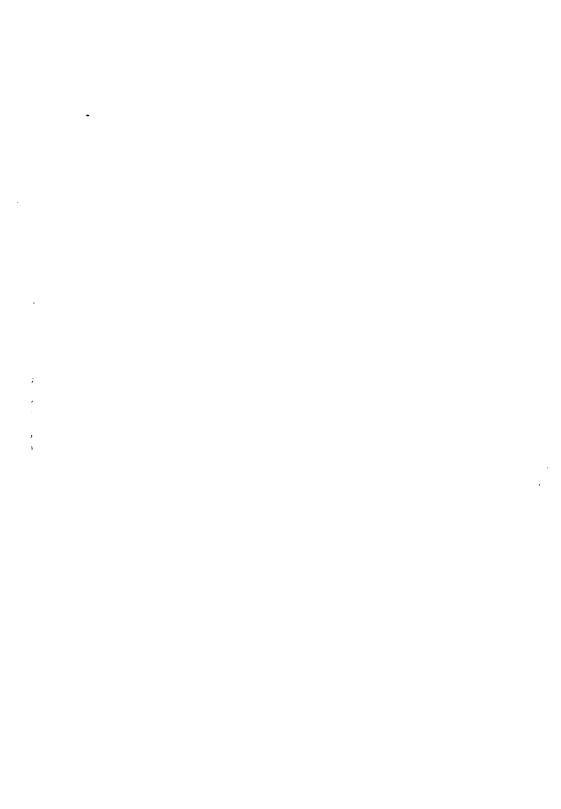






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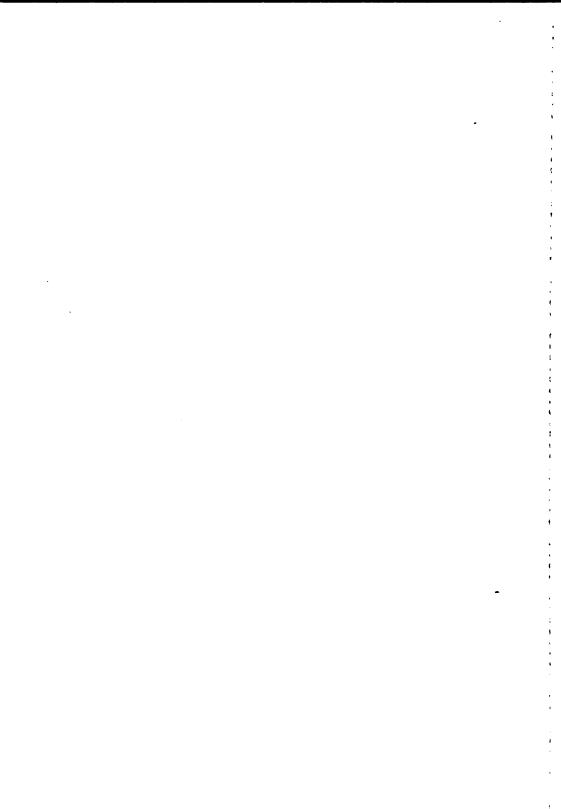
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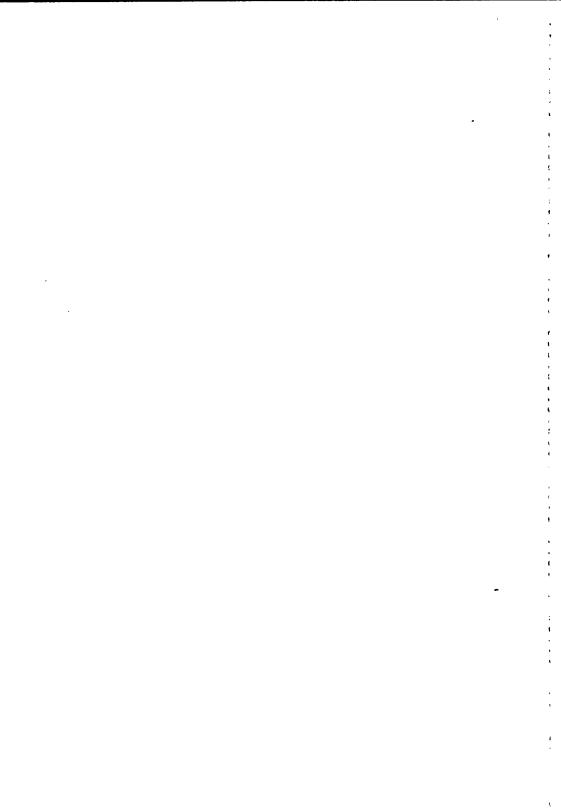


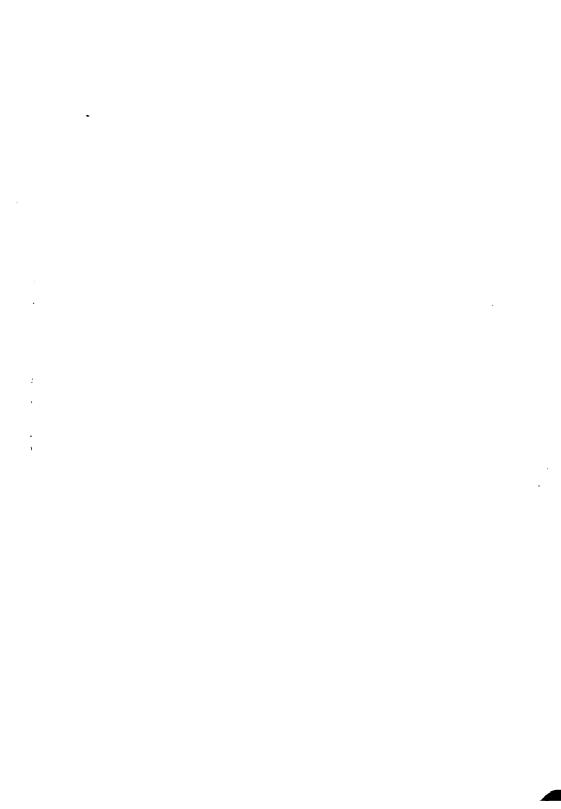
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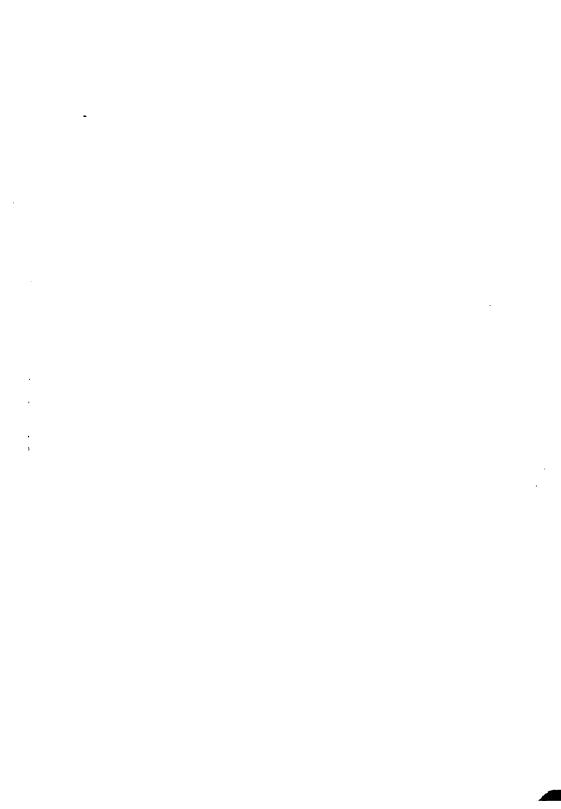


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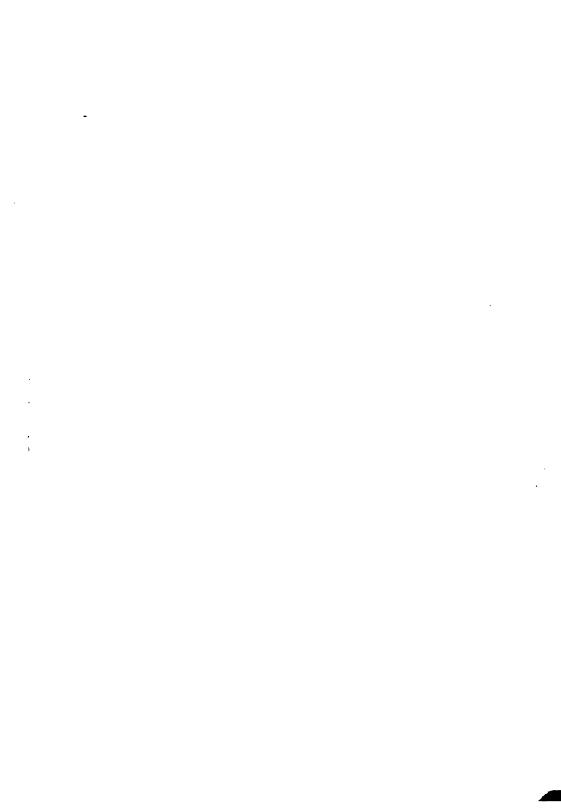




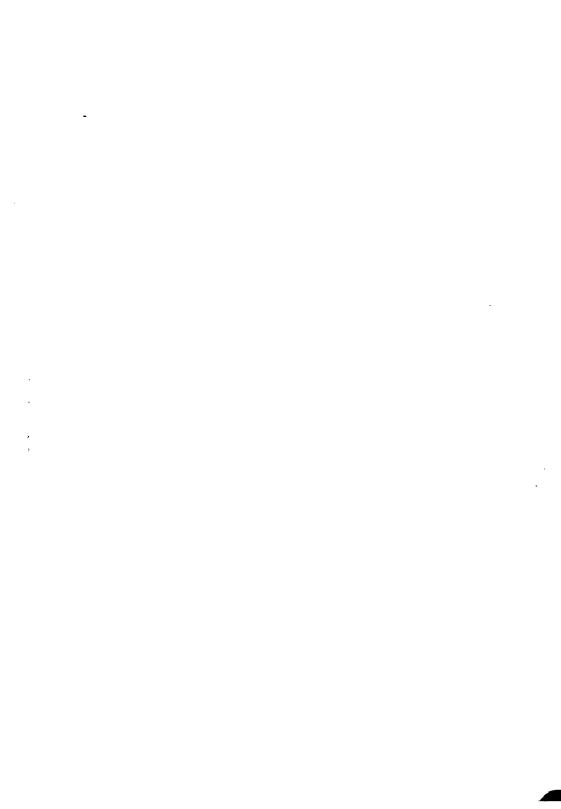
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true primary sound was that which it still retains in most of the languages in Europe, that of oo in cool, tool, good, wood, etc., answering to the French os in tour, the sound being sometimes short, sometimes long.

Ubangi.

Theda (8-ba'da), a city of Spain, province of Jaen, on the right bank of the Guadalquivir. It contains a

Uberweg (ü'bèr - vāh), Friedrich, born in Rhenish Prussia in 1826; died in 1871. He studied at Göttingen and Berlin, and in 1862 was aptingen and berlin, and in 1802 was appointed professor of philosophy at Königsberg. He wrote A System and History of Logic (1875) and A History of Philosophy, both translated into English lish.

Ubes. St. See Setubal.

Ucayale (8-ka-gă'lē), or Ucaya'ı, a large river of Peru, one of the headwaters of the Amazon. It begins in the Apurimac, is upwards of 1000 miles in length, and is navigable by large vessels for 100 miles.

Udaipur (ö'de-pur), or OODEYPORE, a town in the northwest of India, capital of a native state of the same name in Rajputana, on a lake 2000 feet above sea-level, contains a notable royal palace, and exports turmeric, cotton, indigo, etc. Pop. 45,-595.—The state, which has an area of 12,670 sq. miles, came under the protection of Britain in 1817, and the rajah ranks highest in dignity among the Rajput chiefs. Pop. 1,030,212. Udal. See Odal Right, and Allodium.

Udall (n'dal), NICHOLAS, the author of Ralph Roister Doister, the first regular English comedy, born in 1506; died in 1556. He was master of Eton School from 1534 to 1541, and the play was written for performance by the scholars.

U, the twenty-first letter and the fifth tained till 1818. He was in favor at vowel in the English alphabet. Its court as a writer of pageants and interludes.

Uddevalla (ud-e-val'la), a seaport in the southwest of Sweden, at the inner end of the Byfjord. It has an active trade and textile manufactures. Pop. 9442.

(ö'dē-nā), a walled town of North Italy, capital of a prov-Udine ince of the same name and see of an archbishop, 60 miles northeast of Venice. It contains a castle (now a barrack), a Romanesque cathedral, bishop's palace, etc., and has manufactures of linen, silk, woolens, etc. Pop. (1914) 48,952.

Ufa (ö'fà), a government of Russia, separated in 1865 from Orenburg;

area 47,094 square miles. On the east, where it is bordered by the Southern Urals, the country is mountainous, wooded, provided with excellent pastures, worden, provided with excelent pastures, and rich in minerals. It is also well watered by the Bielaya, and has abundance of arable land on which good crops are raised. Pop. 2,620,600.—UFA, the capital, stands on the Bielaya, at the confluence of the Ufa, 735 miles east by north of Moscow. It is the see of a highon and has considerable manufactured. bishop, and has considerable manufactures and trade. Pop (1910) 103,485.

Uffizi Gallery (of fed ze). See

Uganda (ö-gän'dà), a country of British East Africa, to the N. w. of the Victoria Nyanza. It is a rich agricultural country with a mild and uniform climate, and the inhabitants are of a comparatively high type.
Within it, wholly or in part, are the
large lakes Victoria, Albert, Albert Edward, Kiogo and Rudolf. It was first visited by Speke and Grant in 1860, and is the seat of several mission stations.
Under King Mtesa, however, and his successor Mwanga, the Christians were persecuted, and Bishop Hannington was put to death by the latter. It is now a British protectorate, the British seat of administration being Entebbe, the native capital Mengo. Pop. estimated at 4,000,000.

Ugrians (ö'gri-anz), a term applied to the Finnic group of Turanian peoples, comprising the Lapps, Finns, and Magyars or Hungarians; their language is termed Ugrian.

Uhland (ö'lant), Johann Ludwig, poet, born at Tübingen in 1787; died in 1862.

Uhl, Edwin Fuller, statesman, born at Rush New York in 1841: died or some some kind of discharge. Ulcers of the soft parts of the body, either open to the surface or to some natural cavity, and attended with a secretion of discharge. Ulcers

1787; died in 1862.

Uhl, EDWIN FULLER, statesman, born at Rush, New York, in 1841; died in 1901. He studied law, became mayor of Grand Rapids, Mich., in 1890, and was made assistant Secretary of State in October, 1893; and during the sickness of Secretary Gresham was Acting Secretary of State. While in this office he was entrusted with the arbitration to settle the bounwith the arbitration to settle the boundary between Brazil and the Argentine

Republic. He was made ambassador to ministers of religions for ministers of religions described in February, 1896.

Uhlans (ö'lanz), a species of light trators of justice. Cavalry in the armies of the Ulfilas (ul'fi-las) Austrians, Russians and Germans.

Uhrichsville (yū'riks-vil), a city of Tuscarawas Co., Ohio, on Stillwater Creek, 9 miles s. E. of New

range of lofty mountains in Utah, which extend E. from the Wahsatch range, and occupy a large area. Some of the peaks reach an altitude of over 13,000 feet.

Uist (wist), two islands of the Outer the four gospels, and these are of the Hebrides, named North and South highest linguistic value. See Goths.

Uist. The people are principally engaged in fishing. Pop. about 9000.

Ullswater (ulz'wa-ter), the largest, after Windermere, of the Uist. The people are principally engaged in fishing. Pop. about 9000.

Titlanders (weet'lan-derz), out-

Uitlanders landers or foreigners, the length, 7½ miles. It is noted for its the Boers of the Trans- picturesque scenery. name given by the Boers of the Transvaal to the whites who lived in that country before its annexation to the British empire.

Ujjain

pus or some kind of discharge. Ulcers are of various kinds, as scorbutic, can-

Cerous, sorofulous, etc.

Uleaborg (ö'le-o-borg), a town of Russia, in the Grand-duchy of Finland, at the mouth of the Ulea, in the gulf of Bothnia. Pop. (1904) 17,737. Ulemas (û-lê'maz), the hierarchical corporation of learned men in Turkey, composed of the Imams or ministers of religion, the Muftis or doc-tors of law, and the Cadis or adminis-

Ulfilas (ulfi-las), ULPHILAS, or WUL-FILAS, a bishop of the Gothe of Mœsia, was born, it is supposed, in 311; consecrated bishop by Eusebius of Nicomedia, probably at Antioch, in 341; died at Constantinople in 381. He translated most of the Bible into Gothic (Meso-Gothic), employing the Greek of the Septuagint for the Old Testament, and a Greek text, different from the re-ceived text, for the New. Only some fragments of this translation have been preserved, including the greater part of

English lakes, 8 miles N. of Windermere;

Ulm (ulm), a strongly fortified town of Würtemberg, 45 miles s. s. E. of Stuttgart, on the left bank of the Danube, on both sides of which there (ö-jān'), a town of India, in Danube, on both sides of which there Scindia's dominion, 350 miles are important fortifications. It is an northwest of Bombay, surrounded by a old town, irregularly built, with narrow stone wall with round towers. It was winding streets, and has a cathedral in one of the seven ancient holy cities of the the old Gothic style, one of the largest Hindus. Pop. 39,892.

Ukraine (ukrain), a region in the spire in the world (530 feet—completed south of Russia along the in 1890). Its manufactures include northern shore of the Black Sea; called also Little Russia, to distinguish it from White Russia lying further north along Ulm in 1805, when General Mack surrenthe border of Austria-Hungary, and Great dered to Napoleon, was the turning-point Russia, which centers around Moscow of the campaign in Austerlitz. Pop. 56,100. the border of Austria-Hungary, and Great dered to Napoleon, was the turning-point Russia, which centers around Moscow of the campaign in Austriltz. Pop. 56,100. and Petrograd. It formed the Russian governments of Kief, Chernigof, Podolsk, Karkof and Poltava. When Nicholas II genus Ulmus or elm is the type It is was deposed and the communal system of nearly related to Urticacese (the nettles), government was inaugurated under the from which it differs only in having a leadership of Lenine (q, v), the Ukraine two-celled fruit and hermaphrodite peoples declared themselves independent flowers. It consists of trees and shrubs,

which have scabrous, alternate, simple, by heating sulphide of sodium with a deciduous leares and fugacious stipules. mixture of silicic acid and alumina. See Arm. Ulna.

Ulphilas. See Ulfilas.

Ulrici (ul-re'tse), Hermann, a German philosopher, born in 1806; man philosopher, born in 1806; died in 1884. Having studied at Halle and Berlin, in 1834 he was appointed professor of philosophy at Halle University. His principal works are: A History of Greek Poetry (1835), Shakespere's Dramatic Art (1839), The Fundamental Principle of Philosophy (1845-46), Compendium of Logic (1860), God and Nature (1862), Body and Soul (1866), Elements of Practical Philosophy (1873). (1873).

Ulster (ul'ster), the most northerly of the four provinces of Ireland, 8613 sq. miles in area. It is mountainous in part, the heights reaching 2800 feet. The coast is bold and rocky. In the north is the famous Giant's Causeway. This province is the chief seat of the Irish linen manufacture, and shipbuilding is actively carried on at Belfast. Pop. 1,581,350.

Ulster King of Arms, the prin-land of Ireland, and of the order of St. Patrick. This office was created in 1552. Ultima Thule (Uppermost Thule), a name given in ancient times by the inhabitants of Southcient times by the inhabitants of South-ern Europe to the remote regions of the unknown North. The Greek navi-gator Pytheas (who probably lived in the latter part of the fourth century B.C.) made a voyage along the coast of Britain and wrote an account of what he learned about the Shetland and Orkney Islands and possibly the N. mainland calling the region Thule. The name became vague in its application, especially under the form Ultima Thule. Norway, Ireland, etc., bore the title in turn; and many strange superstitions were current regarding the region.

Ultimatum (ul-ti-ma'tum), any final proposal or statement of conditions; especially, in diplomatic negotiations, the final terms of the one party, the rejection of which often involves an immediate rupture of diplomatic relations and a declaration of war.

Ultramarine (ul-tra-ma-ren'), a
beautiful and durable sky-blue pigment, a color formed of the mineral called lapis lazuli. Interest on stance is much valued by painters, on account of the beauty and permanence of its color, both for oil and water paint of inflorescence which consists mineral called lapis lazuli. This sub-

(ul - tra - mon'tā-Ultramontanism of that party in the Church of Rome who place an absolute authority in matters of faith and discipline in the hands of the pope, in opposition to the views of the party who would place the national churches, such as the Gallican, in partial independence of the Roman curia, and make the pope subordinate to the statutes of an occumenical council. According to ultramontanism the pope is superior to general councils, independent of their decrees, and considered to be the source of all jurisdiction in the

church. The Vatican Council of 1870 virtually established the views of ultramontanism as dogmas of the church. Ulugh Beg, Ölug Beg (o'lög-beg), Moslem astronomer, born in 1394, grand-son of Tameriane, and king of Transox-iana. He began to reign in 1446 and

us killed by his son in 1459.

Ulverston (ul'ver-stun, locally pronounced ös'tun), a seaport of England, in Lancashire, about 11 mile from Morecambe Bay, to which there is a canal. It has a paper-mill, shoe-factory, blast-furnaces, etc., and there is a small amount of shipping. Pop. (1911) 9552.

Ulysses (0-lis'sēz; in Greek, Odysseus), king of the island of Ithaca, was one of the Greek heroes who engaged in the war against Toy. In returning to his own country after the siege he visited the country of the Lotophagi in N. Africa, the Cyclopes in Sicily (see *Polyphemus*), the island of Æolus, king of the winds, reached the siland Æone where Circa and Albara Whare Circa and Albara Circa and Circa island Ææn, where Circe changed (temporarily) his companions into pigs; island changed visited the infernal regions, where he consulted the soothsayer Tiresias how to return to his country; passed in safety the coast of the Sirens, and the dangers of Scylla and Charybdis; remained for seven years with the nymph Calypso after losing all his men; and at last, after an absence of twenty years, returned to Ithaca. Here he found his palace occupied and his substance wasted by suitors for the hand of his wife Penelope, but with the aid of his son Telemachus he put them to death. He lived about sixteen years after his return. These adventures of Ulysses are the subject of Homer's Odyssey.

of a number of pedicels or flower-stalks, nearly equal in length, springing from a common center, with the blossoms on their summits forming a level or rounded



Umbels of Hemlock.

surface. When a number of such umbels are combined in the same way we have a compound umbel, the smaller umbels being called partial umbels.

Umbelliferæ (umbel-if'er-ë), an extensive and important nat. order of plants, the flowers of which are almost always in regular compound umbels. The plants of this order are natives chiefly of the northern parts of the northern hemisphere, and nearly all herbs with fistular furrowed stems and divided leaves; the fsuit consists of two indehiscent ridged carpels united by a commissure. Some are very poisonous, as hemlock and certain others; others are esculents, as celery, carrots, and parsnips; many yield aromatics, as caraway, coriander, dill, anise; a few secrete a fætid gum-resin, much used in medicine, as asafetida, galbanum, opopanax and sagapenum.

Umber (um'ber), a well-known mineral pigment, of an olive-brown
color in its raw state, but much redder
when burnt. It occurs either naturally
in veins and beds, or is prepared artificially from various admixtures. The
commercial varieties are known as
Turkey umber, raw and burnt, and English umber, the latter being an artificial
ochrey admixture.

Umbilicus (um-bil'i-kus). See Na-

Umbra (umbra), in astronomy, a term applied to the total shadow of the earth or moon in an eclipse, or to the dark cone projected from a planet or satellite on the side opposite to the sun. See Penumbra, Eclipse.

Umbrella (um-brel'la), a portable shade, screen, or canopy which opens and folds, carried in the hand for sheltering the person. The umbrella had its origin in the East in very remote times, where it was (and still is) regarded as an emblem of royalty or a mark of distinction; but as a defense from the rain it was not used in the West till early in the eighteenth century.

Umbrella-bird, a South American bird (Cephaloptërus ornātus) allied to the crows, remarkable for the crest of blue-black feathers rising from the head and curving towards the end of the beak, which it nearly reaches. Another long tuft of feathers hangs down from the breast.

Umbrella-tree, a name given to two species of Magnolia, M. umbrella and M. tripetala, from the form and position of the leaves. The same name is given to Pandanus odoratissimus, the screw-pine.

Umbria (um'bri-a), a division of Italy, on the Adriatic, which derives its appellation from the Umbrians, by whom it was inhabited in ancient times. It now forms the province of Perugia. The Umbrians were an ancient people who spoke a language akin to the Latin. See Eugubine Tables.

Umlaut (om'lout), in philology, the change of a vowel in one syllable through the influence of one of the vowels a, i, w in the syllable immediately following—a common feature in several of the Teutonic tongues.

Umpire (um'pir), a person to whose sole decision a matter in dispute between two parties is referred. Specifically, in law, a third person to whom the dispute is referred for decision when, in an arbitration, the arbitrators do not agree.

Umritsir. See Amritsir.

Unalaska (ö-nä-läs'kà), one of the largest of the Aleutian Islands (which see), being 75 miles long, and 20 miles at its extreme breadth. On it there are a number of volcanoes.

Unau (ö'na), a species of sloth. See Sloth.

Uncaria (un-kā'ri-a), a genus of plants. See Gambir.

Uncial Letters (un'shal), letters of a large size, used in ancient Latin and Greek manuscripts. These letters were compounded between the majuscule or capital and minuscule or small character, some of the letters resembling the former, others the latter. Uncial writing is supposed to have been

used after the tenth.

Uncle Sam, the familiar name of the ment, used as John Bull is with respect to England. It is an extension of the letters U. S. (United States), printed or stamped on the government property. It was first used in Troy, New York, in 1812, when certain goods purchased for the government and branded U. S., were officially inspected by Samuel Wilson, whose local nickname was Uncle Sam. The source of insurance with the application of the nickname in full to the source of the state of the nickname in full to the source of the state of the source of the nickname in full to the source of the state of the st the government.

Unconformable (un-ka-for'ma-bl), in geology, a term applied to strata whose planes do not lie parallel with those of the subjacent



Unconformable Strata.

or superjacent strata but have a dif-ferent line of direction or inclination. See also Conformable.

Unction, EXTREME. See Extreme

Underground Railroad,

as secret arrangement for helping slaves to escape from the South, by passing them from one hiding place to another until they reached Canada or other places of safety. Large numbers gained their freedom in this way, through the aid of antislavery sympathizers. the name given before the Civil war to

Undershot-wheel, a form of water-wheel having a number of float-boards disposed on its circumference, and turned round by the moving force of a stream of water acting on the float-boards at its lowest part. In this wheel the water acts entirely by its momentum, its weight taking no part in the effect.

employed in Latin MSS. as early as the third or fourth century, but was seldom used after the tenth.

Uncle Sam, the familiar name of the United States govern- Illinois Wesleyan University, and wrote the control of the states of the states

companies whose business it is to grant marine insurances. The underwriters of American cities do not confine their

Undine (un'din), a water-spirit of the female sex, resembling in character the sylphs or spirits of the air, and corresponding somewhat to the naiads of classical mythology. According to Parcelsus when an undincording to Paracelsus, when an undine married a mortal and bore a child she received a soul. One of these spirits is the heroice of a celebrated romance by De la Motte Fouqué.

(un'dū-lā-tu-Undulatory Theory ics, the theory which regards light as a mode of motion generated by molecular vibrations in the luminous source, and propagated by undulations in the subtle medium known as the ether, presumed to pervade all space and to occupy the in-tervals which separate the molecules or atoms of bodies. When these undulations reach and act on the nerves of our retina they produce in us the sensation of light. The only other theory of light which can be opposed to this, and which is variously called the corpuscular, emission, or material theory, supposes light to consist of material particles, emitted from the source, and projected in straight lines in all directions with a velocity which continues uniform at all distances, and is the same for all intensities. The undulatory theory is, however, now universally adopted by physicists.

Ungulata (ung-gū-lā'ta), the ungu-late or hoofed quadrupeds, forming the largest and most important order of the mammalia. This order is subdivided into (a) the section Perissubdivided into (a) the section I ens-sodactyla, or odd-toed ungulates, which includes the rhinoceros, the tapirs, the horse and all its allies; and (b) the Artiodactyla, or even-toed, which com-Underwood, Francis Henry, ausodactyla, or odd-toed ungulates, which thor, born at Enfield, includes the rhinoceros, the tapirs, the Massachusetts, in 1825; died in 1894. horse and all its allies; and (b) the He wrote Handbook of American Literature, Artiodactyla, or even-toed, which comature, Handbook of English Literature, prises the hippotamus, the pigs, and the and some novels and biographies. oxen, sheep, goats, antelopes, camels, deer, etc. In the former section the hind feet are odd-toed (one or three toes) in all the members, and the fore-feet in all except the tapirs; in the lat- Union (un'yun), a town of Hudson

horn growing from its forehead. Such an animal is frequently mentioned by Greek and Roman writers, who generally describe it as a native of India, of the size and form of a horse, the body being white and a straight horn growing from white, and a straight horn growing from its forehead. The reem of the Hebrews, of which unicorn is a mistranslation (Deut. xxxiii, 17, and elsewhere), was probably a urus. It was a two-horned animal. The unicorn is one of the supanimal. The unicorn is one of the supporters of the royal arms of Great Union Fabrics, are textile fabrics porters of the royal arms of Great of different materials, as cotton and wool, It was taken from the arms of Scoticotton and silk, and similar mixtures, land, which had two unicorns as supporters.

porters.

signts, showy uniforms of any kind and color have grown dangerous, and there is a growing tendency to adopt the khaki, dust-colored wear, from its indistinctness when at a distance. The idea of display in military dress is being abandoned in favor of that of safety. Uniformity, ACT OF. See Act of Uniformity.

Union (un'yun), a town of Hudson Co., New Jersey, opposite New York, one mile N. of Hoboken. It has ter section the toes are always even in number, either two or four.

Unicorn (û'ni-korn), a fabulous animal represented as with one mal represented as with one mal represented as with one home the forehead Such and Other industries. Pop. 21,023.

Union, a town of Industries Now Jersey, opposite New Jer

Union, a town of Union Co., South Carolina, 70 miles N. N. W. of Columbia. It has cotton, cotton-seed-oil, and hosiery mills. Pop. 5623.

Union, THE, in English history, the uniting of the parliaments of Scotland and England by the Act of Union, 1707; also, the legislative union of Ireland with Great Britain in 1800. The Union is a term frequently applied to the United States of America.

with other fibrous materials.

Unicorn-root, a popular name of Union Jack, the national ensign of Britain used in small nosa, a native of North America, which form as a jack—that is, displayed at the furnishes one of the most intense bitters end of a bowsprit. The name has come furnishes one of the most intense bitters known, used as a tonic and stomachic.

Uniform (û'ni-form), the distinguishing dress of any body of soldiers, sailors, members of a society or club, etc. Military uniforms seem first to have been adopted in England about the time of Henry VIII, being used for his body-guard and that of succeeding monarchs. Uniforms for the army came in use in 1661, when, on the restoration of the Stuarts, a standing army was first formed. Scarlet

South Africa, including those of the Cape of Good Hope, Natal, Transvaal, and Orange Free State, dating from May 31, 1910. The movement for the union of the Stuarts, a standing army was first formed. Scarlet

South Africa colonies was launched by became the national color of the aconvention in 1908. This convention reaster with circumstances, white being revision, was adopted. This constitution the French and German, though the color varied with circumstances, white being revision, was adopted. This constitution used in hot climates. Blue was adopted in the United States, and during the Civil war blue and gray were the distinctive colors worn by the soldiers of the North and South respectively. The North and South respectively. The head-dress forms a distinctive part of the colonies are to form part. This conthe uniform, and very showy hats and sists of judges elected by each of the four helmets are at times worn, but chiefly for parade purposes. In recent times, bers, 8 appointed by the governor-general owing to the advent of smokeless powder and long range rifles with telescopic The House has 121 members, divided sights, showy uniforms of any kind and color have grown dangerous, and there spective importance; the Cape colony have spective importance; the Cape colony having 51, Natal 17, Transvaal 36, and Orange Free State 17. The federation was confirmed by Parliament, August 16, 1909. Herbert John Gladstone was appointed as the first governor-general, General Louis Botha, of the late Boer army, being made premier. Each colony

retained its own governor and legislature. The area of this new federal union is 472,897 sq. miles, the pop. 5,450,217.
Union Theological Seminary,

a divinity school in New York City, Presbyterian in origin but now independent of ecclesiastical control. It offers courses leading to the degrees of bachelor of di-vinity and doctor of divinity. The seminary buildings are on Broadway at 120th Street. There are 130,000 volumes in the library. In 1917 there were 30 instructors and 230 students.

Uniontown, capital of Fayette Pennsylvania, 44 miles s. by m of Pittsburgh. It is in an iron, and coal district, and has coke, iron, steel, glass, and other industries. 344. Pop. 13,-

Unit (d'nit), in arithmetic, the least whole number, or one, represented by the figure 1. Every other number is an assemblage of units. This definition is applicable to fractions as well as to whole numbers. In mathematics and physics a unit is any known determinate quantity by the constant repetition of quantity by the constant repetition of which any other quantity of the same kind is measured. It is not itself one, but is a length, or a surface, or a solid, or a weight, or a time, as the case may be, while 1 is only a numerical symbol.

— Specific gravity unit: for solids or liquids, 1 cubic foot of distilled water at 62° Fahr.= 1; for air and gases, 1 cubic foot of atmospheric air at 62° Fahr.= 1. The unit of heat, or thermal unit, in the United States and Britain, the quantity of heat which corresponds to the quantity of heat which corresponds to 1° Fahr. in the temperature of 1 lb. of pure water at about 39° Fahr.; in France, the heat required to raise a gramme of Philip William Otterbein, a minister pure water at about 3.94° C., 1° C.— In the German Reformed Church, and Marelectricity the unit of quantity is that tin Boehm, a Pennsylvania Mennonite, and the church was organized in 1800; it electricity the unit of quantity is that quantity of electricity which with an electro-motive force of one volt will flow through a resistance of 1,000,000 ohms in one second, called a farad; unit of current, a current of one farad per

being represented respectively by the above letters. (See Dynamics.) In this system the unit of area is the square centimeter, the unit of volume is the cubic centimeter, and the unit of volucity is a velocity of a centimeter per second. The unit of momentum is the momentum of a gram moving with a velocity of a

of a gram moving vice centimeter per second.

Unitarian (û-ni-tă'ri-an), a religious sect or congeries of sects, sect or congries of sects, distinguished by the denial of the received doctrine of the Trinity. The Unitarians may be divided into classes: (1) The conservative or orthodox Unitarians, who accept the general articles of the Christian creed (with the exception of the Trinity), such as miracles, the resurrection of Christ, and the plenary inspiration of Scripture. (2) plenary inspiration of Scripture. (2)
The liberal or progressive Unitarians,
whose creed is purely rationalistic.
They consider Christ as a mere man,
inspired as other great men are, though in a greater degree; they reject the doctrines of original sin, eternal punishment, the belief in miracles, and generally the whole supernatural element in Christianity. They deny the necessity of an atonement, considering Christ's death but as a martyrdom in defense of truth This letter class forms the truth. This latter class forms the majority. Unitarian views have been held more or less in all ages of the church, but they came more prominently forward during the Reformation period, especially in connection with the teaching of the elder and younger Socinus, Leelius and Faustus, uncle and nephew.

United Christ, Brethren

was at first confined to a membership that was largely German, but it widened its scope and grew rapidly. There are its scope and grew rapidly. There are nearly 3600 churches, with about 346,000 members and 2000 ministers. Ten colof current, a current of one farad per nearly 3600 churches, with about 346,000 second; unit of work, that which will members and 2000 ministers. Ten colproduce a velocity of one meter (39.37 leges and several academies are supported inches) per second in a mass weighing by the church. Bonebrake Theological one gramme (15.432 grains) after acting Seminary, Dayton, Ohio, dates from 1871. upon it a second of time.—A dynamic The church has an extensive publishing unit is one expressing the quantity of house at Dayton. The theology of the a force or the amount of work done. United Brethren in Christ is Arminian. One such unit is the foot-pound (which They have two sacraments: baptism and see). The system of units recommended the Lord's Support. The ceremony of the one such unit is the foot-pound (which They have two sacraments: baptism and see). The system of units recommended the Lord's Supper. The ceremony of the by a committee of the British Associawashing of feet is sometimes used. Home, tion for scientific calculations, and Foreign Mission and other societies are known as the C.G.S. system, adopts supported. At the time of the revision of the centimeter as the unit of length, the the Confession of Faith in 1889, the congramme as the unit of mass, and the servative element withdrew and establecomd as the unit of time, these words lished the 'Old Constitution' body, which

United Greeks are Christians who originally belonged to the Greek Church, but whom the Roman Church has united with her own members on certain conditions. They re-tain the ancient rite, the Greek language during service, the strict Greek fasts, and the Lord's supper under both forms, in common with the old Greek Church. United Kingdom. See Britain.

United Presbyterian Church,

the name adopted by that Scottish church which was formed by the union of the Secession Church and the Relief Church in May, 1847. This church adheres to the theological doctrines taught

United States (officially The United States of America), a federal republic of North America, one a federal republic of North America, one of the largest and most important countries of the world, which occupies nearly one-half the total area of the continent and extends from the Atlantic to the Pacific oceans, and from the Mexican republic and Gulf of Mexico on the south to the Dominion of Canada on the north. Its greatest length, from east to west, is 2800 miles; greatest breadth, north to south, 1600 miles; area, 3,026,789 square miles, equal to more than three-fourths that of all to more than three-fourths that of all Europe. In addition it possesses the isolated territory of Alaska, 590,884 square miles in area, making its total extent nearly equal to that of Europe. Recent additions to its territory comprise the Philippine and Hawaiian islands, in the Pacific, and the island of Porto Rico in the Atlantic, with a few smaller islands, adding a further area of 132,310 square miles, the total area under the American flag being 3,749,983 square miles. The boundaries on east and west are the Atlantic and Pacific oceans, on the south the waters of the Gulf of Mexico and the northern border uniform Mexico and the northern border main, but farming and grasing lands now line of Mexico. On the north the occupy in great part the ancient forest boundary west of the 95th meridian of area.

w. longitude is, with slight exception, Passing eastward from this vast valley, the 49th parallel of N. latitude. East with its elevation varying from 700 feet

now has an estimated membership of about 22,000.

United Greeks are Christians who originally belonged to the Greek Church, but whom the RoThis parallel forms the northern boundary of New York and Vermont, but ary of New York and Vermont, but Maine projects northward nearly to the parallel of 47° 30'. The population of this country, exclusive of its outlying portions, was in 1910, 91,972,266; inclusive of Alaska, Hawaii, and Porto Rico, 93,402,151. That of the Philippine Islands (census of 1903) was 7,635,426, making a total under the dominion of the great republic of over 100,000,000. This includes a negro population of nearly 10,000,000, and a population of nearly 10,000,000, and a foreign-born population of over 13,000,-000, exclusive of that in the island pos-Church in May, 1847. This church adheres to the theological doctrines taught
in the Westminster Confession of Faith
and the Larger and Shorter Catechisms. The federation consists of 48
in the Westminster Confession of Faith
states (13 originally); 2 organized terriand the Larger and Shorter Catechisms.
The system of church government differs fized, Porto Rico; and the dependfrom that of the Established and Free
court between the presbyteries and the
supreme court, the latter of which is
called a General Synod, and sits once a
Bout 1000 churches and over 150,000
supreme to the United States there are
about 1000 churches and over 150,000
Thited States (officially The United States of over 100,000 number fifty-one. cities of over 100,000 number fifty-one. The table on the following page gives the areas and populations of the States and Territories, those marked being the

original States.

Physical Characteristics.—The United States is very diversified in physical aspect, soil and climate, extending, as it does, from 25° to 49° N. latitude, and the state of the state o from east to west over lowlands, plains, two broadly marked features, the Mississippi River, with its great valley, crossing it from north to south, and the wide elevation of the Rocky Mountains, with its bordering plains and allegations. with its bordering plains and plateaus, following the same direction farther west. The Mississippi Valley, cevering about one-half the area of the United States, comprises in its nonthern postions. comprises in its northern portion a prairie region, largely treeless, in parts quite level, but generally a rolling country. South of the Missouri and the Ohio its surface is more varied, there being numerous hilly tracts, while the level reaches are often swampy near the rivers. Forests formerly covered this southern region somewhat generally, and considerable tracts of woodland re-main, but farming and grasing lands now occupy in great part the ancient forest

.. . .





States.	Area in Sq. Miles.	Population, 1900.	Population, 1910.
Alabama	51,998	1,828,697	2,138,093
Arkansas	53,335	1,311,564	1,574,449
Arizona	113,956	122,931	204,354
California	158,297	1,485,053	2,377,549
Colorado	103,948	539,700	799,024
*Connecticut	4,965	908,355	1,114,756
*Delaware	2,370	184,735	202,322
Florida	58,666	528,542	751,139
*Georgia	59,265 83,888	2,216,331	2,609,121
IdahoIllinois	56,665	161,772 $4,821,550$	325,594
Indiana	36,354	2,516,462	5,638,591
Iowa	56,147	2,231,853	2,700,876 2,224,721
Kansas	82,158	1,470,495	1,690,949
Kentucky	40,598	2,147,174	2,289,905
Louisiana	48,506	1,381,625	1,656,388
Maine	33,040	694,466	742,371
*Maryland	12,327	1,190,050	1,295,346
*Massachusetts	8,266	2,805,346	3,366,416
Michigan	57,980 84,682	2,420,982	2,810,173
Minnesota	84,682	1,751,394	2,075,708
Mississippi	46,865	1,551,270	1,797,114 3,293,335
Missouri	69,420	3,106,665	3,293,335
Montana	146,997	243,329	376,053
Nebraska	77,520	1,068,539	1,192,214
Nevada *New Hampshire	110,690 9,341	42,335	81,875
*New Jersey	8,224	411,588	430,572
New Mexico	122,634	1,883,669 195,310	2,537,167 327,301
*New York	49,204	7,268,012	9,113,279
*North Carolina	52,426	1,893,810	2,206,287
North Dakota	70,837	319,146	577,056
Ohio	41,040	4,157,545	4,767,121
Oklahoma	70,057	1,000,000	1,657,155
Oregon	96,699	413,536	672,765
*Pennsylvania	45,126	6,302,115	7.665.111
*Rhode Island	1,248	428,556	542,610
*South Carolina	30,989	1,340,316	1,515,400
South Dakota	77,615	401,570	583,888
Tennessee	42,022	2,020,616	2,184,789
Texas	265,896	3,048,710	3,896,542
Utah Vermont	84,990 9,564	276,749	373,351
*Virginia	42,627	343,641 1,854,184	355,956
Washington	69,127	518,103	2,061,612 1,141,990
West Virginia	24,170	958,800	1,221,119
Wisconsin	56,066	2,069,042	2,333,860
Wyoming	97,914	92,531	145,965
Territories			220,000
and Districts.			
D. of Columbia	70	278,718	221 040
Alaska	590,884	63,441	331,069 64,356
	6,449	154,001	191,909
Hawaii			

at the head of navigation to sea level in the coast district, an elevated region is reached, the Appalachian uplift, which but sinking in its deepest part to a depth borders the great valley on the east, as the Rocky Mountain region does on the A splendid system of drainage exists west. Those mountains extend from over the greater part of the broad surface northern New England to central of the republic, especially in its great cen-

N. C. (See Appalachian Mountains.) From the eastern base of this mountain system to the sea extends a coast plain, narrow in Maine, but widening southward, with the exception of a narrow belt at New York, and finally attaining a width of 200 miles in North Carolina. It is hilly in parts of New England, but below New York presents a distinct coast region and a more elevated slope. coast region and a more elevated slope, the latter southward becoming a somewhat abrupt terrace, rising from a few hundred to more than a thousand feet and known as the 'Piedmont Plateau.' The coastal region is seldom more than 100 foot in beight and her are a selform. coastal region is sedom more than 100 feet in height, and has a sandy soil, with extensive swamps in many places near the coast. The coastal plain extends from the Atlantic westward along the Gulf border and in its South Atlantic portion extends far southward, forming the peninsular State of Florida. In this are extensive swamps, which have been partly reclaimed. Proceeding west-ward from the Mississippi River, the land rises in a very gentle slope until it reaches the base of the western plateau, where elevations of 5000 and 6000 feet where elevations of 5000 and 6000 feet are attained. This region, known as the Great Plains, has a light rainfall and is not nearly so well adapted for agriculture as the lower eastward region, but it s covered with nutritive grasses and forms extensive regions of pasturage, the great grazing section of the country. Westward still the foot-hills of the mighty Rocky Mountain system appear. (For the characteristics of the latter see (For the characteristics of the latter see Rocky Mountains.) Westward from this region of lofty peaks and arid soil stretches to the ocean the Pacific slope, stretches to the ocean the Pacific slope, broken by mountain ranges which embrace the Sierra Nevada and the Coast Range, and including the Great Basin, a vast arid plateau, none of the drainage of which reaches the sea. The Great Salt Lake is its most extensive body of water, the relic of a supposed much more extensive lake of past ages, known to geologists as Lake Bonneville. From these mountains and plateaus the land slopes downward to the Pacific coast. In the northeast Puget Sound, a deep open channel of navigable water, extends far into the State of Washington. In southeast California is another great depression, the Mohave Desert, waterless, but sinking in its deepest part to a depth of 260 feet below sea-level.

A splendid system of drainage exists

Georgia and Alabama, reaching an elevatral real plain, which is crossed by tion of 6293 feet in Mount Washington, the Mississippi through nearly its whole N. H., and 6710 in Mount Mitchell, width, while its great lateral affluents, the

various others. On the Pacific slope the rivers are of lesser size, the mountains diverting much of the waterflow into interior reservoirs, as in the Great Basin, while the lesser rainfall supplies a smaller quantity of water. The Columbia, with the exception of the Yukon, of Alaska, is the largest river of the continent flowing into the Pacific. There are various smaller streams, the most notable being the Colorado, famous most notable being the Colorado, famous from the grand canyon through which it flows. This, however, renders it unserviceable to mankind except in its lowvalue as a source of irrigation. A notable feature of the water system of the United States is the series of great lakes which extend between the States covered in great part with dense forests, and eastern Canada, sending their waters by the channel of the St. Lawrence to the ocean, and forming an interior commercial waterway nowhere rivaled.

Climate.—The great width of the series of great the future.

The territory of the United States, when settlement first began, was covered in great part with dense forests, a region of flourishing woodland unsurbused in extent and value. But the removal of vast acres of this woodland for agriculture.

the Appalachians, which, in a measure, existing forests cover 550,000,000 acres save the Atlantic States from their Arctic or about one-fourth the area of the influence. Warm southern winds, en-United States. Much the larger part of tering from the Gulf region, similarly this woodland belongs to private owners, influence. Warm southern winds, en-tering from the Gulf region, similarly make their way over the valley, bringmake their way over the valley, bring-but there are very extensive national ing summer temperatures, often of forests, and nearly 200,000,000 acres of tropic heat. This frequent variation of these have been withdrawn from settle-the winds between north and south ment and sale to be kept for the benefit makes the climate of the east more of the whole community and utilized for revisible and with greater extension of the preserve of the preserv variable and with greater extremes of temperature than that of the west, where streams. A forest service has been orthe changes of temperature are much more regular. In the North Atlantic States the temperature frequently falls being made to prevent the decimating below zero, and in Minnesota it descends to as low as —40°, but the dryness of in the past. The forest region of the the air renders such extremes easily bearable, except when accompanied by pines, in which the white pine, one of strong winds and 'blizzard' snows. In the Middle Atlantic States the temperature at times rises in summer to 100° or even above, but such extremes are rarely of long continuance. In this section variable and with greater extremes of the preservation of the head-waters of

Missouri and Ohio, with their numerous the rainfall is abundant, but not exbranches, gather up the greater parts cessive, and in the Mississippi valley the of the waters of the east and west, and rains are sufficient in quantity and regular there south the Arkansas, Red, and lar enough in distribution to aid everyother streams pour their waters into the great central artery of drainage. East-the Pacific alope, on the contrary, the variety of the Appalachian extend numerous shorter streams. The Connecticut and draw second with the contrary and contr farther south the Arkansas, Red, and lar enough in distribution to aid everyother streams pour their waters into the where in successful agriculture. On great central artery of drainage. Eastward of the Appalachian extend numerous shorter streams, the Connecticut, and dry seasons, while within the Rocky
Hudson, Delaware, Susquehanna, Potomac, James, Roanoke, Savannah and eral so deficient that irrigation is necesvarious others. On the Pacific slope the rivers are of lesser size, the mountains of any point agriculture remunerative
diverting much size of the stream of the str eral so deficient that irrigation is necessary to render agriculture remunerative, or even possible, in many sections. On the coast of Washington the annual fall is in places as high as 80 inches, while, in the mountain regions it is reduced to 14 inches or even less, and in the California Desert and Death Valley there may be no rain for years at a time. In the arid and semiarid sections of the west, irrigation, long practiced by the west, irrigation, long practiced by the people, has been taken in hand by the government, already with the addition of large areas of very productive land to the national resources and the promise of

mercial waterway nowhere rivaled.

Climate.—The great width of the United States from north to south and lumber of an increasing population has its diversified topography give it a great variety of climatic conditions, varying process, until what forests remain are from semi-arctic to semi-tropic in temperatures. The icy blasts from the great northwestern level of the continent find demand. The government has recently their way southward over the wide central plains with little interruption, to the Appalachians, which in a measure, existing forests cover 550,000,000 acres

taking its place. Other northern trees of considerable industrial value are the spruce, hemlock, yellow cedar, larch, linden, ash, maple, birch and elm. Somewhat farther south range the hickories and oaks, the chestnut, tulip tree, walnut, poplar, plane, beech, catalpa, cherry and other valuable timber trees, some of these extending as far south as the Gulf coast. The flora of the southern coast regions is especially characterized by several species of pine, the live oak, palmetto, cypress and other species. The Appalachian mountains are generally covered with thick forests and the lower covered with thick forests and the lower Mississippi valley is richly forested. The prairie region of the northern half of this valley, ranging from western Indiana to eastern Dakota, formerly mainly treeless, now contains much woodland, of recent planting, and the great plains east of the Rocky mountains, where the woodland was of old chiefly confined to the banks of streams, is becoming in a measure forested. The is becoming in a measure forested. The vast mountain region of the west is richly covered with woodland, especially richly covered with woodland, especially on the coast ranges, where grows one of the densest and loftiest forests on the globe. This Pacific region has a characteristic flora of its own, largely composed of coniferous woods and yielding the tallest masts and finest spars to be anywhere obtained. Noblest among these trees in the north is the great Douglas fir, and in the south the splendid redwood of the California coast ranges, which are very largely developed in the Rocky Mountain region and the Rocky Mountain region and the Rocky Mountain region and the Pacific coast states, but this does not coal, petroleum, natural gas and iron, which are very largely developed in the Appalachian coal fields employed as fuel, and in some of the tree-less districts the forests supply the principal fuel used. Peat is locally employed as fuel, and in some of the tree-less districts hay, straw, and flax are burned for domestic purposes.

Fauna.—The fauna of the United States, like its flora, is very varied, inon the coast ranges, where grows one of

Fauna.—The fauna of the United States, like its flora, is very varied, including many species found in foreign lands, and some which are exclusively American. Among wild animals are the

able pines of the South are in a measure sheep, the so-called Rocky Mountain goat (a goat-like antelope), the wapiti or American stag, the Virginia deer, the pecamerican stag, the virgina deer, the pec-cary, the cougar or puma, the black and grizzly bear, the panther, the prairie wolf, the raccoon and the beaver. Among the birds are swans, wild tur-keys, wild geese, wild ducks, eagles, vul-tures, mocking and humming birds, etc. tures, mocking and humming birds, etc. Among the reptiles are the rattlesnake and other snakes, turtles and tortoises, alligators, etc. The smaller animals include the lynx, weasel, foxes of several species, muskrat, marten, skunk, otter, prairie-dog, opossum, rabbit, porcupine, numerous species of squirrels and gophers, and a large number of destructive animals of the rat and mouse family. Among water animals there is a great variety of water animals there is a great variety of fishes, many of them, as the cod, shad, herring, salmon, mackerel, etc., highly esteemed for table use. Chief among shellfish is the oyster, more abundant on the Atlantic coast than anywhere else in the world and unequaled in quality in any other country. Of crustaceans, the lob-ster comes first, of a species quite distinct from that of Europe. As for domestic animals there are none of American origin, all the animals of field and house-

quantity. Iron ores abound in many sec-Fauna.—The fauna of the United quantity. Iron ores abound in many secStates, like its flora, is very varied, including many species found in foreign
West Virginia, Tennessee, Alabama,
lands, and some which are exclusively
American. Among wild animals are the
several other States. Copper is unbison or buffalo, now almost extinct in
equaled in quantity, the United States
a wild state, the moose or American elk,
the caribou, or reindeer, the prong-horned
antelope, the big-horn or Rocky Mountain
Montana, Michigan, Utah and Caliore is abundant but in unworkable condition, and there are minor yields of nickel, platinum, mercury, antimony, etc. In the Rocky Mountain region are vast deposits of lignitic coal, hitherto little used, but now becoming available, and of late years exceedingly valuable coal deposits have been found in Alaska, not yet worked. Copper is also abundant in this territory. Acide from the minorals this territory. Aside from the minerals mentioned are many others of economic value, including salt, borax, limestone, marble, sulphur, cement, etc. Geologically the United States possesses examples of all the formations, and is rich ampies of all the formations, and is rich alike in fossils of the primary and the later periods. It is especially notable for its abundance of vertebrate remains in the geologic strata ranging from the Permian to the Quaternary, including the gigantic dinosaurs of the Jurassic and Cretaceous epochs, the flying reptiles and toothed birds of the Cretaceous, and the greatly varied mammals of the Tertiary age. Among the latter are several types in the life history of the horse, and in later time the horse itself. There are also giant edentates, allied to the more recent ones of South America; and the mammoth and mastodon, relatives of the elephant, all of which appear to have existed in recent geologic times. These are the more notable among a multitude of fossil forms.

Agriculture.— It is estimated that the arable lands of the United States exceed arable lands of the United States exceed a million and a quarter square miles in area, of which over 870,000 square miles were occupied as farms in 1910, about 475,000 square miles consisting of improved lands. Considerable additions have been made to this area within the last decade, irrigation in the west having brought under cultivation large areas once deemed hopelessly arid. The basin of the Mississippi the Pacific coast

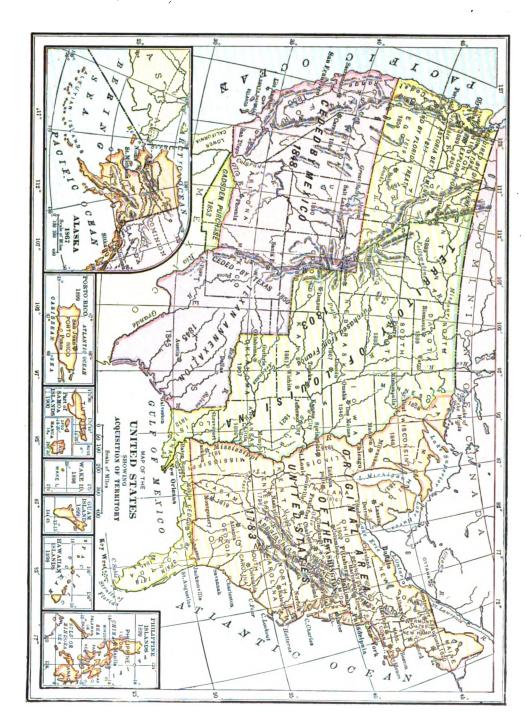
fornia, the ores of Michigan being 90-very extensive section in great part unfit 95 per cent. pure metal. Gold and for cultivation except under irrigation silver are widely distributed, the United on account of deficient rainfall. This States standing second only to South Africa in its production of gold, and to Mexico in that of silver. The leading States in these metals are California, and Cascade ranges, an immense area Colorado, Nevada, and the territory of embracing about one-third of the whole Alaska, in gold; and Montana, Colorado, country. It includes the States of Ari-Nevada, Utah, Idaho and Arizona in zona, New Mexico, Nevada, Utah, silver. Other metals in which this country is rich are lead and zinc. Tin ore is abundant but in unworkable concretion, and there are minor yields of dition, and there are minor yields of nickel, platinum, mercury, antimony, etc. In the Rocky Mountain region are vast covered and yields food to immense herds deposits of lignitic coal, hitherto little of cattle and sheep. Much of it also may States standing second only to South comprises most of the region between the of cattle and sheep. Much of it also may yet be rendered fertile by irrigation, but there is a great extent of absolute desert to which irrigation cannot be applied.

Of American crops the two distinctive ones are cotton and Indian corn, of each of which the United States produces much more than all the rest of the world combined. Most of the cotton world combined. Most of the cotton goods of the world are woven from American cotton. The corn, however, is very largely consumed at home, especially for the feeding of live stock, the hogharvest being largely dependent upon it. Wheat is another product of great importance, the crop of the United States having long been the largest in the having long been the largest in the world. Russia in Europe is now a close world. Russia in Europe is now a close rival, but all other countries are far surpassed. There are also large crops of hay and oats, the five named being the leading crops of the country. Other products of great importance are potatoes, tobacco, sugar, and rice. In 1910 the corn crop reached the vast total of over 3,000,000,000 bushels, the wheat crop nearly 700,000,000 bushels, the oat crop 1,100,000,000 bushels, the cotton supply (1911) 12,132,332 bales, the total value of all farm crops increased from \$5,000,000,000 in 1900 to about \$9,000, 000,000 in 1911. Other cereals grown are rye, barley, and buckwheat, and common farm products include sweet potatoes, flax, hops and peanuts, each largely grown. No other part of the world is so rich in fruits, alike in quantity and variety. Very important among these are variety. Very important among these are the apple, peach and pear. Plums, apricots, cherries and grapes are produced abundantly, and a considerable variety of berries and nuts are grown. The grape is an important crop in many parts of the east, and especially so in California, and much wine is made. To the temporate products must be added those of once deemed hopelessly arid. The basin abundantly, and a considerable variety of of the Mississippi, the Pacific coast berries and nuts are grown. The grape lands, and the valley of the Red River is an important crop in many parts of of the north vie with each other in fertility, and other highly productive lands and much wine is made. To the temperate those of the Gulf coast, the region perate products must be added those of draining into the Great Lakes, and the semitropics, the orange, lemon, olive, much of that east of the Appalachian fig and almond, abundant in California, mountains. Westward, however, is a and the orange and pineapple of Florida. udát

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industrial design





opportunity for the raising of live-stock.
The leading cattle-breeding State is Texas; sheep-raising is most extensive on the elevated plains east of the Rocky Mountains and on the Pacific slope; horses and mules are bred in great num-bers in Missouri, Kentucky and Tennessee, while hogs are raised in all the corngrowing States of the Central and Southern section. Slaughtering and beef and pork-packing are carried on very extensively in Chicago, and various other cities of the Middle West. The dairying in-dustry of the country is very large and immense quantities of butter and several

varieties of cheese are made.

Manufactures.— The United States has manufactures.—Ine United States has become the foremost manufacturing country in the world, its supplies of coal and iron exceeding those of any other quarter of the globe, while the industry, inventive genius and enterprise of the people and the rapid development of facilities for transportation below to adcilities for transportation helped to advance the material interests of the country throughout the nineteenth century, and have given unquestioned industrial supremacy in the twentieth. Among the greatly varied manufacturing industries that of textiles stands high, the cotton and woolen manufacture being very flourishing, while in silk manufacture this country is becoming a rival of France. Knit goods are largely produced, while the production of ready-made clothing is a very active industry. Iron and steel produc-tion has reached a very high level, sur-passing that of any other country, while the manufacture of iron and steel wares is most varied and abundant. Chief

Live-stock.—The abundant corn and commerce the navigable inland waters of hay crops of the United States and the the country have been of immense value, very extensive grazing grounds of the in view of the fact that steam transporcegion of prairies and plains give a great tation was established upon them early tation was established upon them early in the history of the republic. Canals were early provided to add to the facili-ties in this direction, chief among these being the Erie Canal, from Buffalo to Albany, which for the greater part of a century has been a valuable carrier of freight. But railroad development has largely replaced that by water in the in-land commerce of the country. This began in 1830 with 23 miles of track. began in 1850 with 23 miles of tracs. In 1900, seventy years later, it had grown to 194,334 miles. In 1912 it had reached nearly 250,000 miles, far surpassing in length that of any other country, and equaling that of all Europe. The foreign trade of the country has grown to great proportions, though it is much surpassed by the internal commerce. much surpassed by the internal commerce. In the last century the great bulk of it consisted of agricultural products and meats, cotton being a leading article of export. Of recent years, however, this country has ceased to feed and clothe Europe to the extent of the past, the home demand having grown so greatly, especially for food stuffs, as to consume the great bulk of them, while several the great bulk of them, while several other countries are competing largely in wheat, and to a small extent in cotton. On the other hand the export of manufactured goods has grown until now factured goods has grown until now these form a very considerable part of the goods sent abroad. At the beginning of the twentieth century the commerce of the United States was valued at about \$2,500,000,000. In 1911 it reached a total of about \$3,500,000,000. Of this much the greater part were exports, the balance of trade in its favor being in 1900 about \$500,000,000. It has decreased somewhat since then, but is still is most varied and abundant. Chief among these industries are the production creased somewhat since then, but is still of building steel, iron bridges, railroad in a notable amount. About two-thirds of iron and steel, locomotives, armor for the exports go to Europe, half this steel-clad battleships, fire-arms, steel cars amount going to the British Isles. The and machine-shop products in general. Other great fields of manufacture are those of electrical appliances, automobiles, agricultural implements, tin-plate, leather, steel wares, leather, tobacco, oils, agribuots and shoes, paper (the pulp for cultural implements, copper manufacturiture, flour, beet-sugar, beer, lumber-products and many others. As for the smaller industries, they are innumerable. The value of manufactured goods has grown from \$5,300,000,000 in 1910.

1900 about \$500,000,000. It has demanded then, but is still on the swill is still amount. About two-thirds of the exports go to Europe, half this steel-clad battleships, fire-arms, steel cars amount going to the British Isles. The outle of the British Isles. The outle of the British Isles. The inverted goods embrace iron and steel wares, leather, tobacco, oils, agricultural implements, copper manufactures, cotton goods, leather, wood products, etc. The imports include chemicals, cotton goods, fibers, fruits, furs, hides and skins, wool, tin-plate, india rubber, silk goods, coffee, sugar, tea, grown from \$5,300,000,000 in 1880 to \$0.000,000 in 1910.

1000 about \$500,000,000. It has demanded then, built is still to the exports go to Europe, half this still the exports go to Europe, h

\$20,600,000,000 in 1910.

Commerce and Transportation.—The United States is a federal republic based commerce of the United States has vied on the constitution of 1787, drawn up with its manufactures in development. by delegates from the thirteen original than the latter of the constitution of 1887, drawn up with its manufactures in development. Transportation has been provided with States, and subsequently amended. The extraordinary rapidity. For internal constitution and modes of administration

in a governor) has complete management of its own affairs. The combined States have one supreme legislature, which takes the name of Congress, and consists of a Senate and a House of consists of a Senate and a House of Representatives. The Senate consists of two members from each State elected by its citizens for six years, one-third of the whole body being renewable biennially. The House of Representatives consists of members chosen for two years by the people of the several States, years by the people of the several States, any others proportioned to their propuls. in numbers proportioned to their popula-tion as ascertained by the decennial census. The head of the executive power of the government is a President, elected by the people and holding his office for a term of four years, with a Vice-Presi-dent elected at the same time and for the same term. Only persons born in the United States and who have reached the age of 35 years are eligible to the presiin numbers proportioned to their populaage of 35 years are eligible to the presidency. The President is commander-inchief of the army and navy and of the militia in the service of the Union. He has the power of a veto on all laws passed by Congress; but, notwithstanding his veto, any bill may become a law on its being afterwards passed by each House of Congress by a two-thirds vote. The Vice-President is ex officio President of the Senate. The presidential succession is fixed by Chapter 4 of the acts of the 49th Congress, 1st session. In case of the 49th Congress, 1st session. In case of the removal, death, resignation, or inability of both the President and Vice-President, then the Secretary of State shall act as President till the disability ahall act as President till the disability of the President or Vice-President is removed or a President is elected. If there be no Secretary of State, then the Secretary of the Treasury will act; and the remainder of the order of succession is; Secretary of War, Attorney-General, Postmaster-General, Secretary of the Postmaster-General, Secretary of the Navy, Secretary of the Interior (the offices of Secretary of Agriculture, Secre-tary of Commerce, and Secretary of Labor, were created after the passage of the act). By the 15th amendment to the the act). By the 15th amendment to the Britain, being recruited by voluntary Constitution neither race nor color affects the rights of citizens, though unforced military service of all able-bodied taxed Indians and Chinese are excluded men, as is generally the case in the nations of Europe. The island condition of with women except in ten states in which they have full franchise and a number of others in which they have a partial franchise. There is a third section of the government, the judicial, consisting of a Supreme Court, which deals with

of the individual States bear a close re- interstate subjects of controversy and semblance to each other and to the na-tional government. Each State main-ments of Congress, if it decides that they tains its independence, and by means of are not in conformity with the Constitu-a State legislature and executive (vested tion. (See succeeding article on United are not in conformity with the Constitu-tion. (See succeeding article on United States, Political Development of the.) The governments of the States are based on a similar principle, each having its Supreme Court, the decisions of which are final on a constitutional question. The Constitution can be amended only by a vote in favor of the proposed amendment of two-thirds of each House, and subsequently by the acceptance of threesubsequently by the acceptance of three-fourths of the States; or by the calling of a constitutional convention on the de-mand of two-thirds of the States, with mand of two-thirds of the States, with ratifying conventions in three-fourths of the States. While each State is guaranteed a republican form of government, and in general their governments are based on the same principle as that of the national government, the territories, organized and unorganized, are under the direct control of Congress, the organized ones being represented in Congress by a delegate, who has no vote, and having legislatures elected by their people.

Finances.—The public debt of the United States reached its ultimate height in 1868, as a result of the expenditure for the Civil war, its amount on July 1 of that year being \$2,773,236,173. Thirty years before the country had been

Thirty years before the country had been out of debt and with an excess of funds out of debt and with an excess of funds which it divided among the several States. After the war the reduction of this debt proceeded with marked rapidity, until by 1912 the interest-bearing debt had decreased to \$963,349,390, and the debt bearing no interest to \$383,499,246, making a total of \$1,346,848,636, including \$1,851,810 on which interest had ceased. Against this there was in the treasury a reserve fund and cash balance amounting to \$300,400,000. During this period the expenses of the government had steadily increased until what was called a billion dollar Congress was reached in McKinley's first term, while in 1912 the appropriation for a single session of Congress was over \$660,000,000.

in 1912 the appropriation for a single session of Congress was over \$660,000,000.

Army.—The United States army is based on the principle of that of Great Britain, being recruited by voluntary enlistment only, not by conscription and forced military service of all able-bodied men, as is generally the case in the nations of Europe. The island condition of Great Britain and the attempth of her

unnecessary, a strong navy being de-pended upon for protection. As a result the army has been generally restricted to the numbers requisite for military police duty, the keeping a great multitude of men under arms in times of peace in readiness for possible war being not considered requisite. This policy has always prevailed, no more men being kept ways prevailed, no more men being kept in the ranks than are deemed necessary to maintain internal order, the government relying upon the enlistment of volunteers in times of emergency. In 1790 the national army consisted of only 1260 men, under the command of the President. In 1861 its numbers had grown to 14,000. During the Civil war 2,039,748 men were called into the ranks chiefly by voluntary enlistment, in some measure by conscription, or by bounties of from \$300 to \$1000 to each volunteer. After the war the army was disbanded with the exception of the number required for peace service, and by an act of Congress of July 15, 1870, this number was limited to 30,000 men. This number was subsequently increased during the century to about 60,000. The brief war with Spain, in 1898, demanded a sudden enhancement of the army, which was readily accomplished by a call for volunteers. But the lack of careful supervision of this large body of raw soldiers was seriously felt, bad management resulting in the death of large numbers of them by disease. After the in the ranks than are deemed necessary to ment resulting in the death of large numbers of them by disease. After the disbandment of this volunteer force the limit of strength of the regular army was fixed by Secretary of War Root and General Miles at 77,284 men, in accordance with General Miles's proposition of ance with General Miles's proposition of one soldier for every thousand inhabitants. The length of service was fixed at five years. The need of a more scientific management of the military establishment was seriously felt, and by a bill of February 14, 1903, the office of Lieutenant-General commanding was dropped and a staff corps of eminent officers, appointed by the President, was adonted. pointed by the President, was adopted, in accordance with the policy pursued in European army organizations. Under laws passed in 1901, 1907 and 1908 the army now comprises 30 regiments of infantry, 15 of cavalry, 6 of field artillery, and a coast artillery corps, with a Porto Rico regiment of infantry, and a considerable force in the Philippines, 52 companies of which are native scouts.

National Guard, are subject to duty under demand of the government if any national emergency should arise. The militia law of 1903, amended in 1908, provided that 'The militia shall consist of every able-bodied male citizen of the respective States who is more than 18

provided that the minuta shall be devery able-bodied male citizen of the respective States who is more than 18 and less than 45 years of age.' These are to be divided into the organized militia and a reserve militia, subject to duty should necessity demand. The total number of this unorganized reserved militia was stated in 1015 at 20,538,347.

Navy.—The United States has the credit of first demonstrating the advantage of an ironclad navy, this being done in the Civil war by both sides engaged. Britain and France had already built ironclads, but the first battle between ships thus protected was the memorable conflict in Hampton Roads, in 1862, between the Monitor and Merrimac. The wooden shins of the older navy, previously tween the Monitor and Merrimac. The wooden ships of the older navy, previously attacked by the Merrimac, proved hope-lessly feeble before this powerful antag-onist and were put out of service with startling suddenness, and only her encounter with the Monitor checked the Merrimao in her career of destruction. The lesson thus taught was quickly taken advantage of in Europe, where a rivalry in building iron- and steelclad war-vessels begun which has continued without interruption to the present day. But the United States was very slow in putting into practice the lesson it had taught. Resting secure in its thousands of miles of ocean boundary, it let twenty years pass before it awakened to the advisability of preparing for possible naval war. In 1882 there were 140 vessels on the navy list, but of these 25 were mere tugs, while a large number of the others were antiquated and useless. Shortly after this the government aroused to the need begun which has continued without inthis the government aroused to the need of possessing a modern naval establishment, and began the construction of the powerful navy it has since possessed. Its long negligence left to the European nations the task of experimenting in the new system of war-vessel construction, and gave it the important advantage of par-ticipating without cost in lessons learned by a long-continued practical study of the new system in Europe. At the period of the Spanish-American war a navy of fair strength for that date existed, one that with remarkable quickness put the weaker Spanish navy out of commission. Of companies of which are native scoues. Weaker Spanish have out or commission. The total strength of the army is about Since then many war-vessels fitted to 87,000, and it is provided by law that compete on equal terms with the strongest it shall not exceed 100,000 men. In addition to these are the organized State been built, and in 1912 the United States militia, a drilled and equipped force of had, built and building, 28 battleships of over 120,000 men. These, known as the recent type with 9 of older type, 12 first-

isfactory number of the powerful Dreadnought and super-Dreadnought class. Of these the Arkansas and Wyoming, with their 26,000 tons displacement and armament of twelve 12-inch guns; the New York and Texas, 27,000 tons, and the Nevada and Oklahoma, 27,500 tons, each Nevada and Oklahoma, 27,500 tons, each with ten 14-inch guns, are much surpassed by the 31,400 Pennsylvania and Arizona and the 32,000 California, Idaho and Mississippi with twelve 14-in. guns each. History.—The territory now occupied by the United States of America, though it appears to have been visited on its N. E. coast by Norse navigators about the year 1000, continued the sole possession of numerous tribes of Indians till the rediscovery of America by Columsion of numerous tribes of Indians till the rediscovery of America by Columbus in 1492. In 1498 an English expedition, under the command of Sebastian Cabot, explored the east coast of America, from Labrador to Virginia, perhaps to Florida. In 1513 Juan Ponce de Leon landed in the Florida peninsula, and explored a portion of that region in a remantly search for the Equipment of a romantic search for the Fountain of Youth. In 1539-1542 Ferdinand de Soto led a Spanish expedition from the coast of Florida across Alabama, and discovered the Mississippi river. In 1584-1585 Sir Walter Raleigh sent two expeditions to the coast of North Carolina and vainly attempted to form settlements and vainly attempted to form settlements soon followed by discontent on the part on Roanoke Island. A Spanish settlement was made at St. Augustine, Florida, the British government. In 1761 the in 1565. The first successful English settlement was that planted at James-resident was that planted at James-resident was pressive Navigation laws, by the use of town, Virginia, in 1607. In 1609 the Dutch explored the Hudson River, and some years later began a settlement on search any domicile, caused a strong Manhattan Island, New York harbor. excitement against the English government. In 1761 the enforcement against smugglers of the operation of the pressive Navigation laws, by the use of general search warrants which gave the customs officials the right to enter and search any domicile, caused a strong Manhattan Island, New York harbor. excitement against the English government. some years later began a settlement on search any domicile, caused a strong Manhattan Island, New York harbor, excitement against the English govern-Plymouth, Massachusetts, was settled by ment, especially in Boston. Parliament the Pilgrims, members of a persecuted also resolved to increase the revenue by religious sect, in 1620, and Massachuse general stamp-duty through all the setts Bay by the Puritans, another sect, American colonies. Accordingly, the in 1628 and 1630. Later settlements Stamp Act of 1765 was passed; but this, was those of Competitors in 1622; after opposition was recalled next year. setts Bay by the Puritans, another sect, in 1628 and 1630. Later settlements Stamp Act of 1765 was passed; but this, were those of Connecticut, in 1633; after opposition, was repealed next year, Maryland, in 1634; Rhode Island, in Britain still claiming, however, its right 1635; Carolina in 1682, and Georgia in a duty, in 1767, was imposed upon tea, 1733. Meanwhile the French from paper, glass, etc.; but the colonial op-Canada, under La Salle and others, had position was such that three years later explored the Great Lakes and the Mississippi, and settlements had been made at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea. To such a pass had the at points in Illinois and along the Mississone upon tea.

class armored cruisers, and a considerable number of second and third-class cruisers, hattan Island, and named the settlement monitors, gunboats, torpedo boats, destroyers and submarines. In this respect it of the colonies was in 1643, when the ranks high among other nations, Great settlements in Massachusetts, Connecti-Britain considerably and Germany slightly cut and New Hampshire formed a consurpassing it in number and strength of federacy for mutual protection called war ships. The United States has a satisfactors number of the powerful Dread. The growth of the colonies was at-The growth of the colonies was attended by occasional warlike relations, not only with the Indians, but between the Europeans of different nations. There was war on several occasions between the English of South Carolina and Georgia and the Spanish of Florida, and three successive wars broke out between the British of the North and the French of Canada, in 1689, 1702 and 1744. These were hostilities between the colorists existing from wars in Europe but These were hostilities between the colonists arising from wars in Europe, but in 1754 a more important war begun due to rivalry between the colonists themselves, and which in turn gave rise to an European war. This, known as the French and Indian war, continued until 1763, its origin being an effort of the French to take possession of the Ohio Valley and the determination of the British colonists to prevent this. Its seven years' continuance was attended by varying fortunes of war, the French by varying fortunes of war, the French at first generally successful, the British finally everywhere victorious, Quebec, the capital and military stronghold of Canada, being finally taken. The result was disastrous to France, which was chiligal to surrender its prossessions in obliged to surrender its possessions in Canada to Great Britain. Its territory west of the Mississippi was transferred to Spain. The close of this war was soon followed by discontent on the part of the colonists with their treatment by the British government. In 1761 the enforcement against smugglers of the op-

a number of the inhabitants, disguised as Indians, seized them and threw their cargoes into the sea. In punishment of this, parliament passed the Boston Port Bill, which declared that port closed to all commerce, and transferred the seat of colon al government to Salem. This caused much suffering in Boston and caused much suffering in Boston and from this time it became to many evident that a conflict was inevitable. This began in April, 1775, when a British force, sent from Boston to destroy the military stores at Concord, fired upon the colonists at Lexington, and was subsequently attacked and forced to retreat. Before the end of April the British governor and army were besieged in Boston by a revolutionary force of 20,000 men; the northern fortresses of Ticonderoga and Crown Point were seized; and a Continental Congress which assembled at tinental Congress which assembled at Philadelphia took measures to equip an army and navy, with George Washington, who had won fame in the French and army and navy, with George Washington, who had won fame in the French and Indian war, as commander-in-chief. On June 17 the British attacked the intrenched position of the colonists on Bunker Hill, which commanded Boston harbor, and captured it with great loss to their troops. In the following year they were forced to evacuate the city and retreat to Halifax. This success encouraged the colonists in their resistance, and it was declared by the thirteen States assembled in Congress that 'The United Colonies are, and ought to be, free and independent States; that their political connection with Great Britain is, and ought to be, dissolved.' This resolution was embodied in a declaration of independence, drawn up by Jefferson and adopted July 4, 1776. The British government now sent an army against the colonists under the command of Sir William Howe, and in a battle on Long Island (August, 1776) Washington was defeated and obliged to abandon New York. He retreated through New Jersey and crossed the Delaware, but later in the year won a 13-10

ferred to the South. Here it was prosecuted with varying fortunes, but in 1781 the surrender of Lord Cornwallis with his the surrender of Lord Cornwallis with his army at Yorktown to a combined French and American force under Rochambeau and Washington, virtually terminated the war. On September 3, 1783, Great Britain formally recognized the independence of the United States by a treaty of peace signed at Paris. The new-formed States, however, were very imperfectly united, and in 1787 a convention met at Philadelphia and after four months' de-Philadelphia and after four months' de-liberation framed a Constitution. This Constitution, which remains the basis of the government, came into operation in March, 1789, and on April 30 Washington became the first president. The Congress appointed by the thirteen States then proceeded to impose duties, establish lish a federal judiciary, organize the executive administration, fund the debt of the United States, and establish a national bank. In 1792 Washington national bank. In 1792 Washington was unanimously reflected president, but in 1796 he refused to be elected for a third term. During his administration the States of Vermont, Kentucky, and Tennessee were admitted into the Union. John Adams was elected second president, and it was while he held office that the hostile demeanor of France led to hrief navel war in which all the success a brief naval war in which all the success a prier naval war in which all the success lay with the United States. In 1800 the seat of government was transferred from Philadelphia, which had been the capital, to Washington, and in 1803, under President Jefferson the territory of the new Union was immensely added to be the purpose from Flance of Union. by the purchase from France of Louisiana, the great region between the Mississippi and the Rocky Mountains. A new source of hostility to Great Britain soon arose from her claim to the allegiance of American naturalized subjects and the right to search American vessels for British seamen. In 1807 the British frigate Leopard overhauled the United Washington was defeated and obliged to abandon New York. He retreated ish frigate Leopard overhauled the United through New Jersey and crossed the States frigate Chesapeake, near the en-Delaware, but later in the year won a trance to Chesapeake Bay, compelled her victory at Trenton, New Jersey, which to surrender, and took off four of her men. enabled him to establish himself in that State and threaten New York. In 1777 later all trade with France and England the British invaded Pennsylvania by way of Chesapeake Bay, defeated Washing-June, 1812, war was declared against ton on the Brandywine and captured Great Britain. This lasted until the end Philadelphia. Fortune, however, favored of 1814, the armies having varying sucther Americans in the north, where Gen-Philadelphia. Fortune, however, favored of 1814, the armies naving varying suctive Americans in the north, where General Gates at Stillwater defeated General ning a brilliant series of naval victories. Burgoyne, his whole army being forced The final event in the war was Jackson's to surrender. This event led to a treaty victory over the British at New Orleans, with France in 1778, and subsequently fought after the treaty of peace had Spain and Holland gave support to the been signed. After this the chief his Americans. The British army now left torical events were the wars against the Philadelphia and the conflict was trans-

tion of Florida from the Spanish in 1819; frequent collisions took place between the rival forces at different points. In the spring of 1862 General Grant captured Fort Donelson, on the Cumberland River and obtained a victory over the Confederates at Shiloh, or Pittsburgh Landing, in Tennessee. In April the Federal fleet, under Porter, ran past the forts at the entrance of the Mississippi, and aided in the capture of Vicksburg and Arkansas Post. An attempt was then

tion of Florida from the Spanish in 1819; the annexation of Texas, which led to a the James River, where they established war with Mexico in 1846; and the acquisition of a large territory in northern Mexico, consisting of New Mexico and Upper California, which were ceded to the United States on payment of the sum of \$15,000,000 to Mexico. The great question during this and the succeeding period was that of slavery in the South, against which a strong party compelled to recross the Potomac. Soon arose in the North. Texas had been introduced into the Union as a slaveholding state, and the endeavor to act similarly with regard to the territory of Kansas led to local conflicts. The question was still further complicated by an antislavery insurrection (1859) at Harper's Ferry, led by John Brown, which helped to bring the question of the abolition of slavery to a crisis. The presidentian election of 1860 turned to a great extent upon this question, and when Abraham Lincoln, the Republican candidate, was elected, the slave-holding States of South Carolina, Mississippi, Florida, Alabama, Georgia, Louisiana, and Texas of the Shenandoah, entered Maryland, formally seceded from the Union. These States formed themselves. General Lee then assumed the effensive and moved with his whole the offensive and moved with his whole army upon Washington, defeating General Pope with great loss at Bull Run and invading Maryland. Here he was met on the banks of the Antietam by McClellan, and, after an obstinate fight, compelled to recross the Potomac. Soon afterwards McClellan was superseded by Burnside, and in December another davance to Richmond was commenced. This General Lee had anticipated, and interenched himself behind the town of Fredericksburg, a position from which anticipated, and interenched himself behind the town of the Federals endeavored in vain and with severe loss to dislodge him. In the following April General Hooker, the army of the Potomac, commenced and the succeeding period was commenced to the service of the Shen Jackson, who drove the Federals back to bama, Georgia, Louisiana, and Texas of the Shenandoah, entered Maryland, formally seceded from the Union. These and crossed into Pennsylvania. At Get-States formed themselves into a separate tysburg he unexpectedly encountered the union on February 4, 1861, which they federal forces under Meade, and after named 'The Confederate States of America,' with Jefferson Davis as president. There days of desperate fighting and the constilities had begun, by Virginia, North Carolina, Tennessee and Arkansas. The was also in favor of the Federals. Aided by the Custom-houses, arsenals, and United States buildings in these States were seized and occupied by the Confederates, Grant assumed the offensive and capand every preparation made to organize tured Vicksburg with its large garrison, a separate government. War was inevitable, and the first blow was struck inflicted severe defeat upon Bragg at inflicted severe defeat upon Bragg at Charleston harbor, which was forced to commander-in-chief of all the armies, our by proclamation 75,000 volunteers, and at once he set himself to reorganize out by proclamation 75,000 volunteers, and at once he set himself to reorganize out by proclamation 75,000 volunteers, the Federal forces. He took command and the first battle on a large scale took of the army of the Potomac himself, with place at Buil Run, south of Washington, which be proposed to meet Lee, while he feated. During the remainder of 1861 the Rapidan and immediately attacked spring of 1862 General Grant captured Lee in The Wilderness, where severe fight. Lee in The Wilderness, where severe fighting lasted for six consecutive days. Unable to route the Confederates, Grant endeavored by a flank movement to cut them off from Richmond, but Lee anticipated the attempt and foiled it. Severe battles followed and finally Grant crossed the James River and attacked Petersburg, Arkansas Post. An attempt was then but was repelled, and obliged to begin made, by General McClellan to invest a regular siege. Meanwhile Sherman, Richmond, the capital of the Confedwith a large Federal force, defested eracy, but this was prevented by the Con-Hood (who had superseded Johnston as federate generals Lee and 'Stonewall' commander in Georgia), and occupied

Atlanta. From this point he crossed the country by forced marches, seized Savannsh, and by February, 1865, occupied Charleston and marched into North Carolina and Marched in the North Carolina and Marched in th lina. During this brilliant movement the forces under Lee and Grant had faced each other in the lines round Richmond, but in April, 1865, a general advance was made by the Federals. Lee defended Petersburg and Richmond with great skill and obstinacy, but after three days' sanguinary conflict the Confederate lines in favor of the Federal government. In the course of the war the abolition of slavery had been proclaimed by President Lincoln, and he had just entered (April, 1898).

stitution, two of which gave the manumitted slaves the rights of citizenship, including that of the suffrage. The election of General Grant to the presidency for the United States. In 1876 a Cen-tennial Exposition was held in Phila-

whose election was strongly contested but was granted by an electoral commission formed by compromise between the parties. At the next election (1880) the Republicans elected General Garfield. Soon after (July 2, 1881) he was shot by Charles J. Guiteau, and died Sept. 19, 1881 Charles J. Guiteau, and died Sept. Ac, 1881, Chester A. Arthur, the vice-president, becoming president. In 1885 Grover Cleveland, the first Democrat holding the office since 1861, succeeded as president. The Anti-polygamy bill, virtually disfrantial the succeeded as president. skill and obstinacy, but are skill and obstinacy, but are sanguinary conflict the Confederate lines were broken, and Richmond lay at the mercy of the Northern armies. Lee retreated to Appomattox Court House, but lishing a commission to secure uniformity was so closely followed by Grant that he was obliged to surrender with his whole route traffic, and break up harmful trade commissions. In 1888 North Dakota, South Dakota, Montana and Washington south Dakota, Montana and Washington territories were admitted as States. A territories were admitted as States. A bill passed in 1879 prohibiting the immigration of Chinese as laborers, amended in 1882 making the restriction to last for 20 years, was further amended in 1888 1865) upon his second term of the presidency when he was assasinated in Ford's theater at Washington by John or return unless they had previously procured certificates. President Cleveland as the seceded States returned to their allegiance to the Union they and prudent administration, signalized were readmitted to their state and national privileges, being obliged to agree to a number of amendments to the Constitution, two of which gave the manufitted slaves. by patient attention to details and strong assertion of official prerogative. In 1889 Benjamin Harrison, elected by the Republicans, became president, the issue of the campaign being Free-trade vs. Protection. One result was the enactment of a strongly protective tariff bill. Acts to admit Wyoming and Idaho as States were passed in 1890. On June 19 1890 the report of the International tion of General Grant to the presidency in 1868 served, in some measure, to consolidate matters. The government declared its ability to pay the enormous 19, 1890, the report of the International war debt, and an attempt was made to reform the civil service. The question of equal rights, without regard to color provides condition of servitude, gave rise in 1874 to hostile conditions in Brazil and the countries of Central and the Southern States between the negro and the white population. The difficult asks of the Grant administration. His stumbling-block between the United administration was also able by means of arbitration to bring the claim of skillful diplomacy, referred to a board of arbitration. In 1892 Cleveland was redepredations of the Alabama and other elected to the Presidency, and during his depredations of the Alabama and other elected to the Presidency, and during his cruisers built there, to a favorable issue administration a new tariff bill was for the United States. In 1876 a Cenpassed, under Democratic auspices, refor the United States. In 1846 a Centennial Exposition was held in Philadelphia, in celebration of the one hundredth year of American independence.

The exhibitors, from all parts of the signature. An interesting event of his
world, numbered 30,865, and the exposition was the most brilliant which had
been held up to that time. After a
presidency of two terms General Grant four centuries before. Another event of
was succeeded by Rutherford B. Hayes,
interest, as sustaining the 'Monroe Doc-

granted and an amiable settlement reached. In 1896 William McKinley, the Republican candidate, was elected to the presidency. Important events marked his administration. administration. An insurrection against Spain had broken out in Cuba, and the war there was attended by acts of barbarity against which the people of the United States vigorously protested. The battleship Maine, sent to Havana harbor, was sunk by an explosion, nearly all on board perishing. This untoward event led to a declaration of war and a brief period of hostilities succeeded, in which the United States was uniformly successful. Santiago, Cuba, was taken, after the destruction of the fieet guarding it, and a similar capture and destruction of a Spanish fleet took place at Manila, capital of the Philippine Islands. The result was the freeing of Cuba from Spanish rule, and the cession to the United States of Porto Rico, the Philippine Islands, and the small Pacific island of Guam. Another event of interest was to a declaration of war and a brief period Guam. Another event of interest was the annexation to the United States of the Hawaiian Islands, in the mid-Pacific. In 1900 the United States took part in the occupation of Peking, China, as a result of the 'Boxer' outbreak against the national embassies to that country. The gratitude of China was subsequently won by the government of this country. won by the government of this country, which remitted its share of the large indemnity which the offended nations had exacted.

In 1900 President McKinley was re-elected to the presidency, Theodore Roosevelt being elected vice-president. In September, 1901, the President was shot by an anarchist while visiting an exposition at Buffalo, New York, and died of the wound. Vice-President Roosedied of the wound, Vice-President Roose-velt succeeding to the presidency. Im-portant events of his administration were the full establishment of the republic of the full establishment of the republic of reform of the currency system; measures Cuba, the purchase by the United States of the partly completed Panama Canal income tax and popular vote for senators' and the taking of active steps towards its completion, the settlement by arbitration of the disputed boundary between Alaska and Canada, and the holding of a magnificent World's Fair at St. Louis, increased by a raid into American territory of the purchase of the great primitive expedition was sent into Mexcan stuation of practically the portant legislation, at the instance of eatire national guard, on the border.

trine,' was the intervention of the President, tending to control the dent in a controversy between Great operations of railroads and other corpor-Britain and Venezuela in regard to boundary questions. Cleveland went so to the presidency, and during this term far as to threaten forcible intervention instituted a number of reform movements, if Venezuela was despoiled of any of its bills being passed to regulate freight rightful territory, and demanded a set-thement by arbitration. This was finally of rebates in freight charges, to check granted and an amisple settlement unclean methods of meat packing and of rebates in freight charges, to check unclean methods of meat packing and adulteration of food-stuffs, and to in-vestigate the great business corporations, several of which proved to be nests of fraud and corruption. Among the general events was a Peace Conference held at Portsmouth, N. H., at the instance of President Roosevelt, which brought to an end the terrible war of 1904-1905 between Russia and Japan. In 1906 San Francisco was in great part destroyed by a severe earthquake and subsequent configgration, causing a loss that elici-ted large sympathetic contributions from all parts of the country. Oklahoma Territory and the Indian Territory were united in 1906 and admitted to the Union united in 1906 and admitted to the Union as a State, which was given the name of Oklahoma. Another event, of spectacular character, was a circumnavigation of the globe by a fleet of American battleships, which visited all the leading ports of the Pacific and returned to Hampton Roads, February 22, 1909. In 1908 William H. Taft, late Secretary of War, was nominated as the Republican War, was nominated as the Republican candidate for the presidency, elected in November, and inaugurated March 4, 1909. The beginning of his term was signalized by a special session of Congress and the enactment of a new tariff bill making considerable reductions in the customs charges. These reductions were not sufficient to give general satisfaction. President Taft was an advocate of several radical measures, one of these being a treaty of reciprocity with Canada, which was passed, but failed to meet the approval of Canada. The formation of a new party, the Progressive, was one of the notable political events of 1912, and another was the election to the presidency of Woodrow Wilson, a Democrat. The chief events of his administration were the passage of a lower tariff bill: the reform of the currency system; measures

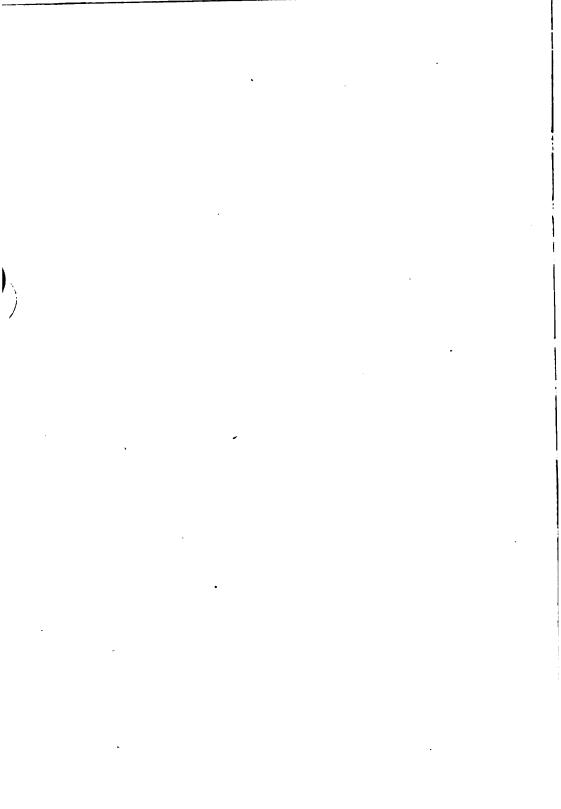


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AMERICAN TROOPS MARCHING TO THEIR CAMP IN FRANCE

AMERICAN TROOPS MARCHING TO THEIR CAMP IN FRANCE

A long column of "Sammees" just off the transport marching through a historic town "Somewhere in France" on their way to a training camp preparatory to taking their places in the front line trenches.



led to the breaking off of diplomatic reled to the breaking off of diplomatic relations with Germany in 1917, and war was threatened. The strength of the army was increased to 208,328 and a bill passed for large increases in the navy. The acquisition of the Danish West Indies was completed in 1917.

When the second term of Woodrow Wilson as President of the United States began, on March 4, 1917, the relations between this country and Germany had grown seriously strained as a result of the relentless U-boat war on the part of Ger-

relentless U-boat war on the part of Germany. It was growing evident that an overt act on the part of the latter country would precipitate war between the two nations. Diplomatic relations between these countries having already been broken, only open hostilities remained, and an attack on the liner Lucania by been as submarine was regarded as the overt act awaited. Congress was at once called into extra session and on April 4 and 5 the two Houses decided by heavy ma-jorities that a 'state of war' existed be-This action threw the nation into a state of intense activities and strenuous preparations, for hostile relations at once began. The navy was immediately mobilized, 90 German vessels in American ports (620,000 tons, \$148,000,000 value) were taken over by the government, together with 14 Austrian ships. Active financial measures were also instituted, consisting in a revenue bill for a bond issue of \$5,000,000,000 and a Liberty Loan for public subscription of \$2,000,000,000. Of the sums raised \$3,000,000,000 were to be loaned to the European allies of the United States. Other steps taken in war preparation were the conscription of the National Guard of volunteer soldiers into the Federal service and the passage of a selective conscription bill, covering all the young men of the nation between 21 and 31 years of age. Registration for this purpose was made on June 5, 1917, the number registered being about 10,000,000. In July a first duck In July a first draft was made, to cover an army of over 600,000, and a force of regulars was subsequently sent to France, under the command of General Pershing, late commander of the Villa punitive expedition to Mexico. This force was attacked on the high seas by German submarines, but reached Europe in safety. Other important steps taken were for the building of a large number of small ves-

German submarine attacks on shipping under the control of Herbert C. Hoover and Harry A. Garfield, and an embargo on and Harry A. Garneal, and an embargo on commerce between the United States and the neutral nations of Northern Europe which had been supplying Germany with war materials purchased in the United States. In October a second Liberty Loan was negotiated, the large sum of about \$5,000,000,000 being obtained from the people by these loans. Congress adjourned on October 6. after passing a war journed on October 6, after passing a war loan tax estimated to yield \$2,534,870,000 of revenue, chiefly by increased levies upon incomes and taxes on excess war profits. It also included an increase in the postal rates, stamps on checks, on theater tickets, travelers' tickets and various ater tickets, travelers' tickets and various other items of daily use. The second war appropriation of Congress in 1917 covered the large total of \$4,810,779,370, of which \$3,771,927,320 was made available for immediate use. This was the largest appropriation ever made in the United States, exceeding by more than \$2,000,000 the first bill passed. The war hand bill passed by Congress on Sentembond bill passed by Congress on September 6 amounted to \$11,538,945,460.

When Congress came again into session on December 3, its first act was to declare war against Austria, this being carried with only one dissenting vote. During the war a number of munition plants, stores of materials, vessels laden with war supplies, etc., had been destroyed, presumably by spies, and it became necessary to take steps to prevent Germen and Austria to take steps to prevent German and Austrian residents in this country from work of this kind and to pass stringent laws dealing with spies and alien enemies. Aliens were not permitted upon the water fronts of the seaport cities unless with permits, and decisive measures were taken to protect all depots of supplies. The in-dustrial staff of the country was largely employed in the production of war mate-rials, the railroads were requisitioned for the transportation and such materials and all the products of the country held subject to government demands. All this led to a large increase in the prices of food, fuel and other necessaries of life, some of these growing very scarce and dear, while the railroad service became so congested that on December 28 the President took possession and assumed control of the railroad lines of the country and the systems of water transportation under their control. William G. McAdoo was appointed Director General. Meanwhile large numbers of the newly organized army were transported to France withsels, fitted to cope with submarines, and sels, fitted to cope with submarines, and for the construction of 20,000 war aeroplanes for field service at the seat of war. being patrolled by swift destroyers. The Bills were also passed for the regulation new recruits were put under intensive of the food and fuel supply of the country, training on French soil and before the

most notable of the earlier writers were the theologians, such as Increase and Cotton Mather, Roger Williams, and above all Jonathan Edwards. The only one whose writings are still read to any extent was Benjamin Franklin, whose Autobiography and Poor Richard's Almanac are the only popular literature remaining from the colonial period. The succeeding or revolutionary era was chiefly remarkable for its political writers, emong whom when James (this (1725.83)) remarkable for its political writers, among whom were James Otis (1725-83), Josiah Quincy (1744-75). John Adams (1735-1826), Thomas Jefferson (1743-1826), Alexander Hamilton (1757-1804), John Jav (1745-1829), and James Madison (1751-1836). Of historical writings belonging to this period there were the History of New England by Hannah Adams; of the American Revolution, by William Gordon and David Ramsay, and the Annals of America, by Abiel Holmes. Philology was represented at this time by the Annals of America, by Abiel Holmes. Philology was represented at this time by Lindley Murray (1745-1826), and by Noah Webster (1758-1843), the compiler of a famous dictionary. The list of poets includes Philip Freneau (1752-1832), John Trumbull (1750-1831), and Joel Barlow (1755-1812). The first well-known novelist was Charles Brockden Brown (1771-1810).

It was not, however, until the nine-teenth century that the United States produced the higher forms of pure literaproduced the higher forms of pure literamany writers of recent date that might ture. The poets of this epoch may be headed by William Cullen Bryant (1794-1878), and following him come Richard H. Dana (1787-1879). Charles Sprague United States, POLITICAL DEVELOP-(1791-1875), James G. Percival (1795-1820), description of the United States so far Washington Allston (1779-1843), Fitz-given is confined to its natural condifications and its industrial, historical and

year ended many of them were in the trenches, getting their final discipline under the guns of the foe. Their presence on the battlefield and a large increase 'Home, Sweet Home'), and Stephen in their numbers were felt to be absolutely necessary. The coal situation became acute at the end of 1917 and the beginning (1807-92), Henry W. Longfellow (1807-94), Henry W. Longfellow (1807-95), Henry W. Longfellow (1807-96), Henry W. Longfellow (1807-96), Henry W. Longfellow (1807-97), Henry W. Longfellow (1807-98), James dered cessation of general industries for a period of five days and the Monday of each week for several weeks.

Literature.—The first literary work of any consequence in the United States was a translation of Ovid's Metamorphoses by George Sandys, written in Virginia (1620) and published in London (1626), and a Puritan edition of the Psalms (1640). The journals and annals of John Winthrop (1588-1649), governor of Massachusetts, Edward Winslow (1595-1655), governor of Plymouth colony, Nathaniel Morton (1613-85), etc., have been valuable to the historian. The most notable of the earlier writers were free, Frank Stockton, Louisa May Alcott, the theologians, such as Increase and Cotton Mather, Roger Williams, and short tale, most famous among them being above all Jonathan Edwards. The only one whose writings are still read to any numerous to mention. Humorous writers Edgar Allan Poe, followed by others too also became numerous, the most famous among them being Washington Irving, James Russell Lowell, Samuel L. Clemens ('Mark Twain') and Charles Farrar Brown ('Artemus Ward'). The United States has been the birth-

The United States has been the birth-place of a number of historians of su-perior merit, chief among whom are George Bancroft (1800-91), John Fiske (1842-1901), William H. Prescott (1796-1859), George Ticknor (1791-1871), John Lothrop Motley (1814-77), Francis Parkman (1823-93), Woodrow Wilson (born 1856), John Bach McMaster (born 1852), and others. Of writers who achieved fame in other fields than those and others. Or writers who achieved fame in other fields than those mentioned may be named Washington Irving, Ralph Waldo Emerson, whose Essays are of world-wide fame; Henry D. Thoreau, Bayard Taylor, William Ellery Channing and George W. Curtis. The orators of high reputation include such well-known names as Partiel However the such that we would be such that the such that we would be such that the such orators of nign reputation include such well-known names as Patrick Henry, Daniel Webster, Henry Clay, John C. Calhoun, Edward Everett, Wendell Phillips, Henry Ward Beecher and Charles Sumner. This compilation of names is by no means exhaustive, and there are many writers of recent date that might well have been edded but the liest given

literary progress. To gain a fuller idea of its progress and significance as a whole, it seems desirable to speak of its political development, as exemplified in the several great State papers which which have few counterparts in the history of any other country. The United States differs from republics in general in the fact that its system is the result of a gradual evolution instead of a revo-lutionary overthrow, as in the case of France; or of imitation, as in the case of the other American republics, the governments of which were based upon that of the United States. The repub-lic of Switzerland alone were public of lic of Switzerland alone resembles that of the United States as being a result of political evolution. But it is on so small pointcar evolution. But it is on so small a scale that it cannot properly be compared to the giant federal organization of the United States, which ranks in size with the greatest of the world's nations, covering half a continent. The stages by which the organization of this great government was reached are indigreat government was reached are indi-cated in the Declaration of Independence, the Constitution, and the other great documents which appeared from time to time, each as the outcome of a period of time, each as the outcome of a period of preceding development and each as a stepping stone of a future development in the great problem of political progress. This country has been democratic in sentiment from its origin in the colonies that settled at successive periods, along the Atlantic coast, their people plainly indicating this feeling, and resisting all efforts to subject them to the dominance of king or parliament without dominance of king or parliament without due representation. They insisted on hav-ing their own legislatures, making their own laws, paying their own officials, and in other ways maintaining a just degree of independence. This spirit is shown in all the American State papers.

At a very early date in the history of the United States, that on which the Pilgrims sought a new home beyond the sees on the bleek New England shore.

seas on the bleak New England shore, the immigrants gathered in the cabin of their little ship, the Mayfower, and drew up for themselves a compact of government in which they determined to make their own laws and choose their own government. This brief declaration of intentions, dating from 1620, forms the first chapter in the great volume of documentary American history, and we give it here as the genesis of American political progress.

loyall subjects of our dread Soveraigne Lord King James, by ye grace of God of Great Britaine, France, and Ireland, King, defender of ye faith, &c., having undertaken, for ye glorie of God and advancement of ye Christian faith, and honour of our King and countrie, a voyage to plant the first colony in ye Northerne parts of Virginia, doe by these presents solemnly and mutually in ye presence of God and one of another, covenant and combine ourselves together into a civill body politick, for our better into a civill body politick, for our better ordering and preservatione and furtherance of ye ends aforesaid; and by vertue hereof to enact, constitute, and frame such just and equall lawes, ordinances, acts, constitutions, and offices, from time to time, as shall be thought most meete and convenient for ye generall good of ye colonie, unto which we promise all due submission and obedience. In witness whereof we have hereunto subscribed our names, Cape Cod 11 of November, in the yeare of the raigne of our Soveraigne Lord King James of England, France, and Ireland 18 and of Scotland 54. Anno Domini, 1620.

Passing onward down the road of dereasing onward down the road of development, it is proper to state that Virginia had already a legislature of its own election, though under a governor appointed by the king. The New England colonies went farther, electing their own legislatures and governors and making their own laws, so that from their origin they were practically republics, their alle-giance to the distant king being one rather of formality than of submission. In 1639 the New Haven colony became so In 1639 the New Haven colony became so liberal as to give all freemen the right to vote, embodying this principle in a written instrument, the first known in history drawn up by a people for their own government. The document made no mention of the English king or company, and was in effect the constitution of a separate republic. In 1643 a step was taken towards the formation of a federal republic, the colonies of Plymouth, Massachusetts, Connecticut and New Haven forming a confederation for defense against the Dutch and Indians. This they called 'The United Colonies of New England.'

The time came when it appeared de-

The time came when it appeared desirable to combine all the colonies for defensive purposes, and in 1754 a con-vention was held in Albany in which political progress.

THE MAYFLOWER COMPACT
In the name of God, Amen: We, whose names are underwritten, the colonies under the following terms: Franklin suggested that Philadelphia, the most central large city, should be the capital of the united colonies. The government sitting here was to consist of a grand council, elected every third year by the colonies, but holding yearly meetings, with a governor-general appointed by the king with power of veto over all laws. This government was to have the power to make general laws, levy taxes, regulate commerce and perform other governmental duties. This governmental scheme proved in advance of the times and was rejected, the colonies thinking that it took too much power from them to give it to the general government, the king that it gave too much power to the colonies.

The first colonial congress held in America was that known as the 'Stamp Act Congress,' held at New York in 1765, and composed of delegates from nine of the colonies, its purpose being to consider the threatening relations between the Parliament of Britain and the colonies of America. It made an appeal to the king for American rights. In 1774 the idea of colonial union had further advanced and the 'First Continental Congress' met in Philadelphia, all the colonies but Georgia being represented. It also petitioned the king to redress the wrongs of the colonists, and drew up a declaration of rights. It did not ask for American representation in Parliament, but demanded the right to make all laws, except those relating to foreign commerce, and to levy all taxes needed for colonial uses. In 1775 the 'Second Continental Congress' met, with delegates from all the colonies. This issued a 'Declaration of Colonial Rights,' and on July 4, 1776, a 'Declaration of Independence.' This famous paper, with which the history of the United States began, is here given.

THE DECLARATION OF INDE-PENDENCE

IN CONGRESS JULY 4, 1776.

The unanimous declaration of the thirteen United States of America. When in the course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth the separate and equal station to which the Laws of Nature and of Nature's God entitles them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

We hold these truths to be selfevident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness. That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed. That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness. Prudence, indeed, will dictate that Governments long established should not be changed for light and transient causes; and accordingly all experience hath shown, that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses and usurpations, pursuing invariably the same Object, evinces a design to reduce them under absolute Despotism, it is their right, it is their duty, to throw off such Government, and to provide new Guards for their future security. Such has been the patient sufferance of these Colonies; and such is now the necessity which constrains them to alter their former Systems of Government. The history of the present King of Great Britain is a history of repeated injuries and usurpations, all having in direct ob-ject the establishment of an absolute Tyranny over these States. To prove this, let Facts be submitted to a candid world.

He has refused his Assent to Laws, the most wholesome and necessary for the public good.

He has forbidden his Governors to pass Laws of immediate and pressing importance, unless suspended in their operation till his Assent should be obtained; and when so suspended, he has utterly neglected to attend to them.

utterly neglected to attend to them.

He has refused to pass other Laws for the accommodation of large districts of people, unless those people would reinquish the right of Representation in the Legislature, a right inestimable to them and formidable to tyrants only.

He has called together legislative bodies at places unusual, uncomfortable, and distant from the depository of their public Records, for the sole purpose of fatiguing them into compliance with his measures.

dissolved Houses repeatedly, for opposing with ments: manly firmness his invasions on the rights For

of the people.

He has refused for a long time, after such dissolutions, to cause others to be elected; whereby the Legislative powers, incapable of Annihilation, have re-turned to the People at large for their exercise; the State remaining in the meantime exposed to all the dangers of invasion from without, and convulsions within.

He has endeavored to prevent the population of these States; for that purpose obstructing the Laws for Naturalization of Foreigners, refusing to pass others to encourage their migrations hither, and raising the conditions of new Appropriations of Lands.

He has obstructed the Administration of Justice, by refusing his Assent to Laws for establishing Judiciary Powers.

He has made Judges dependent on his Will alone, for the tenure of their offices, and the amount and payment of their

salaries.

He has erected a multitude of New Offices, and sent hither swarms of Officers to harass our people, and eat out merciless Indian Savages, whose known their substance.

He has kept among us, in times of peace, Standing Armies without the Con-

sent of our legislature.

He has affected to render the Military independent of and superior to the Civil

power.

He has combined with others to subject us to a jurisdiction foreign to our constitution, and unacknowledged by our laws; giving his Assent to their Acts of pretended Legislation:

For quartering large bodies of armed

troops among us.

For protecting them, by a mock Trial, from punishment for any Murders which they should commit on the Inhabitants of these States:

For cutting off our Trade with all parts of the world:

For imposing Taxes on us without our

For depriving us in many cases of the benefits of Trial by jury: For transporting us beyond Seas to be

tried for pretended offences:

For abolishing the free System of English Laws in a neighboring Province, establishing therein an Arbitrary gov-ernment, and enlarging its Boundaries so as to render it at once an example and fit instrument for introducing the same absolute rule into these Colonies:
For taking away our Charters, abolish-

Representative fundamentally the Forms of our Govern-

For suspending our own Legislatures. and declaring themselves invested with power to legislate for us in all cases whatsoever.

He has abdicated Government here, by declaring us out of his Protection and waging War against us.

He has plundered our seas, ravaged our Coasts, burnt our towns, and destroyed the lives of our people.

He is at this time transporting large Armies of foreign Mercenaries to com-plete the works of death, desolation and tyranny, already begun with circum stances of Cruelty and perfidy scarcely paralleled in the most barbarous ages, and totally unworthy the Head of a civilized nation.

He has constrained our fellow-Citizens taken captive on the high Seas to bear Arms against their Country, to become the executioners of their friends and Brethren, or to fall themselves by their

Hands.

He has excited domestic insurrections among us, and has endeavored to bring on the inhabitants of our frontiers, the rule of warfare is an undistinguished de struction of all ages, sexes and conditions.

In every stage of these Oppressions We have Petitioned for Redress in the most humble terms. Our repeated Petr tions have been answered only by repeated injury. A Prince, whose character is thus Marked by every act which may define a Tyrant, is unfit to be the ruler

of a free people.

Nor have We been wanting in attenwarned them from time to time of attempts by their legislature to extend an unwarrantable jurisdiction over us. We have reminded them of the circumstances of our emigration and settlement here. We have appealed to their native justice and magnanimity, and we have conjured them by the ties of our com-mon kindred to disavow these usurpations, which would inevitably interrupt our connections and correspondence. They too have been deaf to the voice of justice and of consanguinity. We must therefore, acquiesce in the necessity which denounces our Separation, and hold them, as we hold the rest of mankind, Enemies in War, in Peace Friends.

WE, THEREFORE, the REPRESENTATIVES of the United States of America, in GENERAL CONGRESS Assembled, appealing to the Supreme Judge of the world ing our most valuable Laws, and altering for the rectitude of our intentions, do, in

People of these Colonies, solemnly Publish and DECLARE, That these United Colonies are, and of Right ought to be FREE AND the British Crown, and that all political connection between them and the State for Great Britain, is and ought to be totally dissolved: and that as FREE AND these Colonies are and political connection between them and the State from defence, the security of their liberties. totally dissolved; and that as FREE AND INDEPENDENT STATES, they have full Power to levy War, conclude Peace, contract Alliances, establish Commerce, and to do all other Acts and Things which INDEPENDENT STATES may of right do.
And for the support of this Declaration,
with a firm reliance on the protection of
fivine Providence, We mutually pledge
to each other our Lives, our Fortunes,
and our sacred Honor.

In this notable paper the colonies united in declaring their independence from Great Britain, but they were still separate commonwealths, though fighting together for one general object. Something further was needed. In the Declaration they called themselves simply 'Free and Independent States.' If they were to be 'United States' a great further step in political evolution was needed. To win their independence an actual Union appeared necessary, and on July 11, 1776, the Continental Congress appointed a committee to draw up a form of confederation for the States. This was completed and signed July 9, 1778, but its ratification was made gradually by the several States, Maryland being the last to accept it (January 30, 1781). The first Congress under the confederation met on March 2, 1781. This first form of a United States Constitution is of much importance as a step forward towards a firm and durable Union. It is here appended:

THE ARTICLES OF CONFEDERA-TION

ARTICLES OF CONFEDERATION AND PER-PETUAL UNION BETWEEN THE STATES
OF NEW HAMPSHIRE, MASSACHUSETTS
BAY, RHODE ISLAND AND PROVIDENCE PLANTATIONS, CONNECTICUT, NEW YORK, NEW JERSEY. PENNSYLVANIA, DELA-NEW JERSEY, PENNSYLVANIA, DELA-WARE, MARYLAND, VIRGINIA, NORTH CAROLINA, SOUTH CAROLINA, AND

Article I. The style of this Confederacy shall be, 'The United States of America.'

Article II. Each State retains its

fare, binding themselves to assist each other against all force offered to, or attacks made upon them, or any of them,

on account of religion, sovereignty, trade, or any other pretence whatever.

Article IV. The better to secure and perpetuate mutual friendship and intercourse among the people of the different States in this Union, the free inhabitants of each of these States, paupers, vagabonds, and fugitives from justice excepted, shall be entitled to all privileges and immunities of free citizens in the and immunities of free citizens in the several States; and the people of each State shall have free ingress and egress to and from any other State, and shall enjoy therein all the privileges of trade and commerce subject to the same duties, impositions, and restrictions as the inhabitants thereof respectively; provided that such restrictions shall not extend so far as to prevent the removal of property imported into any State to any other State of which the owner is an inhabit-ant; provided also, that no imposition, duties, or restriction shall be laid by any State on the property of the United States or either of them. If any person guilty of, or charged with, treason, fel-ony, or other high misdemeanor in any State shall flee from justice and be found in any of the United States, he shall, upon demand of the governor or executive power of the State from which he field, be delivered up and removed to the State having jurisdiction of his offence. Full faith and credit shall be given in each of these States to the records, acts. each of these States to the records, acts, and judicial proceedings of the courts and magistrates of every other State.

Legislature of each State shall direct, to meet in Congress on the first Monday in November, in every year, with a power reserved to each State to recall its delegates, or any of them, at any time within the year, and to send others in their stead for the remainder of the year. No State shall be represented in Congress by less than two, nor by more than seven members; and no person shall be three years in any term of six years; nor shall any person, being a delegate, be capable of holding any office under the United States for which he, or another for his benefit, receives any salary, fees, or emolument of any kind. Each State shall maintain its own delegates in any meeting of the States and while they act as members of the Committee of the States. In determining questions in the United States in Congress assembled, each State shall have one vote. Freedom of speech and debate in Congress shall or speech and denate in Congress snail not be impeached or questioned in any court or place out of Congress; and the members of Congress shall be protected in their persons from arrests and imprisonments during the time of their going to and from, and attendance on, Congress areas are attended to the congress of the gress, except for treason, felony, or breach of the peace.

Article VI. No State, without the consent of the United States in Congress

assembled, shall send any embassy to, or assembled, shall send any embassy to, or receive any embassy from, or enter into any conference, agreement, alliance, or treaty with any king, prince, or state; nor shall any person holding any office of profit or trust under the United States, or any of them, accept of any present, emolument, office, or title of any king whatever from any king, prince, or foreign state; nor shall the United States in Congress assembled, or any of States in Congress assembled, or any of them, grant any title of nobility.

No two or more States shall enter into any treaty, confederation, or alliance whatever between them, without the consent of the United States in Congress assembled, specifying accurately the pur-

poses for which the same is to be entered into, and how long it shall continue.

No State shall lay any imposts or duties which may interfere with any stipulations in treaties entered into by the United States in Congress assembled with any king, prince, or state, in pursuance of any treaties already proposed by Congress to the courts of France and Spain.

No vessel of war shall be kept up in time of peace by any State, except such number only as shall be deemed neces-sary by the United States in Congress assembled for the defence of such State or its trade, nor shall any body of forces be kept up by any State in time of peace, be kept up by any State in time of peace, portion shall be lated and levied by the except such number only as, in the judgment of the United States in Congress tures of the several States, within the
assembled shall be deemed requisite to time agreed upon by the United States
garrison the forts necessary for the dein Congress assembled.

Article IX. The United States in
shall always keep up a well-regulated Congress assembled shall have the soli-

capable of being a delegate for more than and disciplined militia, sufficiently armed three years in any term of six years; nor and accounted, and shall provide and constantly have ready for use in public stores a due number of field-pieces and tents, and a proper quantity of arms,

ammunition, and camp equipage.

No State shall engage in any war without the consent of the United States in Congress assembled, unless such State be actually invaded by enemies, or shall have received certain advice of a resolution being formed by some nation of In-dians to invade such State, and the danger is so imminent as not to admit of a delay till the United States in Congress assembled can be consulted; nor shall assembled can be consulted; nor snail any State grant commissions to any ships or vessels of war, nor letters of marque or reprisal, except it be after a declaration of war by the United States in Congress assembled, and then only against the kingdom or state, and the subjects thereof, against which war has been so declared and under such results. been so declared, and under such regulations as shall be established by the United States in Congress assembled, unless such States in Congress and accompany which case vessels of war may be fitted out for that occasion, and kept so long as the danger shall continue, or until the United States in Congress assembled shall determine otherwise.

Article VII. When land forces are raised by any State for the common defence, all officers of or under the rank of Colonel shall be appointed by the Legislature of each State respectively by whom such forces shall be raised, or in such manner as such State shall direct, and all vacancies shall be filled up by the State which first made the appointment.

Article VIII. All charges of war, and all other expenses that shall be incurred for the common defence, or general wel-fare, and allowed by the United States in Congress assembled, shall be defrayed out of a common treasury, which shall be supplied by the several States in proportion to the value of all land within each State, granted to, or surveyed for, any person, as such land and the buildings and improvements thereon shall be estimated, according to such mode as the United States in Congress assembled shall, from time to time, direct and appoint the transfer of the congress assembled shall, from time to time, direct and appoint the transfer of the congress assembled shall, from time to time, direct and appoint the transfer of the congress assembled to the congress as the congress and the congress as the congress and the congress and the congress as the congress and the congress as the congress point. The taxes for paying that proportion shall be laid and levied by the authority and direction of the Legislatures of the several States, within the

and exclusive right and power of determining on peace and war, except in the cases mentioned in the sixth Article; of sending and receiving ambassadors; entering into treaties and alliances, provided that no treaty of commerce shall be made, whereby the legislative power of the respective States shall be restrained from imposing such imposts and duties on foreigners as their own people are subjected to, or from prohibiting the exportation or importation of any species of goods or commodities whatever; of establishing rules for deciding, in all cases, what captures on land or water shall be legal, and in what manner prizes taken by land or naval forces in the service of the United States shall be divided or appropriated; of granting letters of marque and reprisal in times of peace; appointing courts for the trial of piracies and felonies committed on the high seas; and establishing courts for receiving and determining finally appeals in all cases of captures; provided that no member of Congress shall be appointed a judge of

any of the said courts.

The United States in Congress assembled shall also be the last resort on appeal in all disputes and differences now subsisting, or that hereafter may arise between two or more States concerning boundary, jurisdiction, or any other cause whatever; which authority shall always be exercised in the manner following: Whenever the legislative or executive authority, or lawful agent of any State in controversy with another, shall present a petition to Congress, stating the matter in question, and praying for a hearing, notice thereof shall be given by order of Congress to the legislative or executive authority of the other State in controversy, and a day assigned for the appearance of the parties by their lawbetween two or more States concerning appearance of the parties by their law-ful agents, who shall then be directed to appoint, by joint consent, commissioners or judges to constitute a court for hearing and determining the matter in question; but if they cannot agree, Congress shall name three persons out of each of the United States, and from the list of such persons each party shall alternately strike out one, the petitioners beginning, until the number shall be reduced to thirteen; and from that number not less than seven nor more than nine names, as Congress shall direct, shall, in the presence of Congress, be drawn out by lot; and the persons whose names shall be so not members of any of the States; prodrawn, or any five of them, shall be vided that the legislative right of any commissioners or judges, to hear and State, within its own limits, be not infinally determine the controversy, so fringed or violated; establishing and always as a major part of the judges who regulating post-offices from one State to

shall hear the cause shall agree in the determination; and if either party shall neglect to attend at the day appointed, without showing reasons which Congress shall judge sufficient, or being present, shall refuse to strike, the Congress shall proceed to nominate three persons out of each State, and the secretary of Congress shall strike in behalf of such party absent or refusing; and the judgment and sentence of the court, to be appointed in the manner before prescribed, shall be final and conclusive; and if any of the parties shall refuse to submit to the authority of such court, or to appear or defend their claim or cause, the court shall nevertheless proceed to pronounce sentence or judgment, which shall in like manner be final and decisive; the judgment or sentence and other proceedings being in either case transmitted to Congress, and lodged among the acts of Congress for the security of the parties concerned; provided, that every commissioner, before he sits in judgment, shall take an oath, to be administered by one of the judges of the supreme or superior court of the State where the cause shall be tried, 'well and truly to hear and determine the matter in question, according to the best of his judgment, without favor, affection, or hope of reward.' Provided, also, that no State shall be de-prived of territory for the benefit of the United States.

United States.

All controversies concerning the private right of soil claimed under different grants of two or more States, whose jurisdictions, as they may respect such lands, and the States which passed such grants are adjusted, the said grants or either of them being at the same time claimed to have originated antecedent to such sattlement of jurisdiction shall constituted. such settlement of jurisdiction, shall, on the petition of either party to the Congress of the United States, be finally determined, as near as may be, in the same manner as is before prescribed for deciding disputes respecting territorial jurisdiction between different States.

The United States in Congress as-The United States in Congress assembled shall also have the sole and exclusive right and power of regulating the alloy and value of coin struck by their own authority, or by that of the respective States; fixing the standard of weights and measures throughout the United States; regulating the trade and measures all affeirs with the Indians managing all affairs with the Indians,

another, throughout all the United States, and exacting such postage on the papers passing through the same as may be requisite to defray the expenses of the said office; appointing all officers of the land forces in the service of the United States, excepting regimental officers; appointing all the officers of the naval forces, and commissioning all officers whatever in the service of the United States; making rules for the government and regulation of the said land and naval forces, and directing their operations.

The United States in Congress assembled shall have authority to appoint sembled shall have authority to appoint a committee, to sit in the recess of Congress, to be denominated 'a Committee of the States,' and to consist of one delegate from each State, and to appoint such other committees and civil officers as may be necessary for managing the general affairs of the United States under their direction; to appoint one of their number to preside: provided that their number to preside; provided that no person be allowed to serve in the office of president more than one year in any term of three years; to ascertain the necessary sums of money to be raised for the service of the United States, and to appropriate and apply the same for de-fraying the public expenses; to borrow money or emit bills on the credit of the United States, transmitting every half year to the respective States an account of the sums of money so borrowed or emitted; to build and equip a navy; to agree upon the number of land forces, and to make requisitions from each State for its quota, in proportion to the num-ber of white inhabitants in each State, which requisition shall be binding; and thereupon the Legislature of each State shall appoint the regimental officers, raise the men, and clothe, arm, and equip them in a soldier-like manner, at the expense of the United States; and the officers and men so clothed, armed, and equipped shall make the bales. and equipped shall march to the place and equipped shall march to the place appointed, and within the time agreed on by the United States in Congress assembled; but if the United States in Congress assembled shall, on consideration of circumstances, judge proper that any State should not raise men, or should raise a smaller number than its quota, and that any other State should raise a greater number of men than the quota thereof, such extra number shall be raised, officered, clothed, armed, and equipped in the same manner as the quota of such State, unless the Legisla-

raise, officer, clothe, arm, and equip as many of such extra number as they judge can be safely spared, and the officers and men so clothed, armed, and equipped shall march to the place appointed, and within the time agreed on by the United States in Congress assembled.

The United States in Congress assembled shall never engage in a war, nor grant letters of marque and reprisal in time of peace, nor enter into any treaties or alliances, nor coin money, nor regulate the value thereof, nor ascertain the sums and expenses necessary for the defence and welfare of the United States, or any of them, nor emit bills, nor borrow money on the credit of the United States, nor appropriate money, nor agree upon the number of vessels of war to be built or purchased, or the number of land or sea forces to be raised, nor appoint a commander-in-chief of the army or navy, unless nine States assent to the same, nor shall a question on any other point, except for adjourning from day to day, be determined, unless by the votes of a majority of the United States in Congress assembled.

or the United States in Congress assembled.

The Congress of the United States shall have power to adjourn to any time within the year, and to any place within the United States, so that no period of adjournment be for a longer duration than the space of six months, and shall publish the journal of their proceedings monthly, except such parts thereof relating to treaties, alliances, or military operations as in their judgment require secrecy; and the yeas and nays of the delegates of each State, on any question, shall be entered on the journal when it is desired by any delegate; and the delegates of a State, or any of them, at his or their request, shall be furnished with a transcript of the said journal except such parts as are above excepted, to lay before the Legislatures of the several States.

Article X. The Committee of the States, or any nine of them, shall be authorized to execute, in the recess of Congress, such of the powers of Congress as the United States in Congress assembled, by the consent of nine States, shall, from time to time, think expedient to vest them with; provided that no power be delegated to the said Committee, for the exercise of which, by the Articles of Confederation, the voice of nine States in the Congress of the United States assembled is requisite.

extra number cannot be safely spared of the same, in which case they shall ures of the United States, shall be ad-

mitted into, and entitled to all the advantages of this Union; but no other colony shall be admitted into the same, unless such admission be agreed to by nine States.

Artiole XII. All bills of credit emitted, moneys borrowed, and debts contracted by or under the authority of Congress, before the assembling of the United States, in pursuance of the present Confederation, shall be deemed and considered as a charge against the United States, for payment and satisfaction whereof the said United States and the public faith are hereby solemnly pledged. pledged.

Article XIII. Every State shall abide by the determinations of the United States in Congress assembled on all questions which by this Confederation are submitted to them. And the Articles of this Confederation shall be inviolably observed by every State, and the Union shall be perpetual; nor shall any alteration at any time herefore he any alteration at any time hereafter be made in any of them, unless such altera-tion be agreed to in a Congress of the United States, and be afterwards confirmed by the Legislatures of every State.

AND WHEREAS it bath pleased the Great Governor of the world to incline the hearts of the Legislatures we respectively represent in Congress to approve of, and to authorize us to ratify, the said of, and to authorize us to ratify, the said Articles of Confederation and perpetual Union, know ye, that we, the undersigned delegates, by virtue of the power and authority to us given for that purpose, do, by these presents, in the name and in behalf of our respective constituents, fully and entirely ratify and confirm each and every of the said Articles of Confederation and perpetual confirm each and every of the said Articles of Confederation and perpetual Union, and all and singular the matters and things therein contained. And we do further solemnly plight and engage the faith of our respective constituents, that they shall abide by the determinations of the United States in Congress assembled on all questions which by the said Confederation are submitted to them; and that the Articles thereof shall be inviolably observed by the States we

their purpose while the war for independence continued. The necessity of ordain and establish this Constitution working together was then imperative. For the United States of America.

But the war had no sooner ended than Article I. Legislative Powers.—Section 1. But the war had no sooner ended than Article I. Legislative Powers.— Sectheir innate weakness became apparent. MON I. All legislative powers herein The States had kept too large a share of granted shall be vested in a Congress of

power for themselves and left the Confederation a weak and almost powerless body. They had retained the power of body. They had retained the power of taxation, which proved a fatal defect. No Union could hold together with the purse-strings in the hands of thirteen semi-independent commonwealths. Also there was no President, Congress being at once the legislative and the executive body. The new government could pass laws but could not make the people obey them. It could incur debt but could not tax the people for money to pay its debts. The States were to provide money for this purpose, but they showed little inclination to do so. They were jealous of one another and each was inclined to act as a single nation. Washington thus described the situation:
'We are one nation to-day and thirteen to-morrow.' Evidently the political evo-lution of the United States was far from complete. It must go farther or go back to dissolution; be one strong nation or thirteen weak ones. The last alterna-tive frightened the States. They were already being pressed and threatened by arready being pressed and threatened by foreign nations. Feeling that they could not stand alone, and could not keep together under the Articles of Confederation, a convention was called to revise these Articles. It met at Philadelphia in 1787. The Articles of Confederation proved unsuited for evision or charge of the confederation of the conf proved unsuited for revision, no change could make them serve the purpose, and the convention devoted its four months of labor to working out a new Constitu-tion. This Constitution, as afterwards amended, is that under which the United states has since been governed. Gladstone has spoken of it as the greatest document ever produced by the force of human genius. Its full text, with its amendments, follows, with the understanding that the headlines of the several sections as how given such as the product of the several sections as how given such as the product of the several sections as how the several text.

said Confederation are submitted to them; and that the Articles thereof shall be inviolably observed by the States we respectively represent, and that the United States, in order to form a more union shall be perpetual.

The Articles of Confederation served welfare, and secure the blessings of libert to our posterity does not contain the common defence. liberty to ourselves and our posterity, do

the United States, which shall consist of

a Senate and House of Representatives.
House of Representatives.—SECTION
II. 1. The House of Representatives
shall be composed of members chosen

shall be composed of members chosen ators of tevery second year by the people of the several States, and the electors in each state shall have the qualifications requisite for electors of the most numerous branch of the State Legislature.

Qualifications of Representatives.—2.

No person shall be a Representative who shall not have attained to the age of twenty-five years, and been seven years ecutive the a citizen of the United States, and who shall not, when elected, be an inhabitant of that State in which he shall be vacancies.

Qualific

chosen.

Apportionment of Representatives.— 3. Representatives and direct taxes shall be apportioned among the several States which may be included within this Union according to their respective numbers, which shall be determined by adding to the whole number of free persons, including those bound to service for a term of years, and excluding Indians not taxed, three-fifths of all other persons. The actual enumeration shall be made within three years after the first meeting of the Congress of the United States, and within every subsequent term of ten years, in such manner as they shall by law direct. The number of Representa-tives shall not exceed one for every thirty thousand, but each State shall have at least one Representative; and until such enumeration shall be made, the State of enumeration shall be made, the State of New Hampshire shall be entitled to choose 3; Massachusetts, 8; Rhode Island and Providence Plantations, 1; Connecticut, 5; New York, 6; New Jersey, 4; Pennsylvania, 8; Delaware, 1; Maryland, 6; Virginia, 10; North Carolina, 5; South Carolina, 5, and Georgia, 3.*

Vacancies, How Filled.—4. When vacancies happen in the representation from any State, the Executive Authority thereof shall issue writs of election to

fill such vacancies.

Officers, How Appointed.—5. The House of Representatives shall choose their Speaker and other officers, and shall have the sole power of impeach-

Senate.— Section III. 1. The Senate of the United States shall be composed of two Senators from each State, chosen by the Legislature thereof, for six years; and each Senator shall have one vote.

Classification of

mediately after they shall be assembled in consequence of the first election, they shall be divided as equally as may be into three classes. The seats of the Senators of the first class shall be vacated at the expiration of the second year, of at the expiration of the second year, of the second class at the expiration of the fourth year, and of the third class at the expiration of the sixth year, so that one-third may be chosen every second year; and if vacancies happen by resig-nation, or otherwise, during the recess of the Legislature of any State, the Ex-ecutive thereof may make temporary ap-pointments until the next meeting of the Legislature, which shall then fill such vacancies.

Qualifications of Senators.—3. No person shall be a Senator who shall not have attained to the age of thirty years, and been nine years a citizen of the United States, and who shall not, when elected, be an inhabitant of that State for which he shall be chosen.

President of the Senate. - 4. The Vice-President of the United States shall be President of the Senate, but shall have no vote unless they be equally divided.

5. The Senate shall choose their other

officers, and also a President pro tempore, in the absence of the Vice-President, or when he shall exercise the office of Presi-

when he shall exercise the office of President of the United States.
Senate a Court for Trial of Impeachments.—6. The Senate shall have the sole power to try all impeachments.
When sitting for that purpose, they shall be on oath or affirmation. When the President of the United States is tried, the Chief Justice shall preside; and no person shall be convicted without the concurrence of two-thirds of the members present. present.

Judgment in Case of Conviction.—7. Judgment in cases of impeachment shall not extend further than to removal from office, and disqualification to hold and enjoy any office of honor, trust, or profit under the United States; but the party convicted shall nevertheless be liable and

subject to indictment, trial, judgment, and punishment, according to law.

Elections of Senators and Representatives.—Section IV. 1. The times, places, and manner of holding elections for Senators and Representatives shall be prescribed in each State by the Legislature thereof; but the Congress may at any time by law make or alter such regulations, except as to places of choosing Senators.

Meeting of Congress.—2. The Con-Senators.—2. Im- gress shall assemble at least once in every year, and such meeting shall be on the first Monday in December, unless

^{*} See Article XIV, Amendments.

they shall by law appoint a different

Organization of Congress.— Section V. I. Each House shall be the judge of the elections, returns, and qualifications of its own members, and a majority of each shall constitute a quorum to do business; but a smaller number may adjourn from day to day, and may be authorized to compel the attendance of absent members in such manner and under such penalties as each House may provide.

Rule of Proceedings.—2. Each House may determine the rules of its proceedings, punish its members for disorderly behavior, and with the concurrence of

two-thirds expel a member.

Journals of each House.—3. Each House shall keep a journal of its proceedings, and from time to time publish the same, excepting such parts as may in their judgment require secrecy; and the yeas and nays of the members of either House on any question shall, at the desire of one-fifth of those present, be entered on the journal. Adjournment of Congress.—4. Neither

House, during the session of Congress, shall, without the consent of the other, adjourn for more than three days, nor to any other place than that in which the two Houses shall be sitting.

Pay and Privileges of Members.— Section VI. 1. The Senators and Representatives shall receive a compensation for their services, to be ascertained by law, and paid out of the Treasury of the United States. They shall in all cases, except treason, felony, and breach of the peace, be privileged from arrest during their extendences. peace, be privileged from affect during their attendance at the session of their respective Houses, and in going to and returning from the same; and for any speech or debate in either House they shall not be questioned in any other place.

Other Offices Prohibited.—2. No Senator or Representative shall, during the time for which he was elected, be ap-pointed to any civil office under the au-thority of the United States which shall have been created, or the emoluments whereof shall have been increased during such time; and no person holding any office under the United States shall be a member of either House during his con-

tinuance in office.

Revenue Bills.— Section VII. 1. All bills for raising revenue shall originate in the House of Representatives, but the Senate may propose or concur with amendments, as on other bills.

How Bills Become Laws.—2. Every bill which shall have passed the House

of Representatives and the Senate shall, before it become a law, be presented to the President of the United States; if he approve, he shall sign it, but if not, he shall return it, with his objections, to that House in which it shall have originated, who shall enter the objections at large on their journal, and proceed to reconsider it. If after such reconsideration two-thirds of that House shall agree to pass the bill, it shall be sent, together with the objections, to the sent, together with the objections, to the other House, by which it shall likewise be reconsidered; and if approved by two-thirds of that House it shall become a law. But in all such cases the votes of both Houses shall be determined by yeas and nays and the names of the persons voting for and against the bill shall be entered on the journal of each House respectively. If any bill shall not be returned by the President within ten days (Sundays excepted) after it shall have been presented to him, the same shall be a law, in like manner as if he had signed it, unless the Congress by their adjournment prevent its return; in which case it shall not be a law.

Approval and Veto Powers of the President.—3. Every order, resolution, or vote to which the concurrence of the Senate and House of Representatives may be necessary (except on a question of adjournment) shall be presented to the President of the United States; and before the same shall take effect shall be approved by him, or, being disapproved by him, shall be repassed by two-thirds of the Senate and the House of Representatives, according to the rules and limitations prescribed in the case of a bill.

Powers Vested in Congress.—Section VIII. 1. The Congress shall have

power:

To lay and collect taxes, duties, imposts, and excises, to pay the debts and provide for the common defence and general welfare of the United States; but all duties, imposts, and excises shall be uniform throughout the United States.

2. To borrow money on the credit of

the United States.

3. To regulate commerce with foreign nations, and among the several States, and with the Indian tribes.

4. To establish a uniform rule of naturalization, and uniform laws on the subject of bankruptcies throughout the

United States.

5. To coin money, regulate the value thereof, and of foreign coin, and fix the standard of weights and measures.
6. To provide for the punishmert of

counterfeiting the securities and current coin of the United States.
7. To establish post-offices and post-

roads.

8. To promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings

and discoveries.
9. To constitute tribunals inferior to

the Supreme Court.

10. To define and punish piracies and felonies committed on the high seas, and offences against the law of nations.

11. To declare war, grant letters of marque and reprisal, and make rules concerning captures on land and water.

12. To raise and support armies, but no appropriation of money to that use shall be for a longer term than two

13. To provide and maintain a navy.
14. To make rules for the government and regulation of the land and naval

15. To provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel inva-

sions.

16. To provide for organizing, arming, and disciplining the militia, and for governing such part of them as may be employed in the service of the United States, reserving to the States respectively the appointment of the officers, and the authority of training the militia and the authority of training the militia according to the discipline prescribed by

Congress.

17. To exercise exclusive legislation in all cases whatsoever over such district (not exceeding ten miles square) as may, by cession of particular States and the acceptance of Congress, become the seat of Government of the United States, and to exercise like authority over all places purchased by the consent of the Legislature of the State in which the same shall be, for the erection of forts, magazines, arsenals, dry-docks, and other needful

buildings.

18. To make all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this Constitution in the Government of the United States, or in any department or officer thereof.

Immigrants, How Admitted.— Section of such persons as any of the States now existing shall think proper to admit, shall not be prohibited by the Congress prior to the year one thousand eight hundred and eight, but a tax or duty may be imposed on such importation, not exceeding ten dollars for each person.

Habeas Corpus.—2. The privilege of the writ of habeas corpus shall not be suspended, unless when in cases of rebellion or invasion the public safety may require it.

Attainder. 3. No bill of attainder or ex post facto law shall be passed.

Direct Taxes.—4. No capitation or other direct tax shall be laid, unless in proportion to the census or enumeration hereinbefore directed to be taken.

Regulations Regarding Customs Duties.—5. No tax or duty shall be laid on

articles exported from any State.

6. No preference shall be given by any regulation of commerce or revenue to the ports of one State over those of another, nor shall vessels bound to or from one State be obliged to enter, clear, or pay duties in another.

Moneys, How Drawn.— 7. No money shall be drawn from the Treasury but in consequence of appropriations made by law; and a regular statement and account of the receipts and expenditures of all public money shall be published from time to time.

Titles of Nobility Prohibited.—8. No

title of nobility shall be granted by the United States. And no person holding any office of profit or trust under them shall, without the consent of the Congress, accept of any present, emolument, office, or title, of any kind whatever, from any king, prince, or foreign state.

Powers of States Defined.—SECTION

1. No State shall enter into any treaty, alliance, or confederation; grant letters of marque and reprisal; coin money; emit bills of credit; make anything but gold and silver coin a tender in payment of debts; pass any bill of attaining any part feat law allowing. attainder, ex post facto law, or law im-pairing the obligation of contracts, or

pairing the obligation of contracts, or grant any title of nobility.

2. No State, shall, without the consent of the Congress, lay any impost or duties on imports or exports, except what may be absolutely necessary for executing its inspection laws; and the net produce of all duties and imposts, laid by any State on imports or exports, shall be for the use of the Treasury of the United States; and all such laws shall be subject to the revision and control of the Congress.

3. No State shall, without the consent of Congress, lay any duty or tonnage, keep troops or ships of war in time of peace, enter into any agreement or compact with another State, or with a for-eign power, or engage in war, unless actually invaded, or in such imminent danger as will not admit of delay.

Vested.— Section I. 1. The Executive power shall be vested in a President of the United States of America. He shall hold his office during the term of four years, and, together with the Vice-President, chosen for the same term, be elected as follows:

Electors.—2. Each State shall appoint, in such manner as the Legislature thereof may direct, a number of electors, equal to the whole number of Senators and Representatives to which the State may be entitled in the Congress; but no Senator or Representative or person holding an office of trust or profit under the United States shall be appointed an

Proceedings of Electors.—Proceedings of the House of Representatives.—
3. The electors shall meet in their respective States and vote by ballot for two persons, of whom one at least shall not be an inhabitant of the same State with themselves. And they shall make a list of all the persons voted for, and of the number of votes for each, which list they shall sign and certify, and transmit, sealed, to the seat of the Government of the United States, directed to the President of the Senate. The President of the Senate shall, in the presence of the Senate and House of Representa-tives, open all the certificates, and the votes shall then be counted. The person having the greatest number of votes shall be the President, if such number be a majority of the whole number of electors appointed, and if there be more than one who have such majority, and have an equal number of votes, then the House of Representatives shall immediately choose by ballot one of them for President; and if no person have a majority, then from the five highest on the list the said House shall in like manner choose the President. But in choosing the President, the vote shall be taken by States, the representation from each State having one vote. A quorum, for this purpose shall consist of a member or members from two-thirds of the States, and a majority of all the States shall be necessary to a choice. In every case, after the choice of the President, the person having the greatest number of votes of the electors shall be the Vice-President. But if there should remain two or more who have equal votes, the Senate shall choose from them by ballot the Vice-President.

Time of Choosing Electors.—4. The

Congress may determine the time of

choosing the electors, and the day on which they shall give their votes, which day shall be the same throughout the United States.

Qualifications of the President.—5. No person except a natural-born citizen, or a citizen of the United States at the time of the adoption of this Constitution, shall be eligible to the office of President; neither shall any person be eligible to that office who shall not have attained to the age of thirty-five years and been fourteen years a resident within the United States.

Provision in Case of His Disability. 6. In case of the removal of the President from office, or of his death, resignadent from omce, or of his death, resigna-tion, or inability to discharge the powers and duties of the said office, the same shall devolve on the Vice-President and the Congress may by law provide for the case of removal, death, resignation, or inability, both of the President and Vice-President dealing what officers had President, declaring what officer shall then act as President, and such officer shall act accordingly, until the disability be removed or a President shall be elected.

Salary of the President.—7. The President shall, at stated times, receive for his services a compensation which shall neither be increased nor diminished during the period for which he shall have been elected, and he shall not receive within that period any other emolument from the United States, or any of them.

Oath of the President.—8. Before he enter on the execution of his office he shall take the following oath or affirma-

tion:

'I do solemnly swear (or affirm) that I will faithfully execute the office of President of the United States, and will, to the best of my ability, preserve, protect, and defend the Constitution of the

United States.

Duties of the President.—Section II.

1. The President shall be Commanderin-Chief of the Army and Navy of the
United States, and of the militia of the
several States when called into the
actual service of the United States; he may require the opinion, in writing, of the principal officer in each of the executive departments upon any subject re-lating to the duties of their respective offices, and he shall have power to grant reprieves and pardons for offences against the United States except in cases of impeachment.

May Make Treaties, Appoint Ambassa-dors, Judges, etc.—2. He shall have power, by and with the advice and con-sent of the Senate, to make treaties, provided two-thirds of the Senators pres-

^{*} This clause is superseded by Article XII, Amendments.

ent concur; and he shall nominate, and the United States shall be a party; to by and with the advice and consent of controversies between two or more the Senate, shall appoint ambassadors, States; between a State and citizens of other public ministers and consuls, another State; between citizens of diffjudges of the Supreme Court, and all ferent States; between citizens of the other officers of the United States whose same State, claiming lands under grants appointments are not herein otherwise of different States and herein controlled. appointments are not herein otherwise provided for, and which shall be estab-lished by law; but the Congress may by law vest the appointment of such in-ferior officers as they think proper in the

May Make Recommendations to and May Make Recommendations to and Convene Congress.—Section III. He shall from time to time give to the Congress information of the state of the Union, and recommend to their consideration such measures as he shall judge necessary and expedient; he may, on extraordinary occasions, convene both Houses, or either of them, and in case of disagreement between them, with respect to the time of adjournment, he may ad-journ them to such time as he shall think proper: he shall receive ambassadors and other public ministers; he shall take care that the laws be faithfully executed, and shall commission all the officers of the United States.

How Officers May be Removed.—SECTION IV. The President, Vice-President, and all civil officers of the United States shall be removed from office on impeachment for, and conviction of, treason, bribery, or other high crimes and

misdemeanors.

Isdemeanors.

Article III. Judicial Power, How

Action I. The judicial Vested.—SECTION I. The judicial power of the United States shall be vested in one Supreme Court, and in such inferior courts as the Congress may from time to time ordain and establish.

The judges, both of the Supreme and inferior courts, shall hold their offices during good behavior, and shall, at stated times, receive for their services a com-

times, receive for their services a compensation which shall not be diminished during their continuance in office.

To What Cases it Extends.—Section II. The judicial power shall extend of citizens of each State shall be entitled to all privileges and immunities of citizens in the several States.

Executive Requisitions.—2. A person charged in any State with treason, felunited States, and treaties made, or which shall be made, under their authority; to all cases affecting ambassathoris, and consuls; to controversies to which state having jurisdiction of the crime.

the United States shall be a party; to controversies between a wo or more States; between a State and citizens of another State; between citizens of different States; between citizens of the same State, claiming lands under grants of different States, and between a State, or the citizens thereof, and foreign States, citizens or subjects.

Jurisdiction of the Supreme Court.—2. In all cases affecting ambassadors, other public ministers, and consuls, and those in which a State shall be party, the Supreme Court shall have original jurisdiction. In all the other cases before-mentioned the Supreme Court shall

President alone, in the courts of law, or in the heads of departments.

May Fill Vacancies.—3. The President shall have power to fill up all vacancies that may happen during the recess of the Senate by granting commissions, which shall expire at the end of their which a State shall be party, the Supreme Court shall have original jurisdiction. In all the other cases before-mentioned the Supreme Court shall have appellate jurisdiction, both as to under such regulations as the Congress

Respecting Trials .- 3. The Rules trial of all crimes, except in cases of impeachment, shall be by jury, and such trial shall be held in the State where the said crimes shall have been committed; but when not committed within any State the trial shall be at such place or places as the Congress may by law have

directed.

Treason Defined.—Section III. Treason against the United States shall consist only in levying war against them, or in adhering to their enemies, giving them aid and comfort. No person shall be convicted of treason unless on the testimony of two witnesses to the same overt act, or on confession in open court.

Punished.—2. The How shall have power to declare the punishment of treason, but no attainder of treason shall work corruption of blood or forfeiture except during the life of

the person attainted.

Article IV. Rights of States and Records.—Section I. Full faith and credit shall be given in each State to the public acts, records, and judicial proceedings of every other State. And the Congress may by general laws prescribe the manner in which such acts, records, and proceedings shall be proved, and the effect thereof.

3. No person held to service or labor in one State, under the laws thereof, escaping into another, shall, in consequence of any law or regulation therein, be discharged from such service or labor, but shall be delivered up on claim of the party to whom such service or labor may be due.

New States, How Formed and Admitted.—SECTION III. 1. New States may be admitted by the Congress into this Union, but no new State shall be formed or erected within the jurisdiction

formed or erected within the jurisdiction of any other State, nor any State be formed by the junction of two or more States, or parts of States, without the consent of the Legislatures of the States concerned, as well as of the Congress.

Power of Congress over Public Lands.

— 2. The Congress shall have power to dispose of and make all needful rules and regulations respecting the territory or other property belonging to the United States; and nothing in this Constitution shall be so construed as to prejudice any shall be so construed as to prejudice any claims of the United States, or of any

particular State.

Republican Government Guaranteed .-SECTION IV. The United States shall guarantee to every State in this Union a republican form of government, and shall protect each of them against invasion; and, on application of the Legislature, or of the Executive (when the Legislature cannot be convened), against

domestic violence.

Article V. Constitution, How Amended. The Congress, whenever two-thirds of both Houses shall deem it necessary, shall propose amendments to this Constitution, or, on the application of the Legislatures of two-thirds of the several States, shall call a convention for pro-posing amendments, which, in either case, shall be valid to all intents and purposes, as part of this Constitution, when ratified by the Legislatures of threerathed by the Legislatures of three-fourths of the several States, or by con-ventions in three-fourths thereof, as the one or the other mode of ratification may be proposed by the Congress; provided that no amendment which may be made prior to the year one thousand eight hundred and eight shall in any manner affect the first and fourth clauses in the Ninth Section of the First Article; and that no State, without its consent. shall be deprived of its equal suffrage in the

Article VI. Validity of Debts Recognized.—1. All debts contracted and engagements entered into before the the adoption of this Constitution shall be as the people to keep and bear arms shall valid against the United States under not be infringed.

Laws Regulating Service or Labor .-- this Constitution as under the Confedera-

tion.

Supreme Law of the Land Defined .-2. This Constitution and the laws of the United States which shall be made in pursuance thereof, and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land, and the judges in every State shall be bound thereby, anything in the Constitution or laws of any State to the contrary not-

withstanding.
Oath: of Whom Required and for What.—3. The Senators and Representatives before mentioned, and the mentatives before mentioned, and the mentatives before mentioned. bers of the several State Legislatures, and all executive and judicial officers, both of the United States, and of the several States, shall be bound by oath or affirmation to support this Constitution; but no religious test shall ever be required as a qualification to any office or public trust under the United States.

Article VII. Ratification of the Constitution.— The ratification of the Constitution.

ventions of nine States shall be sufficient for the establishment of this Constitu-tion between the States so ratifying the

same.

DONE in Convention by the unanimous consent of the States present the seventeenth day of September, in the year of our Lord one thousand seven hundred and eighty-seven, and of the Independ-ence of the United States of America the twelfth. In witness whereof we have hereunto subscribed our names,

Go: WASHINGTON, Presidt. and Deputy from Virginia.

AMENDMENTS TO THE CONSTITUTION

Articles in addition to, and Amendment of, the Constitution of the United States of America, proposed by Congress, and ratified by the Legislatures of the several States, pursuant to the Fifth Article of the original Constitution.

Article I. Religion and Free Speech. -Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; abridging the freedom of speech or of the press; or the right of the people peace-ably to assemble, and to petition the Government for a redress of grievances.

Article II. Right to Bear Arms.— A well-regulated militia being necessary to the security of a free State, the right of

Article III. Soldiers in Time of Peace.— No soldier shall, in time of peace, be quartered in any house without the consent of the owner, nor in time of war but in a manner to be prescribed by law.

Article IV. Right of Search.- The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no war-

Article V. Capital Crimes and Arrest Therefor.— No person shall be held to Capital Crimes and Arrest answer for a capital or other infamous crime, unless on a presentment or indict-ment of a grand jury, except in cases arising in the land or naval forces, or in arising in the land or naval forces, or in the militia, when in actual service, in time of war or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property without due process of law. or property, without due process of law;

him; to have compulsory process for ob-taining witnesses in his favor, and to have the assistance of counsel for his

defence.

Article VII. Trial by Jury. - In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise reëxamined in any court of the United States than according to the rules of the common law.

Article VIII. Excessive Bail.- Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

Article IX. Enumeration of Rights.

— The enumeration in the Constitution of certain rights shall not be construed to deny or disparage others retained by the people.

United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

Article XI. Judicial Power. - The judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prose-cuted against one of the United States, by citizens of another State, or by citizens or subjects of any foreign State.

rants shall issue but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things lot for President and Vice-President, one to be seized.

Article XII. Electors in Presidental Elections.—The electors shall meet in their respective States, and vote by ballot for President and Vice-President, one to be seized. tant of the same State with themselves; they shall name in their ballots the person voted for as President, and in distinct ballots the person voted for as Vice-President; and they shall make distinct lists of all persons voted for as President, and of all persons voted for as Vice-President, and of the number of votes for each, which lists they shall sign and certify, and transmit, sealed, to the seat of the Government of the United States, directed to the President of the Senate; the President of the Senate shall, in the presence of the Senate and House of Representatives, open all the tant of the same State with themselves; or property, without due process of law; nor shall private property be taken for public use without just compensation.

Article VI. Right to Speedy Trial.—
In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obden. But in choosing the President. But in choosing the President. dent, the House of Representatives shall choose immediately, by ballot, the President. But in choosing the President, the votes shall be taken by States, the representation from each State having one vote; a quorum for this purpose shall consist of a member or members from two-thirds of the States, and a majority of all the States shall be necessary to a choice. And if the House of Representatives shall not choose a Presi-Representatives shall not choose a President, whenever the right of choice shall devolve upon them, before the fourth day of March next following, then the Vice-President shall act as President, as in the case of the death or other constitutional disability of the President. The person having the greatest number of votes as Vice-President shall be the Vice-President, if such number be a majority f certain rights shall not be construed of the whole number of electors appointed, and if no person have a majority, then from the two highest Article X. Reserved Rights of States. numbers on the list the Senate shall—The powers not delegated to the choose the Vice-President; a quorum for

the purpose shall consist of two-thirds of the whole number of Senators, and a majority of the whole number shall be or the whole number of Senators, and a tion or recein against the same, or majority of the whole number shall be given aid and comfort to the enemics necessary to a choice. But no person thereof. But Congress may, by a vote constitutionally ineligible to the office of two-thirds of each House, remove President shall be eligible to that of vice-President of the United States.

The Public Debt.—4. The validity of the public debt of the United States, 1. Neither slavery nor involuntary servature of the public debt of the United States, and a tion or received and comfort to the enemics necessary to a choice. But no person thereof. But Congress may, by a vote of two-thirds of each House, remove the public debt of the United States, 1. Neither slavery nor involuntary servature of the comfort to the enemics necessary to a choice. But no person thereof. But Congress may, by a vote of two-thirds of each House, remove the public debt of the United States, 1. Neither slavery nor involuntary servature of the public debt of the United States, 1. Neither slavery nor involuntary servature of the public debt of the United States, 1. Neither slavery nor involuntary servature of the public debt of the United States, 1. Neither slavery nor involuntary servature of the public debt of the United States, 1. Neither slavery nor involuntary servature of the public debt of the United States, 1. Neither slavery nor involuntary servature of the United States, 1. Neither slavery nor involuntary servature of the United States, 1. Neither slavery nor involuntary servature of the United States, 1. Neither slavery nor involuntary servature of the United States, 1. Neither slavery nor involuntary servature of the United States, 1. Neither slavery nor involuntary servature of the United States, 1. Neither slavery nor involuntary servature of the United States of the United States

itude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

2. Congress shall have power to enforce this article by appropriate legisla-

Article XIV. Protection for all Citizens.—1. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall appropriate the province and province of life. any State deprive any person of life, liberty, or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws.

Apportionment of Representatives.—

2. Representatives shall be apportioned among the several States according to power to lay and collect taxes on incomes, their respective numbers, counting the from whatever source derived, without whole number of persons in each State, apportionment, among the several states, excluding Indians not taxed. But when and without regard to any census or the right to your stans, and the several states, excluding Indians not taxed. But when and without regard to any census or the right to vote at any election for the enumeration. choice of electors for President and Vice-President of the United States, Representatives in Congress, the executive and judicial officers of a State, or the members of the Legislature thereof, is denied to any of the male inhabitants of such State, being of twenty-one years of age, and citizens of the United States, or in any way abridged, except for participation in rebellion or other crime, the basis of representation therein shall be reduced in the proportion which the number of such male citizens shall bear to the whole number of male citizens twenty-one years of age in such State.

Rebellion Against the United States.

3. No person shall be a Senator or

Representative in Congress, or elector of President and Vice-President, or hold any office, civil or military, under the United States, or under any State, who, having previously taken an oath, as a member of Congress, or as an officer of the United States, or as a member of any State Legislature, or as an execu-tive or judicial officer of any State, to support the Constitution of the United

States, shall have engaged in insurrection or rebellion against the same, or

authorized by law, including debts in-curred for payment of pensions and bounties for services in suppressing in-surrection or rebellion, shall not be questioned. But neither the United States nor any State shall assume or pay any debt or obligation incurred in aid of insurrection or rebellion against the United States or any claim for the the United States, or any claim for the the United States, or any claim for the loss or emancipation of any slave; but all such debts, obligations, and claims shall be held illegal and void.

5. The Congress shall have power to enforce, by appropriate legislation, the provisions of this article.

Article XV. Right of Suffrage.— 1. The right of the citizens of the United States to vote shall not be denied or

States to vote shall not be denied or abridged by the United States or by any State on account of race, color or previous condition of servitude,

2. The Congress shall have power to enforce the provisions of this article by appropriate legislation.

Article XVI. The Congress shall have

Article XVII. The Senate of the United States shall be composed of two Senators from each State, elected by the people thereof, for six years; and each Senator shall have one vote. The elec-tors in each State shall have the qualifications requisite for electors of the most numerous branch of the State Legislatures.

When vacancies happen in the representation of any State in the Senate, the executive authority of such State shall issue writs of election to fill such va-cancies, provided that the Legislature of any State may empower the Executive thereof to make temporary appointments until the people fill the vacancies by election as the Legislature may direct.

RATIFICATION OF THE CONSTITUTION. The Constitution was ratified by the thirteen original States in the following order:

Delaware, December 7, 1787, unanimously. Pennsylvania, December 12 1787, vote

46 to 23.

New Jersey. December 18, 1787, unani- nor can I forget, as an encouragement to mously. Georgia, January 2, 1788, unanimously. Connecticut January 9, 1788, vote 128

Massachusetts, February 6, 1788, vote 187 to 168.

Maryland, April 28, 1788, vote 63 to 12. South Carolina, May 23, 1788, vote 149

New Hampshire, June 21, 1788, vote 57 to 46.

Virginia, June 25, 1788, vote 89 to 79. New York, July 26, 1788, vote 30 to 28. North Carolina November 21, 1789, vote 193 to 75.

Rhode Island, May 29, 1790, vote 34 to 32.

RATIFICATION OF THE AMENDMENTS

I to X inclusive were declared in force December 15, 1791.

XI was declared in force January 8, 1798.

XIII. The emancipation amendment was proclaimed December 18, 1865.

Reconstruction amendment was proclaimed July 28, 1868.

XV. Negro citizenship amendment was proclaimed March 30, 1870.

XVI. The income tax amendment became a provision of the Constitution. February 8, 1913.

XVII. Popular election of Senators became a provision of the Constitution, April 8, 1913.

In 1796 George Washington took leave of the people in a famous address. concluding portions are here given:

WASHINGTON'S FAREWELL ADDRESS

Here, perhaps, I ought to stop; but a solicitude for your welfare, which cannot end but with my life, and the apprehension of danger natural to that solicitude, urge me, on an occasion like the present, to offer to your solemn contemplation, and to recommend to your frequent review, some sentiments, which are the result of much reflection, of no inconsiderable observation, and which appear to me all-important to the permanency of your felicity as a people. These will be afforded to you with the more freedom, as you can only see in mon dangers, sufferings and successes, them the disinterested warnings of a It is important, likewise, that the parting friend, who can possibly have habits of thinking, in a free country, no personal motive to bias his counsel; should inspire caution in those in-

it, your indulgent reception of my sentiments on a former and not dissimilar occasion. Interwoven as is the love of liberty with every ligament of your hearts, no recommendation of mine is necessary to fortify or confirm the attachment.

The unity of government, which constitutes you one people, is also now dear to you. It is justly so; for it is a main pillar in the edifice of your real independence—the support of your tranquillity at home, your peace abroad, of your safety, of your prosperity, of that very liberty which you so highly prize. But as it is easy to foresee that, from different causes and from different quarters, much pains will be taken, many artifices employed, to weaken in your minds the conviction of this truth; as this is the point in your political fortress against which the batteries of internal and external enemies will be XII regulating elections, was declared in most constantly and actively (though force September 28, 1804.

The emancipation amendment — it is of infinite moment that you should properly estimate the immense value of your national union to your collective and individual happiness; that you should cherish a cordial, habitual and immovable attachment to it; accustoming yourselves to think and speak of it as of the palladium of your polit-ical safety and prosperity; watching for its preservation with jealous anxiety; discountenancing whatever may suggest even a suspicion that it can, in any event, be abandoned; and indignantly frowning upon the first dawning of every attempt to alienate any portion of our country from the rest, or to enfeeble the sacred ties which now link together the various parts.

For this you have every inducement of sympathy and interest. Citizens birth or choice of a common country, that country has a right to concentrate your affections. The name of America, which belongs to you in your national capacity, must always exalt the just pride of patriotism, more than any appellation derived from local discriminations. With slight shades of differences, you have the same religion, manners, habits, and political principles. You have, in a common cause, fought and triumphed together; the independence and liberty you possess are the work of joint counsels and joint efforts, of com-

trusted with its administration, to confine themselves within their respective constitutional spheres, avoiding in the exercise of the powers of one department, to encroach upon another. The spirit of encroachment tends to consolidate the powers of all the departments in one, and thus to create, whatever the form of government, a real despotism. A just estimate of that love of power, and proneness to abuse it which predominates in the human heart, is sufficient nates in the numan neart, is sufficient to satisfy us of the truth of this position. The necessity of reciprocal checks in the exercise of political power, by dividing and distributing it into different depositories, and constituting each the guardian of the public weal, against investors by the others has been against invasions by the others, has been evinced by experiments, ancient and modern; some of them in our own country and under our own eyes. To preserve them must be as necessary as to institute them. If, in the opinion of the people, the distribution or modification of the constitutional powers be, in any particular, wrong, let it be corrected by an amendment in the way which the Constitution designates. But let there be no change or usurpation; for though this, in one instance, may be the instrument of good, it is the customary weapon by which free governments are destroyed. The precedent must always greatly overbalance, in permanent evil, and partial or transient benefit, which the use can, at any time yield.

Observe good faith and justice toward all nations; cultivate peace and har-mony with all; religion and morality enjoin this conduct; and can it be that good policy does not equally enjoin it? good policy does not equally enjoin it?
It will be worthy of a free, enlightened,
and, at no distant period, a great nation,
to give to mankind the magnanimous
and too novel example of a people always guided by an exalted justice and
benevolence. Who can doubt that, in
the course of times and things, the fruits
of such a plan would righty reasy any of such a plan would richly repay any temporary advantages which might be lost by a steady adherence to it? Can is to be that Providence has not connected the permanent felicity of a nation with its virtue? The experiment, at least, is recommended by every sentiment which ennobles human nature. Alas! is it rendered impossible by its vices?

Against the insidious wiles of foreign influence (Leoniver way to believe and

influence (I conjure you to believe me, fellow-citizens) the jealousy of a free people ought to constantly awake; since history and experience prove that for-eign influence is one of the most baneful foes of republican government. But will be full recompense for the solicitude

that jealousy to be useful, must be impartial; else it becomes the instrument of the very influence to be avoided, instead of a defence against it. Excessive partiality for one foreign nation, and excessive dislike for another, cause those whom they actuate to see danger only on one side, and serve to veil, and even second, the arts of influence on the other. Real patriots, who may resist the intrigues of the favorite, are liable to become suspected and odious, while its tools and dupes usurp the applause and confidence of the people, to surrender

their interests.

The great rule of conduct for us in regard to foreign nations, is, in extend-ing our commercial relations, to have with them as little political connection as possible. So far as we have already formed engagements, let them be fulilled with perfect good faith. Here let us stop. Europe has a set of primary interests, which to us have none, or a very remote relation. Hence she must be engaged in frequent controversies, the causes of which are essentially foreign to our concerns. Hence, therefore, it must be unwise in us to implicate ourselves by artificial ties, in the ordinary vicissitudes of her politics, or the ordinary combinations and collision of her friendships or enmities. Our detached and distant situation invites and en-ables us to pursue a different course. off when we may defy material injury from external annoyance; when we may take such an attitude as will cause the neutrality we may at any time resolve upon, to be scrupulously respected; when belligerent nations, under the impossibility of making acquisitions upon us, will not lightly hazard the giving us provocation; when we may choose peace or war, as our interest, guided by justice of the state of

or war, as our interest, guided by justice, shall counsel.

In offering to you, my countrymen these counsels of an old and affectionate friend, I dare not hope that they will make the strong and lasting impression I could wish; that they will control the usual current of the passions, or prevent our nation from running the course which hitherto has marked the destiny of nations; but if I may even flatter myself that they may be productive of some partial benefit; some occasional good; that they may now and then recur to moderate the fury of party spirit, to to moderate the fury of party spirit, to warn against the mischiefs of foreign intrigues, to guard against the impostures of pretended patriotism; this hope

United States, September 17, 1796.

Next in order in the series of famous American documents is the 'Monroe Doc-American documents is the Monte Doc-trine, issued in 1823 as part of Presi-dent Monroe's message to Congress in that year. Spain had long been hav-ing trouble with her American colonies and there was serious danger of some of the other nations of Europe giving her aid and receiving American territory in exchange. Russia was also seeking to extend its holdings on the Pacific coast. Under these threatening circumstances Monroe gave warning to all ambitious nations that the United States would not stand idly by and see the southern republics seized by any foreign power. This declaration holds good to-day and has been frequently invoked as a warning to European powers to keep off of American soil. We give below the text of this significant declaration of American soil. ican policy, the recognized political principle of 'America for the Americans.'

THE MONROE DOCTRINE

In the discussions to which this interest has given rise, and in the arrangements by which they may terminate, the occasion has been deemed proper for asserting, as a principle in which rights and interests of the United States are involved, that the American continents, by the free and independent condition which they have assumed and maintain, are henceforth not to be considered as subjects for future colonization by any European power. . . . We owe it, therefore, to candor and to the amicable relationship. tions existing between the United States and those powers to declare that we should consider any attempt on their part to extend their system to any portion of this hemisphere as dangerous to our peace and safety. With the existing our peace and safety. With the existing colonies or dependencies of any European power we have not interfered and shall not interfere. But with the governments who have declared their independence and maintain it, and whose independence we have, on great consideration and on just principles, acknowledged, we could not view any interposition for the purpose of oppressing them or controlling in any other manner their destiny by any European power in any other light than as the manifestation of an unfriendly disposition toward the United States.

for your welfare by which they have only of an executive statement, it has been dictated.

George Washington.

George Washington. ing invoked on several occasions, and especially in that of the occupation of Mexico by France during the American Civil war. European nations have rarely ventured to disregard it, and never successfully.

The most perilous threat against the stability of the Union came in later years, when the great controversy between the advocates of slavery and emancipation arose. It led, as all know, to one of the greatest wars of the ningteenth century, the struggle in the nineteenth century, the struggle in the field between the parties which had for years contended on the rostrum. In the midst of this great war President Lincoln issued a proclamation of free-dom for the slaves which the event of the war lifted into the category of the great State papers of the United States. Its terms have since been accepted by North and South alike. The text of this proclamation is here given:

EMANCIPATION PROCLA-MATION

WHEREAS, On the twenty-second day of September, in the year of our Lord one thousand eight hundred and sixtytwo, a proclamation was issued by the President of the United States, contain-ing among other things the following,

'That on the first day of January, in the year of our Lord one thousand eight hundred and sixty-three, all persons held as slaves within any State or designated part of a State, the people whereof shall then be in rebellion against the United States, shall be then, thenceforward, and forever free; and the executive govern-ment of the United States, including the military and naval authority thereof, will recognize and maintain the freedom of such persons, and will do no act or acts to repress such persons, or any of them, in any efforts they may make for their actual freedom.

'That the Executive will, on the first day of January aforesaid, by proclamation, designate the States and parts of States, if any, in which the people thereof, respectively, shall then be in rebellion against the United States; and the fact that any State, or the people thereof, shall on that day be in good faith represented in the Congress of the faith represented in the Congress of the United States, by members chosen thereto at elections wherein a majority of the qualified voters of such State shall have participated, shall, in the absence of strang counterwallier techniques. Though this doctrine has the weight sence of strong countervailing testimony,

State, and the people thereof, are not then in rebellion against the United States.

Now, therefore, I, Abraham Lincoln, President of the United States, by vir-tue of the power in me vested as comtue of the power in me vested as commander-in-chief of the army and navy of the United States, in time of actual armed rebellion against the authority and government of the United States, and as a fit and necessary war measure for suppressing said rebellion, do, on this first day of January, in the year of our Lord one thousand eight hundred and sixty-three, and in accordance with and sixty-three, and in accordance with my purpose so to do, publicly proclaimed for the full period of one hundred days from the day first above mentioned, order and designate as the States and parts of States wherein the people thereof, respectively, are this day in rebellion against the United States, the

following, to wit:

Arkansas, Texas, Louisiana (except
the Parishes of St. Bernard, Plaquemines, Jefferson, St. John, St. Charles, mines, Jenerson, St. John, St. Charles, St. James, Ascension, Assumption, Terre Bonne, Lafourche, St. Mary's, St. Mar-tin and Orleans, including the city of New Orleans), Mississippi, Alabama, Florida, Georgia, South Carolina, North Carolina and Virginia (except the forty-eight counties designated as West Vir-ginia, and also the counties of Barkelson. ginia, and also the counties of Berkeley, Accomac, Northampton, Elizabeth City, York, Princess Anne and Norfolk, including the cities of Norfolk and Portsmouth); and which excepted parts are, for the present, left precisely as if this

proclamation were not issued.

And by virtue of the power, and for the purpose aforesaid, I do order and de-clare that all persons held as slaves within said designated States, and parts of States, are and henceforward shall be free, and the executive government of the United States, including the military and naval authorities thereof, will recognize and maintain the freedom of said persons.

And I hereby enjoin upon the people so declared to be free to abstain from all violence, unless in necessary self-de-fence; and I recommend to them that in all cases when allowed, they labor faith-

fully for reasonable wages.

And I further declare and make known, that such persons, of suitable condition, will be received into the armed service of the United States to garrison forts, positions, stations, and other places, and to man vessels of all sorts in said service.

be deemed conclusive evidence that such to be an act of justice, warranted by the State, and the people thereof, are not Constitution upon military necessity, I invoke the considerate judgment of man-kind and the gracious favor of Almighty God.

> In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed. Done at the city of Washington, this first day of January, in the year of our Lord one thousand eight hundred and sixty-three, and of the Independence of the United States of America the sighty-agraph. eighty-seventh.

ABRAHAM LINCOLN.

One more brief but notable declara-One more brief but notable declara-tion from President Lincoln will suffice to close this series of national docu-ments. It is his address at the dedica-tion of Gettysburg Cemetery, November 19, 1863. It has since been regarded as a prose poem unsurpassed for dignity and pathos in the world's history.

LINCOLN'S GETTYSBURG SPEECH

Fourscore and seven years ago our fathers brought forth upon this continent a new nation, conceived in liberty, and dedicated to the proposition that all men are created equal.

Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met on a great battlefield of that war. We are met to dedicate a portion of it as the final resting-place of those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this.

But in a larger sense we cannot dedicate, we cannot consecrate, we cannot hallow this ground. The brave men, living and dead, who struggled here have consecrated it far above our power to add or detract. The world will little note nor long remember what we say here but it can never forget what hey did here. It is for us, the living, rather to be dedicated here to the unfinished work that they have thus far so nobly carried on. It is rather for us to be here dedicated to the great task remaining before us; that from these honored dead we take increased devotion to the cause for which they here gave the last full measure of devotion; that we here highly resolve that the dead shall not have died in vain; that the nation shall, under God, have a new birth of freedom, and that govern-And upon this act, sincerely believed ment of the people, by the people, and

The political condition of the United States, as it at present stands, is a result of the several stages of governmental evolution above described, and especially of the operation of the Constitution, the basis of the Federal Union of the States. This Constitution embodies the general principles of government adapted to the organisation of such a union, the result being that when particular questions have arisen in the history of the nation, it has frequently become the duty of the Supreme Court to decide on the constitutionality of such questions. Thus numerous acts have to decide on the constitutionality of such questions. Thus numerous acts have been passed by Congress the agreement of which with the Constitution was doubtful. It is not the duty of the Supreme Court to deal with such acts unless a suit is brought by some party or parties to determine their constitutionality, in which case the Supreme Court takes the matter in hand and renders a decision as to whether they are in harmony with as to whether they are in harmony with the Constitution or the contrary. Such a decision is final and by this means the integrity of the Constitution against dis-cordant acts of Congress is preserved and its exact significance developed. In this way the Supreme Court of the United way the supreme Court of the United States has become a great balance wheel by the aid of which the course of gov-ernment is made to run true. It may be further stated here that the Constitu-tion of the United States differs from tion of the United States differs from that of Great Britain in being a written document, inflexible in its provisions, while that of Great Britain is, properly considered, not a constitution at all, but simply an aggregation of the many acts of Parliament, which is changed or added to by every new Parliamentary measure. The general organization of the Federal republic is as follows: The powers of the national government are of broad and general scope, embracing those subjects that affect the country as a whole or pass beyond the borders of any single State, including the relations of the coun-State, including the relations of the country to foreign nations and of the States to each other. Under this general gov-ernmental organization lie the several States, each a sovereign commonwealth within its own borders and with governmental control over all subjects that remental control over all subjects that re-late to itself alone, or to intrastate as friction between the executive and the distinct from interstate interests. Thus legislative branches of the general gov-each State has duties of importance be-ernment, the executive in some respects longing to itself, outside of the jurisdic-trenching upon the functions of the leg-tion of the general government, and to islative and this vigorously maintaining deal with these it possesses a govern-its rights and privileges. There has also mental organisation formed on the model been manifested a tendency to bring the

for the people, shall not perish from the carth.

The political condition of the United States, as it at present stands, is a result of the several stages of governmental evolution above described, and especially of the operation of the Constitution, the basis of the Federal Union of the States. This Constitution embodies the general principles of government adapted to the organisation of such a union, the result being that when particular questions have arisen in the abrogated. Tracing down the details of this composite scheme of government we come to the cities, in which in some measure the same type of organisation is preserved, as they have a legislative body of two branches, and a Mayor as their chief executive official. They lack the Supreme Court and their local government is in some measure under State control, but in various respects each is a little sovereignty in itself. This is especially the case in the metropolitan city of New York, the present population especially the case in the metropolitan city of New York, the present population of which exceeds that of the remainder of the State, and which has control of local interests of great diversity and importance, in the management of which it has accumulated a municipal debt far greater than that of any State in the Union and surpassed only by the national debt of the country as a whole. In the development of this great congeries of self-governing units some friction has from time to time arisen, and there has been vigorous discussion and there has been vigorous discussion and there has been vigorous discussion of State and National jurisdiction and powers, the result being at present the existence of two great political parties, the Democratic and the Republican, the first standing for State rights, the sec-ond favoring a broadening of the Na-tional sovereignty. While these parties differ in other particulars, this funda-mental distinction has usually been maingovernment two parties with these general views have existed, at first those of the Federalists and Anti-Federalists, and after them parties with various names, but with this division of views. At present the tendency seems to be towards a widening of the powers of the national government, but it has not escaped vigorous opposition from the adherents of the States rights doctrine. There has also recently been developed a degree of

them inimical to the rights of the public of these officials there are assistants and at large and that it is the duty of the a considerable number of division and government to act as guardian of the industrial rights of the people.

With this brief review of the status of governmental and industrial affairs now existing within the United States it will be of interest to consider in some measure the workings of the great Federal organization here outlined. In the preceding article, on the subject of the United States in general, the organization of the government under the Constitution is stated, and in the Constitution itself, as above given, may be found the clauses which define this organization. But in the working of the sentatives of foreign powers accredited to the United States; and to negotiations of the governmental organization of the governmental organization of the governmental organization can be properly understood. This tween the President and the chief expectation of the public ministers and to negotiations of whatever character relating to the United States; and to negotiation of the governmental organization. The president and the chief expectation of the properly understood. This tween the President and the chief expectation of the public ministers and the consultation of the United States; and to negotiation of the United States. tion can be properly understood. This has principally to do with the great exceutive departments of the government, the series of officials who compose the cabinet of the President, but who were not provided for in the Constitution, having arisen through the multiplicity of executive labors.

It was quickly perceived, in fact, that the duties of the executive branch of the government were too varied and numer-ous for management and control by any one official, and at the start President Washington was obliged to call several Washington was obliged to call several persons to his aid, the so-called cabinet officers, at first consisting of the Secretaries of State, of War, and of the Treasury, and the Attorney-General, appointed in 1789. These had no official standing under the government, but were simply aids to the President, chosen by him and removable at his will, yet indiscensible to the multitudinous duties dispensable to the multitudinous duties arising in the conduct of public affairs. This continues the position of these officials to the present day, in which they form the President's official family and body of advisers, but possess no power beyond that which the President chooses to give them and whose advice he is in no respect obliged to take. From time to time it became advisable to add other officials to the four above named. The Postmaster-General was at first looked

great business organizations of the coun- of Secretary of the Interior in 1849, try within some considerable degree of Secretary of Agriculture in 1889, and governmental control, under the plea that Secretary of Commerce in 1903, and their vast growth and power has made Secretary of Labor in 1913. Under each them inimical to the rights of the public of these officials there are assistants and

tween the President and the chief ex-ecutives of the several States of the United States; he has the custody of the Great Seal of the United States, and countersigns and affixes such seal to all executive proclamations, to various com-missions, and to warrants for the extra-dition of fugitives from justice. He is regarded as the first in rank among the members of the Cabinet. He is the custodian of the treaties made with foreign states, and of the laws of the United States. He grants and issues passports, and exequaturs to foreign consuls in the United States are issued through his office. He publishes the laws and resolutions of Congress, amendments to the Constitution, and proclamations declaring the admission of new States into the Union.

Duties of the Secretary of the Treasury.— The Secretary of the Treasury is charged by law with the management of the national finances. He prepares plans for the improvement of the revenue and for the support of the public credit; superintends the collection of the revenue, and directs the forms of keeping and rendering public accounts and of making returns; grants warrants for all moneys drawn from the treasury in pursuance of appropriations made by law, and for the payment of moneys into the treasury; and annually submits to Conupon as a temporary position only, and disbursements of the probable revenues did not become permanent until 1794, and and disbursements of the government. this official was not considered a Cabinet He also controls the construction of pubofficer until 1829. The Secretary of the lic buildings; the coinage and printing Navy was added to the list in 1798. of money; the administration of the life—The later additions to the list were those ally such information as may be required by either branch of Congress on all mat-

by either branch of Congress on an matters pertaining to the foregoing.

Duties of the Secretary of War.—The Secretary of War is head of the War Department, and performs such duties as are required of him by law or may be as are required of him by law of may be enjoined upon him by the President concerning the military service. He is charged by law with the supervision of all estimates of appropriations for the expenses of the department, including the military establishments; of all purchases of army supplies; of all expenditures for the support, transportation and maintenance of the army, and of such expenditures of a civil nature as may be placed by Congress under his direction. He also has supervision of the United States Military Academy at West Point and of military education in the army, of the Board of Ordnance and Fortification, of the various battlefield commissions, and of the publication of the Official Records of the War of the Rebellion. He has charge of all matters relating to national defense and seacoast fortifications, army ordnance, river enjoined upon him by the President concoast fortifications, army ordnance, river and harbor improvements, the prevention of obstruction to navigation, and the establishment of harbor lines; and all plans and locations of bridges authorized by Congress to be constructed over the of the establishment or abandonment of military posts, and of all matters relating to leases, revocable licenses, and all other privileges upon lands under the control of the War Department.

Duties of the Attorney-General.— The Attorney-General is the head of the Department of Justice and the chief law officer of the government. He represents the United States in matters involving legal questions; he gives his advice and opinion, when they are required by the President or by the heads of the other Executive Departments, on questions of law arising in the administration of their respective departments; he appears in the Supreme Court of the United States in cases of especial gravity and importance; he exercises a general superintendence and direction over United States attor-neys and marshals in all judicial dis-tricts in the States and territories; and he provides special counsel for the United States whenever required by any depart-

ment of the government.

_Duties of the Postmaster-General.— The Postmaster-General has the direction and management of the Post-Office

health and marine-hospital branches of Department. He appoints all officers the public service, and furnishes generand employees of the department, except ally such information as may be required the four Assistant Postmasters-General and the purchasing agent, who are appointed by the President, by and with the advice and consent of the Senate; appoints all postmasters whose compensation does not exceed \$1,000; makes postal treaties with foreign governments, by and with the advice and consent of the President; awards and executes contracts, and directs the management of the domestic and foreign mail

Duties of the Secretary of the Navy.

— The Secretary of the Navy performs such duties as the President of the United States, who is Commander-in-Chief, may assign him, and has the general conversion of the Secretary of the Navy. eral superintendence of construction, manning, armament, equipment and em-ployment of vessels of war.

ployment of vessels of war.

Duties of the Secretary of the Interior.

The Secretary of the Interior is charged with the supervision of public business relating to patents for inventions; pensions and bounty lands; the public lands and surveys; the Indians; education; the Geological Survey and Reclamation Service; the Hot Springs Reservation, Arkansas; Yellowstone National Park, Wyoming and the Yosemite, Sequoia, and General Grant parks, California, and other national parks; distrifornia, and other national parks; distri-bution of appropriations for agricultural and mechanical colleges in the States and territories; and supervision of certain hospitals and eleemosynary institutions in the District of Columbia. He also exercises certain powers and duties in relation to the territories of the United

Duties of the Secretary of Agriculture. The Secretary of Agriculture exercises personal supervision of public business relating to the agricultural industry. He appoints all the officers and employees of Assistant Secretary and the Chief of the Assistant Secretary and the Chief of the Weather Bureau, who are appointed by the President, and directs the management of all the bureaus, divisions, offices, and the Forest Service, embraced in the department. He exercises advisory supervision over agricultural experiment stations, which receive aid from the National Treasury; has control of the quarantine stations for imported cattle, of interstate quarantine rendered necessity. sary by sheep and cattle diseases, and of the inspection of cattle-carrying vessels; and directs the inspection of domestic and imported food products under the meat inspection and pure food and drugs. laws. He is charged with the duty of

tection, maintenance, and care of the tenance and application of standards of National Forest Reserves. He also is weights and measurements; and the charged with carrying into effect the laws gathering and supplying of information prohibiting the transportation by interregarding industries and markets for the tion of local laws and excluding from importation certain noxious animals, and has authority to control the importation of the animals.

It is his further duty to make such special investigations and formish such information that the Newton of Communication to the Provident of

Duties of the Secretary of Commerce. information to the President or Congress—The Secretary of Commerce and Labor as may be required by them on the foreis charged with the work of promoting going subject-matters and to make annual the commerce of the United States, and reports to Congress upon the work of its mining, manufacturing shipping the its mining, manufacturing, shipping, fishery and transportation interests. His
duties also comprise the investigation of The Secretary of Labor.—
The Secretary of Labor is charged with
the organization and management of corforeign, promoting and developing the porations (excepting railroads) engaged in interstate commerce; the administra-tion of the Lighthouse Service, and the aid and protection to shipping thereby; the taking of the census, and the collection and publication of statistical intormation connected therewith; the making putes whenever in his judgment the inforcement of statistics relating to foreign and to be done. Further, he is vested with domestic commerce; the inspection of statistics relating to foreign and to be done. Further, he is vested with dumestic commerce; the inspection of statistics relating to foreign and the enforcement of laws board, branch or division of public serveral property: the supervision of the Tabor approved March 4, 1913, changed tion and publication of statistical inforand property; the supervision of the The act creating the Department of fisheries as administered by the Federal Labor, approved March 4, 1913, changed fisheries as administered by the Federal Labor, approved March 4, 1913, changed Government; the supervision and control the name of the Department of Comof the Alaskan fur seal, salmon and merce and Labor to the Department of other fisheries; the jurisdiction over merchant vessels, their registry, licensing, Bureau of Immigration, Division of Nameasurement entry, clearance, transfers, turalization and Children's Bureau were movement of their cargoes, and passenorganized into this new department.

The Army of the United States at the beginning of the second year of America's

issuing rules and regulations for the pro- nese; the custody, construction, main-

fostering, promoting and developing the welfare of the wage-earners of the United States; improving their working condi-tions and advancing their opportunities for profitable employment. He has power to act as mediator and to appoint com-missioners of conciliation in labor dis-

Army Pay Table.

and the teacher							
	PAY OF OFFICERS IN ACTIVE SERVICE.—Yearly pay.						
GRADE.	First 5 years' service.	After 5 years' service.	After 10 years' service.	After 15 years' service.	After 20 years' service.		
Lieutenant-General Major-General Brigadier-General Colonel (b) Lieutenant-Colonel (b) Major (b) Captain First Lieutenant Second Lieutenant	6,000 4,000	\$4,400 8,850 8,850 2,640 2,200 1,870	\$4,800 4,200 8,600 2,880 2,400 2,040	\$5,000 4,500 8,900 8,900 2,600 2,210	\$5,000 4,500 4,000 8,860 2,800 2,880		

.)

vision of the immigration of aliens, and entrance into the European war (1918) the enforcement of the laws relating had a strength of 1,500,000 men. The thereto, and to the exclusion of Chi- Army and Navy pay is as per table:

The /

Chaplains have the rank and pay of \$24, nn increase of \$12; over \$24, and major, captain and first lieutenant, re-less than \$45, an increase of \$8; and those whose base pay is \$45 or more per spectively.

	PAY OF RETIRED OFFICERS Yearly pay.					
Grade.	First 5 years' service.	After 5 years' service.	After 10 years' service.	After 15 years' service.	After 20 years' service.	
Lieutenant-General Major-General Brigadier-General Colonel (b) Lieutenant-Colonel (b) Major (b) Captain First Lieutenant Becond Lieutenant	6,000 4,500	\$3,300.00 2,887.50 2,475.00 1,980.00 1,650.00 1,402.50	\$3,600 8,150 2,700 2,160 1,800 1,530	\$3,750 00 3,875.00 2,924.40 2,840.00 1,950.00 1,657.44	\$3,750 8,875 8,000 2,520 2,100 1,785	

(6) Service increase of pay of officers month, an increase of \$6 per month. below rank of brigadier-general cannot

exceed 40 per cent. in all.

(b) The maximum pay of a colonel is \$5000, of a lieutenant-colonel \$4500, and of a major \$4000.

First-class seamen receive \$38.40 per month; seamen gunners, \$36.60; firemen, first class, \$46.50; musicians, first class, \$43.20; second-class seamen, \$35.90; third-class seamen, \$32.60. First-class

Navy Pay Table.

BANK.	At Sea.	On Shore Duty.	Rank.	At Sea.	On Shore Duty.
Admiral	\$14,850 8,800	\$18,500 8,000	Midshipmen (after graduation)	\$1,400 1,500	\$1,400 1,125
nine Brigad'r-General, Com- mandant Marine	6,600	6,000	Medical and Pay Di- rectors and Inspec- tors having the same	1,500	, ,,,,,,,,
Corps Captains	6,600 4,400	6,000 4,000	rank at sea	4,400	4,000
Commanders Lieutenant - Command-	8,850	8,500	Fleet-Paymasters Surgeons and Pay-	4,400	4,000
ers	8,800 2,640	8,000 2,400	masters	3,800 (2,200	8,000 2,000
Lieutenants (Junior Grade)	2,200 1,870	2,000 1,700	Chaplains	{ to { 4,400 { 2,640	4,000 2,400
Chief Boatswains, Chief Gunners, Ch'f Carpenters, Chief	1,010	1,100	Engineers	to 4,400 2,640	to 4,000 2,400
Sail-makers Midshipmen (at Naval	1,870	1,700	Naval Constructors	to 4.400	to 4,000
Academy)	600	600		. , ,	,,,,,

provided that commencing June 1, 1917, war pay. In the messmen branch attendand continuing until six months after the ants receive from \$32.60 to \$41; cooks war, all enlisted men of the navy of the United States whose base pay does not exceed \$21 per month shall receive an increase of \$15 per month; those whose base pay is over \$21, and not exceeding stewards, \$46.50.

The pay of non-commissioned officers is petty officers receive from \$47.60 to from \$40.20 to \$96 per month, and of \$77.50; second-class, from \$46.50 to \$52; privates from \$33 to \$36.60 per month.

The Act of Congress of May 22, 1917, provided that commencing June 1, 1917, war pay. In the messmen branch attendant of the second provided that commencing the second provided that commencing June 1, 1917, war pay. In the messmen branch attendant provided that commencing the second provided that commencing June 1, 1917, war pay. In the messmen branch attendant provided that commencing June 1, 1917, war pay.

apprentices \$20.90 to \$26.40 per mouth; pharmacists' mates, from \$38.50 to \$44; chief pharmacists' mates, acting appointment, \$66;

The organization of the legislative branch of the government is as follows:

The Senate.— Two Senators are The Senate.— Two Senators are elected by the legislature of each State for terms of six years each. Each Senator must be thirty years or over of age, and must have been for at least nine years a citizen of the United States. He must be a citizen of the State from which he is chosen, and cannot, while in the Senate, hold any civil position under the government nor act as a Presidential the government nor act as a Presidential elector. He is elected in the following manner: The election takes place on the manner: The election takes place on the second Tuesday after the organization of the legislature chosen next before the expiration of the preceding senatorial term. In each house of the legislature the members present, by a viva voce vote, the name of a person or persons for Senator, and the name of the person receiving the greatest number of votes is entered upon the journal of that house. At noon on the next day the members of both houses meet in a joint session, at which the journals of the two bodies are read, and if the same person received a majority of the votes in both houses he is declared the votes in both houses ne is declared elected Senator. However, if no person receives such majorities, the members in joint session proceed by a viva voce vote to choose a Senator, a majority of all the members being necessary for an election. If such a majority is not secured to the first session the two houses meet at the first session, the two houses meet jointly at noon on each succeeding legis-lative day and take at least one ballot for Senator until one is elected or the legislature adjourns. If a vacancy in the representation of any State in the Senate occurs by reason of death or otherwise, such vacancy is filled by the legislature in the same manner as a Senator is regularly elected. But if such vacancy should occur during a recess of the legislature, or if the legislature should adjourn without electing a Senator, the governor of such State may fill the vacancy by a temporary appointment until a Senator is elected at the next session of the legislature. This method has been varied in one important

receive from of Representatives is composed of members chosen each two years by the people of the several States. The number of members depend upon the population of chief pharmacists' mates, permanent appointment, \$77 per month.

the States, each one representing a fixed number of inhabitants, varying after each census. As fixed under the 1910 census the total number of members is 436, including three from the new States of Arizona and New Mexico, admitted in 1912, there being one for each 211,877 of population.

Qualifications.—A Representative must have attained to the age of twenty-five years and have been seven years a citizen of the United States. He must be an in-habitant of the State from which he is chosen and cannot hold any civil office under the United States during his term of office nor serve as a Presidential Elector. By custom he is a resident of the district from which he is chosen.

Election.— The number of Representa-

tives to which each State is entitled is determined by Congress after each decennial census. Congress has fixed the time of their election as the 'Tuesday next after the first Monday in November' in every even-numbered year. In States entitled to more than one Representative, they are elected by 'districts composed they are elected by 'districts composed of contiguous territory and containing as nearly as possible an equal number of inhabitants,' which districts are determined and the boundaries fixed by the legislatures of the States. When, in a reapportionment, a State's representation is increased, the additional Representatives are chosen by vote of the whole State, until the State is redistricted. They are called Representatives or Congressmen-at-Large. gressmen-at-Large.

Judicial Branch of the Government .-The judicial power of the United States is vested in a Supreme Court, nine Circuit Courts, nine Circuit Courts of Appeal, eighty-six District Courts, and a Court of Claims. Judges of the United States courts are appointed by the Presi-dent with the consent of the Senate and serve during good behavior.

The Supreme Court is composed of a Chief Justice, and eight Associate Justices. The court sits at Washington, and tices. The court sits at Washington, and holds one session annually, commencing on the second Monday in October.

The United States is divided into nine

judicial circuits. To each circuit the Supreme Court allots one of its justices, who must attend at least one term of such court in every two years. For each method has been varied in one important particular since the passage in 1913 of the who must attend at least one term of XVII amendment to the Constitution; such court in every two years. For each Senators being now chosen by direct vote circuit there are also appointed two or of the people. This important function is more circuit judges. The Circuit Court sits twice a year in each district within

The Circuit Courts of Appeal are nine in number and were created for the purpose of relieving the Supreme Court of certain classes of appeals. A Circuit Court of Appeals consists of three judges, two of whom form a quorum. It is held by the justice of the Supreme Court allotted to that circuit and two classifications. circuit anotted to that errent and two circuit judges, but a district judge is also competent to act. No judge, how-ever, can hear a case in the Circuit Court of Appeal at the trial of which he presided in the District or Circuit Court.

Congress has set apart each State as a judicial district, except in case of the more populous States, which are divided into two or more districts. There are eighty-six judicial districts in the States and territories. There are one or more resident judges in each district and the court is judges by a district judge.

court is held by a district judge.

The Court of Claims consists of a
Chief Justice and four Associate Judges.

The State governments are organized

in the following manner:

The Escoutive Department.—At the head of this department is the Governor, nean of this department is the Governor, elected by the people, for a term of one to four years. It is his duty to see that the laws are executed. He may call to his assistance judges and sheriffs and, in case of need, the militia of the State. When public business is conducted with nother State the Governor sets in the another State, the Governor acts in the name of the State. He sends a message to the legislature at the opening of its session, informing it of the conditions throughout the State, and in time of pressing need may call the legislature in extra session.

In many States the Governor has the power to pardon criminals, or commute their punishment. He appoints many officers and in some States he appoints the judges of the State courts. Most of the States elect a Lieutenant-Governor to serve when the Governor is unable to be at his post. He acts as the President of the State Senate. The Secretary of State, sometimes elected, sometimes appointed by the Governor, is the highest clerk of the executive department. The State Comptroller or Auditor manages the financial business of the State sov-ernment. The State Treasurer is the custodian of the funds of the State, which he disburses only on orders from the officers designated by law. The Attorney-General is the law officer of the State. The Superintendent of Public Instruc-

many States other executive officers and boards whose duties are very important, such as the Insurance Commissioner, the Board of Railroad Commissioners, the Inspector of Factories, the Liquor License Commissioners, the Board of Charities, the Board of Health, the Tax Commissioner, the Board of Pardons, the Superintendent of Banks, the Board of Medical Examiners, the Commissioner of Agriculture and the Board of Public Works.

The Legislative Department.— The legislature of a State is always divided into two branches—a Senate and a House of Representatives. In some States the lower house is called the Assembly, in others the House of Delegates, in New Jersey the General Assembly. In many of the States the whole legislature is called the General Assembly. Both the Senate and the lower house are representative bodies. The counties or towns and cities are represented in the lower house according to population, determined by a census taken every five or ten years. The State is divided into senatorial districts from each of which a senator is elected. The minimum age for senators is generally higher than for representatives, and their term is usually longer.

The State legislature may not pass any law contrary to the Constitution of the State nor of the United States. It grants charters for the government of cities, boroughs and villages; and for the organization of railroad companies, banks, colleges, and many other public and private institutions. It makes laws governing the public schools. It defines the boundaries of counties and towns. It makes laws concerning property, real and personal. It makes laws concerning the social relations, marriages, divorces, etc. It makes laws regulating the manetc. It makes laws regulating the manner of holding elections and the qualifications of voters. It regulates railroads, and other public utilities operating within the State. It regulates manufacturing, trading, mining, agriculture, hunting, fishing, etc.

The Judicial Department.—The lowest count is conducted by a justice of the

court is conducted by a justice of the peace or magistrate, who acts in the name of the State. He renders deci-sions only in small and unimportant The next court is called the Circases. cuit Court, the District Court, the Su-General is the law officer of the State.

The Superintendent of Public Instruction is the head of the school system of sits in the courthouse at the county the State.

In addition to these officers, which are several counties. The judges are gener-found in almost every State there are in ally elected, but in some States appointed by the Governor. Appeals from the lower court are taken to the Supreme Court, or Court of Appeals, the highest court of the State. It usually meets at the capital of the State. In some States there is an intermediate court between the lower and higher, which hears appeals in certain classes of cases.

The District of Columbia.— The municipal government of the District of Columbia is vested by act of Congress approved June 11, 1878, in three Commissioners, two of whom are appointed by the President from citizens of the District having had three years' residence therein immediately preceding that appointment, and confirmed by the Senate. The other Commissioner is detailed by the President of the United States from the Corps of Engineers of the United States Army, and must have lineal rank senior to captain, or be a captain who has served at least fifteen years in the Corps of Engineers of the Army. The Commissioners appoint the subordinate official service of said government, except the Board of Education, which is appointed by the Supreme Court of the District of Columbia.

County Government.— Every State and territory is divided into counties (in Louisiana called parishes). In the Southern States and in many of the Western States the county—outside of towns and cities—assumes most of the functions of local government. Each county has a county seat where the public business is transacted. Most of this business is done by a Board of County Commissioners or Supervisors, called in some States the county court; in others the levy court, because it levies the taxes. There are no County Commissioners in Rhode Island.

As a rule the County Commissioners fix the rate of taxation for the county, appropriate money for the payment of the salaries of county officers and to meet the other expenses of county government, make contracts for building and repairing roads and bridges, appoint subordinate county officials, and represent the county in the courts when it is sued for

damages.

At every county seat one or more judges sit for the trial of cases. These judges are generally State officers, but they receive the assistance of several county officers. The Sheriff carries out the orders of the judge. He has the custody of prisoners, executes the death penalty, sells property and preserves peace and order. When necessary he may call to his aid deputies or helpers. The Prosecuting Attorney, called also

the State's Attorney, the District Attorney, the County Attorney, or the Solicitor, appears in the county court and presents the case against a criminal. The Coroner takes charge of the body of a person found dead or who dies mysteriously, and inquires into the cause of death. If foul play is suspected, he impanels a jury and holds an 'inquest.' In some States in case of a vacancy by death, resignation or inability to act of the sheriff he assumes the duties of that office. The Clerk of the County Court or Prothonotary keeps the records of the county court. In some States he keeps a record of deeds and mortgages, issues marriage certificates and records births and deaths.

The above officers are found in almost every State; in many States there are also a County Treasurer, County Auditor, County Assessors, County Tax Collectors, Register or Recorder of Deeds and Superintendent of Schools.

The Probate or Orphans' Court.—In Georgia the judge of this court is called 'Ordinary'; in New York and New Jersey 'Surrogate.'

Township Government.— In the Middle Atlantic and Middle Western States, township government is organized. It usually supports public schools, cares for public roads, and helps the poor. In many States it levies and collects taxes for these purposes. The township officers vary greatly in different states. The more usual ones are the Supervisor or Trustee, who cares for roads and bridges; the School Directors, who control the public schools; the Township Clerk, the Assessors, the Tax Collector, the Auditors, the Constable, who assists the justice of the peace and is the peace officer of the township, and the Overseers of the Poor.

Tour Government.— The town as a political organization is characteristic of the New England States. It corresponds in effect to the townships elsewhere, being partly rural, and containing villages, all combined into one political group. Its most important feature is the town-meeting, composed of all citizens and usually held once a year in the town hall. At this meeting the rate of taxation is fixed, money is appropriated, by-laws are passed, and town officers are elected. The principal officers are: The Selectmen, who carry into effect the measures adopted at the town meeting; the Town-clerk, who keeps the records; the Assessors; the Tax-collector; the Town-treasurer; the Overseers of the Poor; the Constable; the Surveyor of Highways, who keeps roads and

thickly settled communities a village or borough may be organized under a char-President or Mayor or Chief Burgess and a body of Trustees, Commissioners, Councilmen or Burgesses, who pass local laws or ordinances, levy taxes, and provide for police and fire protection, street paving, sewerage, etc.; and School Directors, who provide for the needs of the schools. It may also have a Clerk, a Treasurer, Assessors, a Tax Collector, a Constable and a Street Commissioner.

City Government.— When the village

or borough grows to a large size, it becomes a city; it is still organized under a charter from the State, but with broader functions and greater powers. The city always has two departments—executive and legislative—the judicial department being a part of the State gov-

The Mayor is the executive officer of the city. His powers and functions vary greatly. He is nearly always elected by the people, but in a few cases is chosen by the City Council. His term of office raping from one four ways. varies from one to four years. His chief duty is to carry out the ordinances of the Council. In most cities he can veto an ordinance, but it can be passed over his veto by a two-thirds or three-fourths vote.

The City Council is the legislative department of the city. In large cities it often has two branches, whose members are called Aldermen and Councilmen, or Select and Common Councilmen. These members are usually elected by wards. They meet in the city hall and make laws, called ordinances, for the government of the city. Their powers and limitations are defined by the State legis-

government has been adopted. The com-serve as a medium of commercial com-mission consists of a Mayor and a small munication for all countries, with the body of Councilmen or Aldermen, each the head of a department, and all elected by the whole body of voters without regard to wards or precincts and usually without regard to party. The commis-sion both makes the laws and executes

bridges in repair; the Fence-viewers, gle piece. The univalves include most who settle disputes over boundaries, and of the Gasteropoda, as land-snails, seathe Field-driver, or Pound-keeper, who snails, whelks, limpets, etc. The majortakes charge of stray animals. ity of univalve shells are cone-shaped Village or Borough Government.—In and spiral.



Univalve Shell of Buccinum undatum.

A, Apex. B, Base. C, Aperture. D, An-A, Apex. B, Base. C, Aperture. D, Anterior canal. S. Posterior canal. F. Inner lip, pillar lip, columellar lip or labium. C, Outer lip or labrum. DFEG, Peristome or margin of aperture. w, Whorls or volutions. S, Sutures, or lines of separation. v, Varix.—The last whorl of the shell, usually much larger than the rest, is called the 'body whorl,' the rest of the volutions constitute the 'spire.' the spire.

Universalist (0-ni-ver'sal-ist), a Christian sect which according to the 'profession of belief' as adopted in 1803, at Winchester, New Hampshire, by the New England Convention, believes in the Holy Scriptures; in one God, whose nature is love, revealed in one Lord Jesus Christ, by one Holy Spirit of Grace, who will finally restore the whole family of mankind to restore the whole family of mankind to holiness and happiness; that believers ought to be careful to maintain order and practice good works, as holiness and ment of the city. Their powers and limitations are defined by the State legislature.

The Commission Plan.—In many cities of the country, more than 300 in number, the 'Commission' plan of city government has been adopted. The commission consists of a limitation are inseparably connected. The system of government is a modified Presbyterianism. The general convention, held annually, consists of clerical and lay delegates from each State convention. There are in the United States about 900 churches and 55,000 members.

Universal Language.

possibility of its eventually superseding all existing languages. Such languages have been partly or fully worked out at various times, as by Urquhart, Dalgarno, Wilkins, Leibnitz, and various others in the past, and in Volapük and Esperanto them. The Mayor is chairman of the commission but does not have the veto been made to get these two artificial power.

Univalve

(d'ni-valv), a mollusc with a shell composed of a sin
the past, and in valpuk and Esperanto same direction.

the other principal countries, it was not University College, a college or adopted by France until 1911, but is now in use throughout Europe and the United stitution belonging to a university, or

having the power of conferring certain honorary dignities, termed degrees, in several faculties, as arts, medicine, law, theology and others. In most cases the corporations constituting universities include a body of teachers or professors faculty to which they were attached, or raculty to which they were attached, or according to the country to which they belonged (hence the 'nations' into which the students were classed, and which still exist in some universities). At a later period the expression universities literarum (the whole of literature the still expression was used to be a still expression was used to be a still expression was used to indicate that all or learning), was used to indicate the control of learning in the control of a university from the universities of for university extension, spreading from Oxford and Cambridge, suppose that it necessarily means a collection and union of colleges, that it is a great corporation embodying in one certain smaller and subordinate collegiate bodies; but this been evolved by which institutions of is not correct, for many universities exist learning in every section are enabled to share in the benefits of the movement and to extend them to others.

Iniversity Settlements, in the other early universities were established, poor districts of cities where educated a papal bull being generally regarded men and women live and come in conas necessary to this. The United States tact with the poorer classes for social.

are partial and spontaneous efforts in the possesses the largest number of institutions bearing the name of universities, but a large proportion are sectarian, and in astronomy, the meridian of Greenwich, adopted at an international conference of scientific men, held at Washington, D. C., in 1883. While adopted by
the other principal countries it was not

States. Universal time, for international such as might belong to a university purposes, was adopted at the conference The University College, London, is close-above named. It is reckoned from mean by connected with London University. noon at the Universal Prime Meridian, (See London, University of.) The purposes, was adopted at the conference above named. It is reckoned from mean noon at the Universal Prime Meridian, ly connected with London University. Glee London, University of.) The the day commencing at midnight, and being divided into 24 (instead of into two portions of 12) hours each.

University

(1-ni-versi-ti), a corporate body or corporation versity College of Wales at Aberystwith, University College of Wales at Aberystwith, University in all or some of the most important wales at Bangor. The students of branches of literature and science, and having the power of conferring certain honorary dignities, termed degrees, in several faculties, as arts, medicine, law, University College of Oxford is the theology and others. In most cases the corporations constituting universities in Tinivarsity Extension a move University Extension, a move-in clude a body of teachers or professors for giving instruction to students; but progress to extend the means of higher this is not absolutely essential to a university, the staff of London University, of both sexes engaged in the regular for instance, being merely an examining occupations of life. Any community may body. In the middle ages, when the term began to be used in reference to seminaries of learning, it denoted either necessary funds and fixes fees, etc. The the whole body of teachers and learners, mode of instruction consists in courses or the whole body of learners, with correct rights and under by-laws of their universities, each lecture being preceded own, divided either according to the or followed by a class, in which the faculty to which they were attached or students are orally examined by the or followed by a class, in which the students are orally examined by the lecturer, who also corrects written papers done at home. An examination is held at the end of each course and certificates awarded. The movement began in 1872 with Cambridge University, but Oxford did not go heartily into it till 1885. The movement has extended widely in Britain and in 1890 reached the United States, where there has developed a liberally conducted movement for university extension, spreading from

settlements provide clubs, and offer a stories were formerly current concerning home and recreation for poor workers. Children are taken care of and have many amusements, all with a view to waken in them a desire for better things and right living. The first settlement in the United States was founded in New York city September 1, 1889, by the graduates of several women's colleges. It has since extended to all the large cities of the country, Hull House, Chicago, opened in the same month with the New York settlement, being one of the most notable examples.

Unterwalden (5n'ter-väl-den), a Theological Artocarpaces. Many exaggerated stories were formerly current concerning the deadly properties of this plant, its exhalations being said to be fatal to both animal and vegetable life at several miles distance from the tree itself. The truth is, that the upas is a tree which yields a poisonous secretion and nothing more.

Upernivik (5-per'ne-vik), the most northerly of the Danish off the west coast, in lat. 72° 48' x.

New York settlement, being one of the most notable examples.

Unterwalden (5n'ter-väl-den), a Theological Artocarpaces.

Unterwalden (ön'ter - väl - den), a on the north by the Vierwaldstätter Lake, on the east by mountains which separate it from Uri, on the south by Bern, and on the west by Lucerne; area, 295 sq. miles. It is divided into two valleys, Upper and Lower (Obwalden and Nidwalden), by a forest called Kernwald, and these districts being also politically distinct, send each one representative to the Swiss Council. The chief town of Obwald is Sarnen, and of Nidwald, of the territories of Senegambia and the Stanz. Pop. 28,000. Both cantons are almost entirely Roman Catholic almost entirely Roman Catholic.

tents of which are partly ritualistic, partly speculative. They are of different dates, some of them being as old as several centuries B.C.



Upas Tree (Antiaris toxicaria).

Upas (û'pas), a tree common in the forests of Java, and of some of the neighboring islands, and found also in tropical Africa. It is a species of trom the presence of urea in the blood, the genus Astiaris (A. tosicaria), nat. in consequence of the urine not being

Upholsterer-bee. See Carpenter-bee.

Upolu (5-pō-18'), the chief of the Samoan group of islands in the South Pacific. It is about 150 miles in circumference, and cotton and coconnut oil are its principal products. Apia is the capital. It belongs to Germany. Pop. 19,842.

Senegal protectorate, which was restored to Senegambia. In 1907 the several Dahomey districts were added to the colony, which now has an area of 302,-Unyoro (ö-nyō'rō), a district of Equatorial Africa, lying to the west and north of Uganda, to which it is and north of Uganda, to which it is tributary, and stretching to the Nile.

Upanishads (ö-pan'i-shad), in Sansive to a series of treaties or comparative to a series of treaties or comparative tribulatic.

Senegal protectorate, which was restored to Senegambia. In 1907 the several Dahomey districts were added to the colony, which now has an area of 302,-136 sq. miles. Capital, Bamaka; pop. 5,000,000.

Upsala (up-sa'la), a town of Sweden, 45 miles N. w. of Stockholm. It has a cathedral (archiepiscopal, the tents of which are partly ritualistic.

45 miles N. w. of Stockholm. It has a cathedral (archiepiscopal, the finest in Sweden), which contains the tombs of some Swedish kings and of Linnæus; a celebrated university founded in 1477, with a library of about 250,000 volumes, a botanical garden, observatory, etc. Pop. 22,855.

Upshur (up'shur), Abel Parker, statesman, born in Northampton Co., Virginia, in 1790. In 1841 he was appointed Secretary of the Navy by President Tyler. Two years later, on the resignation of Daniel Webster, he was appointed Secretary of State.

was appointed Secretary of State. Early in 1844 he was on the United States steamer *Princeton*, on the Potomac River, in company with the President and other members of the cabinet, to witness experiments with a large wrought-iron gun which burst, and mortally wounded him together with several others. He died near Washington, February 28, 1844.

Up'upa. See Hoopoe. Up'upa.

properly secreted, as in Bright's disease haps from containing radium, a conor other ailments, thus leaving in the stituent of pitchblende. blood elements that should be carried Tranus (û'ra-nus), in Greek myoff.

Ural Mountains, a series of mounteaus stretching nearly north and south between Europe and Asia, from the shores of the Arctic Ocean for a distance of about 1900 miles; highest sumit 5012 feet. mit, 5513 feet. There is but little striking scenery, and the rise is so gradual in some parts that the traveler from Perm to Ekaterinburg, for instance, hardly notices that he has crossed the chain. The Ural Mountains are celebrated for the mines of gold, platinum, copper, coal and iron which they contain, and in the south are many broad valleys of remarkable fertility.

Uralsk (ö-ralsk'), a town of Russia, on the Ural, 170 miles w. s. w. of Orenburg. It has a considerable trade, especially in fish and caviars. Pop. 43,005. It is the capital of Uralsk province, which borders on the Caspian Sea, with an area of about 125,000 sq. miles.

Urania (ū-rā'ni-a), in Greek my-thology, the muse of astron-

omy. She is generally represented holding in her left hand a celestial globe to which she points with a little

Uranium (d-ra'a rare metal whose chemical symbol is U, ato-mic weight 240, specific gravity 18.4. The chief source of uranium is pitchblende. Metallic uranium

is obtained in the form of a black powder, or some Urania, antique statue in aggregated

in s mall plates, having a silvery luster and a certain degree of malleability. It forms several oxides, which are used in painting on oxides, which are used in painting on ing zeal that they caused a schism ir porcelain, yielding a fine orange color in the church by electing Clement VII the enameling fire, and a black color The two popes excommunicated each in that in which the porcelain itself is other until Urban died, under circumbaked. It is strongly radio-active, per-stances which suggested poisoning.—

the Vatican.

Uranus thology, the son of Gæa, the Ural (a'ral), a river of Russia, which earth, and by her the father of the Titans, part of the boundary between Europe and confined them in Tartarus, but on and Asia, and enters the Caspian after the course of about 1000 miles. dethroned him.

U'ranus, in astronomy, one of the primary planets, and the seventh from the sun, discovered by Sir William Herschel in 1781. It was first called Georgium Sidus in honor of George III, and afterwards Herschel, in honor of the discoverer, finally receiving its present name in accordance with the practices of naming the planets after the deities of mythology. To the naked eye it appears like a star of the sixth magnitude. Its mean distance from the sun is about 1754 millions of miles, and the length of the millions of miles, and the length of the year 30,686.82 days, or about 84 of our years. Its mean diameter is estimated at about 33,000 miles. Its volume exceeds the earth's about 74 times, but as its mean density is only 0.17 (the earth's being 1) its mass is only about 12½ times more. The length of its day is supposed to be between 9 and 10 hours. It is now generally admitted that this planet has four satellites, which differ from the other planets, primary and secondary (with the exception of Neptune's satellite), in the direction of their motion, this being from east to west, and they move in planes nearly perpendicular to the ecliptic.

U'rari. See Curari.

Ura Tyube (ö'ra työ'be), a town of Russian Turkestan, in the district of Sir Darya, with walls and a citadel. Pop. 22,088.

Urban (ur'ban), the name of eight popes, of whom the most notable were: URBAN II (Othon de Lagry), 1088-99, was elected by one Lagny), 1088-99, was elected by one party in the church, and in a council held at Rome he excommunicated his rival Clement III and his supporter, the Emperor Henry IV. By his decision and energy he extended the power of the popedom, and it was at his instigation that the first crusade was undertaken, and Jerusalem captured.— URBAN VI (Bartolommeo Prignani), 1378-89. so exasperated the cardinals by his reform-

URBAN VIII (Maffeo Barberini), 1623-44, was more of a temporal prince than a cleric, extending the power of the church by raising armies, building fortresses, and entering into an alliance with France against the powers of Austria and Germany. He condemned Galileo and Jansen.

Urbana, a city, county seat of Cham-paign Co., Ohio, 47 miles w. by N. of Columbus. Here is Urbana

w. by N. of Columbus. Here is Urbana seat of an Armenian bishop, and of a University (Swedenborgian), organized in 1851. It has manufactures of strawboard, weol, brooms, paper and automatic telephones, etc. Pop. 7739.

Urbana (bright proper and automatic telephones, etc. Pop. 7739.

Urbana (bright proper and automatic telephones, etc. Pop. 7739.

Urga (ör'ga), a Chinese town in Northern Mongolia, on the river Tola, on the trade route between Peking and Kiachta. Pop. 30,000.

Urga (ör'ga), a Chinese town in Northern Mongolia, on the river Tola, on the trade route between Peking and Kiachta. Pop. 30,000.

Uri (ö'ri), a canton in Switzerland, bounded by Schwyz, Unterwalden, Valais, Tessin, Grisons and Glarus; dents, of the Illinois Laboratory of Natural History, and of a Government Experiment Station. It has railroad repair presenting a complete chaos of mountain the seat of a university; the chief buildings being the ducal palace and the cathedral. It was the birthplace of Raphael, whose house is still shown. Raphael, wl Pop. 18,244.

Urchin, SEA. See Echinus.

See Hindustani. Urdu.

Ure (ûr), ANDREW, chemist, born at Glasgow in 1778; died in 1857. He was educated at Glasgow and Edinburgh universities, where he was graduated in medicine; became professor of chemistry at the Andersonian Institution cnemistry at the Andersonian Institution (1804), director of the Observatory, Glasgow (1809), and was appointed analytical chemist to the Board of Customs (1834) in London. His chief works are: A Dictionary of Chemistry (two vols., 1821), The Cotton Manufactures and Mines (two vols., 1837) and a Dictionary of Arts, Manufactures and Mines (two vols., 1837-39), enlarged by Dr. Robert Hunt 14 39), enlarged by Dr. Robert Hunt (4 vols., 1875-78).

Urethra (û-re'thra), in anatomy, the canal leading from the bladder to the external urinary opening, and serving for the excretion of the urine. In the male it is a complicated structure varying in length from 8 to 9 inches, and in the female it is a narrow membranous canal about 1½ inches in length.

Urfa (ur-fa'), a town of Turkey in
Asia, in Upper Mesopotamia, a
seat of an Armenian bishop, and of a
French and an American mission. Pop.

periment Station. It has railroad repair presenting a complete chaos of mountain shops and other industries. Pop. 8500.

Urbino (5r-be'no), a town of North St. Gothard. An interesting mass is the Italy, province of Pesaro e Urirothstock, 9620 feet high. The most Urbino, 21 miles west by south of important portion of the canton is the Pesaro. It is the see of an archbishop, valley of the Reuss, which enters the seet of a mixersity; the shift build. Lake of Uri important portion of the canton is the valley of the Reuss, which enters the Lake of Uri, an arm of the Lake of Lucerne. The chief industry is cattle-Lucerne. In a chief industry is cattle-rearing; sheep and goats are also numer-ous; and timber is exported. The in-habitants are mostly Roman Catholics, and speak German. Uri was one of the three original Swiss cantons. It is visited by many tourists. The capital is Altorf. Pop. 19,700.

Uric Acid (u'rik), an acid which occurs in small quantity in the healthy urine of man and quadrupeds, and in much larger quantity in the urine of birds. Uric acid constitutes the principal proportion of the urinary calculi and the concretions causing the

Urim (n'rim), a kind of ornament or appendage belonging to the costume of the Jewish high-priest in ancient times, along with the thummin, in virtue of the beautiful to the costume of the second sec of which he gave oracular answers to the people, but what the urim and thummin really were has not been satisfactorily ascertained.

vols., 1875-78).

Vredo (0-re'do), a genus of minute parasitic fungi, the species of which are parasitic on plants. The disease called smut, brand, burnt ear, rust, etc., are caused by their ravages.

Vreter (0-re'ter), the excretory duct discharged. In its natural state it is urine from each kidney to the bladder. In man it is about the size of a goosequill; and its length is from 16 to 18 from 1.012 to 1.030. The character of the urine, however, is apt to be altered

Urn, a kind of vase, often one for holding the ashes of the dead. See Cinerary Urn, Vase.

Urodela (û-ro-de'la), an order of amphibian vertebrates in which the larval tail is always retained in the adult, the body being elongated posteriorly into the tail. There are two sections, the *Perennibranchiate Urodela*, in which the gills are retained through life, as in proteus, siren, etc.; and the Caducibranchiate, in which the gills disappear at maturity, as in newts and salamanders.

Ursa Major, Ursa Minor.

See Bear, Great and Little.
Ursine Seal (ur'sin; Otaria ursine or Arctocephalus ursinus), one of the otaries or eared seals, a native of the North Pacific, about 8 feet long. Called also sea-bear.

Ursinus College, a non-sectarian collegiate institu-tion, established in 1869 at Collegeville, Pa. It has about 300 students.

Ursus. See Bear.

by the state of health, the season of the family. But the order is more frequently year, age, food, and a variety of other causes. A knowledge of the urine in health, and of the variations to which it is subject in disease, is of the utmost importance to the medical practitioner. One of its morbid constituents is diabetic sugar. See Diabetes.

Urmiyah. See Urumiyah.

Urn, a kind of vase, often one for holding the ashes of the dead. See Cinerary Urn, Vase.

Manazon (which see).

Amazon (which see). Urubu (û-rû'bû), the native name of an American vulture, the Catharista Iota (black vulture or zopilote), very nearly allied to the turkey-buzzard which it closely resembles. This voracious bird is common in the villages and towns of the southern portion of the

towns of the southern portion of the United States, acting as a scavenger.

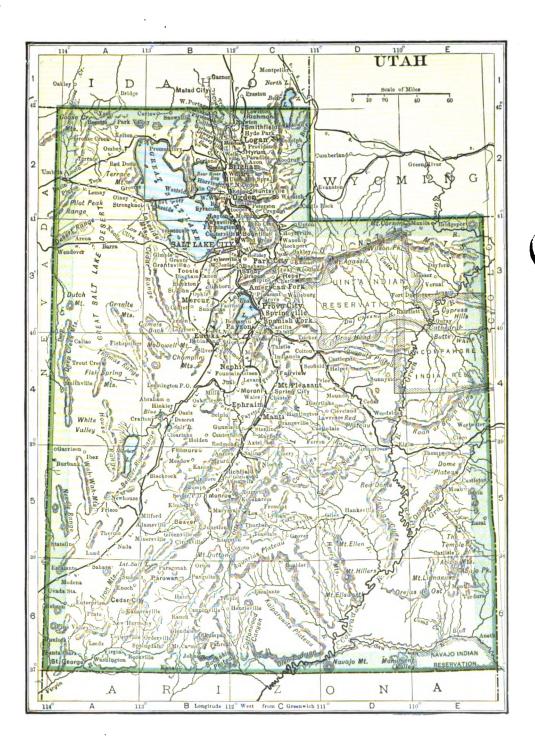
Uruguay (ö-ru-gwi', or u-ru-gwa'), a river of South America, which rises in Brazil, in the province of Santa Catharina, flows first westwards, then gradually turns south, and finally enters the estuary of La Plata opposite Buenos Ayres; length, about \$800 miles. 800 miles.

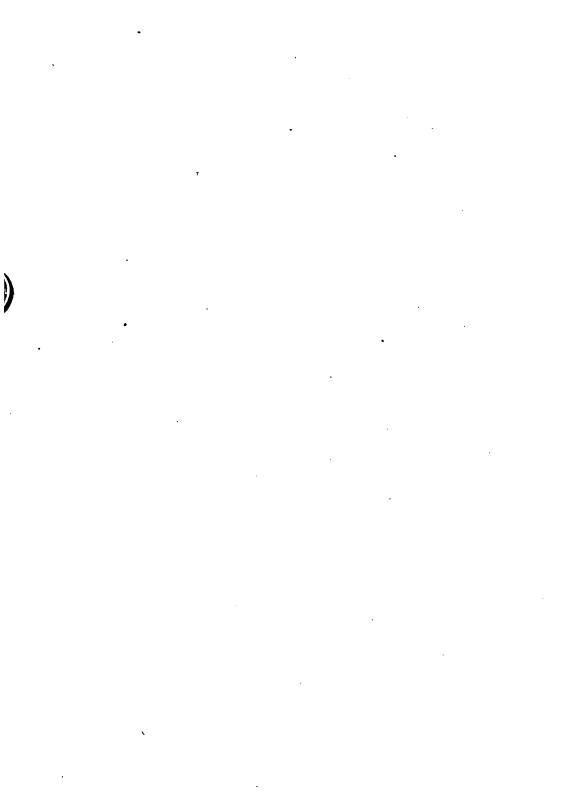
Uruguay, or Banda Oriental Del South America, bounded on the north and northeast by Brazil, on the east by the Atlantic, on the south by the Rio de la Plata, and on the west by the Uruguay, separating it from the Argentine Republic; area estimated at 72,150 square miles. The surface forms a vast undu-Urson (ur'sun), a name given to the Erethizon dorsatum, or Canadian porcupine, which is 18 inches in length, and the quills of which are smaller than in the common porcupine.

Ursula (ur'sū-la), Sr., a virgin martyr, according to the legend a daughter of a prince in Britain put to death at Cologne by a horde of Huns, some say in 384, others in 453, together with 11,000, or more probably 11, virgins who accompanied her.

Ursula (ur'sū-la), Sr., a virgin martyr, according to the legend a principal river is the Negro, which divides the state into two nearly equal portions, and on the southeast frontier is the large lake of Merim. The climate is mild and healthy, the general range of the thermometer being from 32° to 90° F. The extensive plains seem admirably adapted for agriculture, but they are who accompanied her.

Ursulines (-linz), or Nuns of St. F. The extensive plains seem admirably ursulines (Linz), or Nuns of St. The extensive plains seem admirably adapted for agriculture, but they are founded by St. Angela Merici at Brescia, occupied by large herds of horses, sheep in 1537. They devote themselves to the succor of poverty and sickness and the the principal industry. The principal education of female children. They had agricultural products are wheat, maise, oats, rye, millet and flaxseed. The chief many houses in France during the seven-teenth century. The Canadian Ursulines exports are hides, tallow, preserved date from 1639. hair, while the chief imports are cotton goods, woolens, coal and iron. Primary Urticaceæ (ur-ti-kā'se-ē), a nat. order of exogenous trees,
herbs and shrubs. In an extended sense and a university at Montevideo. The
the order includes the Ulmeæ, or elm Roman Catholic is the state religion,
family; the Artocarpeæ, or breadfruit but all faiths are tolerated. The country
family; and the Cannabineæ. or hemp is divided into nineteen provinces, and





by the constitution of 1830 it is gov-erned by a president, a senate and a house of representatives. Uruguay at off the west coast of the department of nouse or representatives. Uruguay at one time formed part of the Spanish viceroyalty of Buenos Ayres, and the language of the country is Spanish. Capital and chief port, Montevideo. Pop. (1908) 1,042,668.

Urumiyah (ö-ru-me'a), or Un'mi-YAH, a town of Persia, said to be the birthplace of Zoroaster, in the west of the province of Azerbijan, situated near a lake of the same name, 65 miles southwest of Tabreez. The surrounding district is of surpassing fertility. Pop. about 30,000.—The lake, situated 4300 feet above sea-level, is about 80 miles long from north to south, by 20 miles broad. It is extremely shallow throughout.

Urumtsi (u-röm'tsē), a city of Cen-tral Asia, in the Chinese province of Dzoungaria, on the northern side of the Thian-Shan Mountains. was formerly of great commercial im-portance in the trade between Russia, Turkestan and India. Pop. estimated at **30,000**.

Urus (u'rus), a kind of large ox which ran wild in Gaul at the period of the Roman invasion, as described by Cssar, perhaps the wild ox such as still exists in England, at Chillingham in Northumberland and Hamilton in Lanarkshire, or else the aurochs.

Usagara (d.sa-ga'ra), part of the German possessions in East Africa, occupying an extensive area of country inland north of the river Rufiji. It has mountains of considerable height,

and is generally fertile.

Usambara (u-sam-ba'ra), a mountainous territory of German East Africa, situated about 50 miles v. w. of Zanzibar, extending inland from opposite the island of Pemba. The country grows rice, maize, india-rubber and tobacco.

Usbecks (ös'beks), or Usbeks, a Turkish tribe which at one time formed the ruling class throughout Western Turkestan, in Bokhara, Khokand, Khiva and Balkh, and partly also in Eastern Turkestan. In Western Turkestan they are now completely under the control of Russia, but in the districts mentioned they still form the nobility and landowners.

Usedom (ö'ze-dom), a Prussian island in the Baltic, on the coast of Pomerania; area, 150 square The inhabitants are employed in agriculture and fishing; chief towns, Swinemunde and Usedom. Pop. about 33,000.

Finistère, to which it belongs; area, 6 square miles. It presents a very bold and rocky coast; fishing and the rearing of sheep are the principal occupations. Pop. **2761**.

Ushas (Q'shas), in Hindu mythology, one of the ancient elemental divinities, the goddess of the dawn. In the Vedic hymns she is represented as a young wife awakening her children and giving them new strength for the toils of the coming day.

Usher (ush'er), an officer who has the care of the door of a court, hall, chamber, or the like. In the royal household of Britain there are four gentlemen ushers of the privy chamber. The tlemen ushers of the privy chamber. The Gentleman usher of the black rod is an officer of the order of the Garter (see Black-rod); the Usher of the green rod, an officer of the order of the Thistle. The service of ushers is customary in American churches, at weddings, and in places of amusement.

Usher, or Ussher, James, Archbishop of Armagh, born at Dublin in 1580; died in 1656. He took orders in 1601; in 1607 received the proorders in 1601; in 1607 received the professorship of divinity at Trinity College, Dublin, and the office of chancellor of St. Patrick's; in 1620 the bishopric of Meath; in 1623 a place in the Irish privy-council; and in 1624 the primacy of Ireland. He was a man of great erudition, his chief works being the Annales Veteris et Novi Testamenti, which forms the hearing of the received hiblical chrothe basis of the received biblical chro-nology; and Britannicarum Ecclesiarum Antiquitates.

Ushkup, or Uskub (us'kup), a town Northwestern Turkey, on the river Vardar, seat of a Greek archbishop, with manufactures of leather, etc. Pop. 20,000.

Ussuri (ö-sö'ri), a river of Eastern Asia, a tributary of the Amoor, forming for a long distance the boundary between Russia and Chinese territories; length, 300 miles.

Usufruct (û'zû-frukt), in law, the temporary use and enjoyment of lands or tenements, or the right of receiving the fruits and profits of lands or other things without having the right to alienate or change the property.

Usury (û'zhû-ri). See Interest.

Utah (u'ta), a Western State of the American Union, bounded N. by Idaho, N. E. by Wyoming, E. by Colorado, s. by Arizona, and w. by Nevada; area, 84,990 sq. miles. The northeastern part

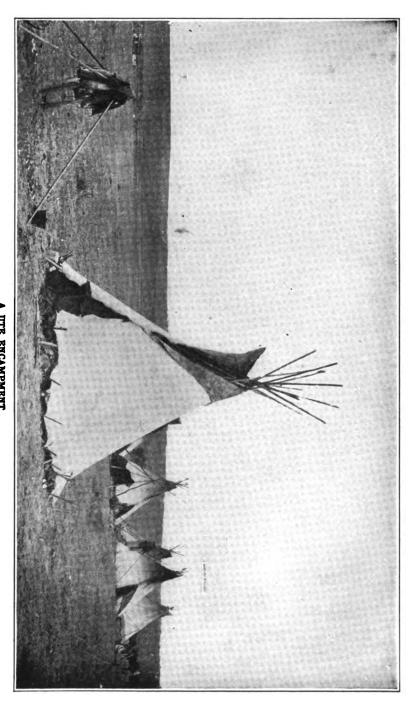
vated plateaus, deeply cut by canyons ily, living on reservations in Utah and and narrow stream valleys. The west-Colorado, having sold most of their lands ern portion of the State lies entirely to the United States government. Pop. within the Great Basin region and is about 2000. separated from the more eastern portion U'takamand. See Ootacamund. Within the Great Basin region broad, Within the Great Basin region broad, nearly level desert areas are interrupted by steep and rugged mountain chains runtum tween the bladder and rectum, in which include wheat, oats, barley, corn, potatoes, onions, cabbage, peas, tomatoes, and fourth sacral nerves. The womb is
sugar beets and fruits. Over 37,000 liable to many diseases, of which the most
acres are devoted to the sugar beet and
frequent and important are inflamma46,000 acres to fruit and nursery intory affections and tumors. It is also
terests. The chief wealth of the State
is in its agricultural and mineral reis in its agricultural and mineral reways from laxity of its ligaments and
sources. Its minerals embrace gold, silver, copper, lead, iron, coal, salt, etc.
Ttica (û'ti-kâ), an ancient city of
Insilver yield, Utah stands next to Montana. Manufactures are mainly confined
grada. near its entrance into the Meditana. Manufactures are mainly confined grada, near its entrance into the Medito goods for inter-mountain consumption, terranean, about 25 miles N. w. of Carthough much beet sugar is made, and thage. After the destruction of Carthere are large smelting works. The thage Utica became the capital of the capital is Salt Lake City; the next Roman province. It was destroyed by largest city is Ogden. Utah was settled in 1847 by Mormons; organized as a territory in 1850 and in 1896 admitted as a State. In 1882 Congress passed a set of Oneida County, situstringent law against polygamy, and in ated on the south bank of the Mohawk, 1890 the Mormon Church decreed its 95 miles w. by N. of Albany. It has beautiful parks and charitable institutions. discontinuance. Pop. (1910) 373,351.

Utah Lake, a fresh-water lake in and is the site of a state hospital for the miles s. of Salt Lake City. It is 25 the Federal Building, the County Buildington in length N. to s., with an extreme width of 13 miles. Its waters are brary. It has large and diversified manufrained into Great Salt Lake by means facturing interests including twenty-two

of the State consists of the high ranges of the Jordan River. Several Mormon of the Uinta and Wasatch Mountains. towns are on its eastern shores. Practically all of eastern and southeastern Utahs, or UTES, a tribe of American Indians of the Shoshone fam-

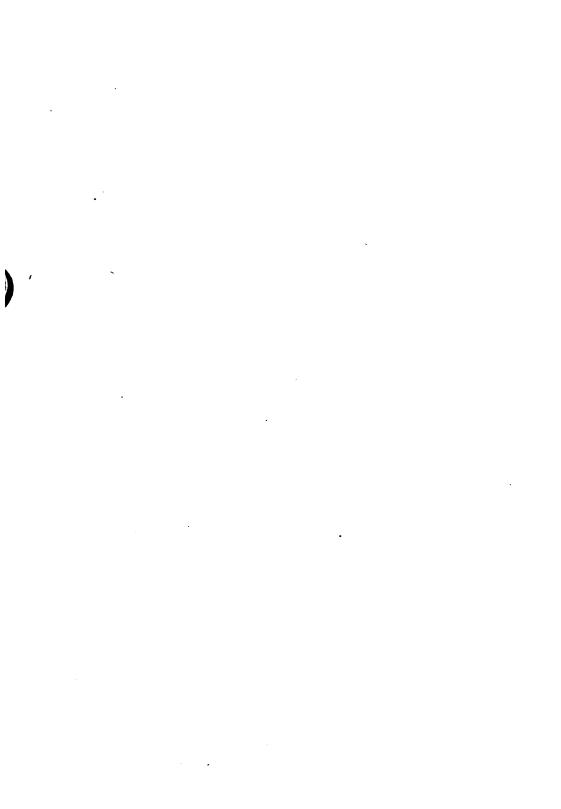
by steep and rugged mountain chains running north and south. Within the plateau portion, there are numerous small
at maturity, when it is finally born or
valleys which are irrigated for intensive
agriculture, but upon the plateau itself what pear-shaped, and measures about 3
grazing is the principal industry. The inches long, 2 inches broad, 1 inch thick,
greater portion of the agricultural land and weighs about 1½ oz. It is divided
of the State lies along the western border into a fundus or base, a body and a
of the mountain and plateau district cerviw or neck. It opens into the vagina
where the water from higher levels is by a transverse aperture (os uteri),
brought down and applied to the sandy
and gravelly loams around the margin of
tain ligaments derived from the perithe Great Basin region, and to the finer
toneum. Its internal cavity is small,
grained sediments of the stream valleys and at each superior angle at the fundus grained sediments of the stream valleys and at each superior angle at the fundus and of the level floors of recent lake a Fallopian tube or oviduct enters. basins. The possible dry farm area of These tubes convey the ova or eggs from Utah is practically all of that which is the ovary (which see) to the uterus. not covered by mountains or under ir. In structure the uterus is composed of riestion country with the execution of the overset of the overset. not covered by mountains or under ir- In structure the uterus is composed of rigation canals, with the exception of an outer serous coat, a middle muscular some of the more desert districts where coat, and an inner mucous lining. The the rainfall is less than ten inches. The arteries of the uterus are derived from irrigating ditches of the State are over the internal lliac and the aorta; the 5,887 miles in length, of an estimated veins are large, and are called sinuses cost of \$17,840,775.00, and the reservoirs in the impregnated state. The nerves are extensive. The agricultural products spring from the inferior hypogastric and include wheat, oats, barley, corn, potaspermatic plexuses, and from the third toes, onions, cabbage, peas, tomatoes, and fourth sacral nerves. The womb is

tana. Manufactures are mainly confined grada, near its entrance into the Medi-



A UTE ENCAMPMENT

This photograph shows a typical encampment of one of the nomadic Indian tribes. The tepees or tents are made of skins, and may be quickly taken down, rolled into a bundle and packed upon the supporting sticks, which in moving are dragged by a pony.



Utilitarianism **Uzbegs**

Utilitarianism (1-til-i-ta'ri-an-izm), the general name given to those schools of morals which define virtue as consisting in utility. The name is more specially applied to the school founded by Jeremy Bentham, of which the mest recent expense; is of which the mest recent exponent is John Stuart Mill, but there are many other developments of the same principle both in ancient and modern schools of morals. See Ethics.

Utopia (û-tô'pl-a), a name invented by Sir Thomas More, from the Greek ou topos (no place), and applied by him to an imaginary island, which he represents as discovered by a com-panion of Amerigo Vespucci. As de-cribed in his work called *Utopia*, written in Latin and published in 1516, the Utopians had attained great perfection in laws, politics, etc.

See Caliatines.

Utrecht (ö'trekt), an important town of Holland, capital of a province of the same name, 23 miles southeast of Amsterdam. It is pleasantly situated on the Old Rhine, is traversed by two canals crossed by numerous stone bridges, and is surrounded by strong forts. The town is well built, and has forts. The town is well built, and has several squares, promenades, a government house, a Protestant cathedral (a fine Gothic building), mint, handsome town hall, palace of justice, etc. Educational establishments include a well-equipped university, a veterinary school, musical college, and schools for drawing and architecture. Utrecht is the central point of the Dutch railway system and point of the Dutch railway system, and carries on an extensive trade in grain and cattle, and in the manufactures of the place, which include Utrecht velvet, carpets, floor-cloth, cottons, linens, chemicals, etc. Utrecht is the oldest town of cais, etc. Utrecht is the oldest town of Holland, and was called by the Romans Trajectum ad Rhenum, that is 'Ford of the Rhine,' later Ultra-trajectum. Pop. 121,317. The province of Utrecht has an area of 532 square miles, with a pop. (1905) of 276,543. It is generally flat, is well watered by the Rhine, Vecht, Amstel and other rivers, and is better suited for dairy farming and stock raising than for corn growing. ing than for corn growing.

Utrecht, PEACE OF, a series of sepa-treate treaties agreed upon at Utrecht by the powers which had been

textile mills. It is also the center of a engaged in the war of the Spanish Suclarge dairy country and is a market for cession. On April 11, 1713, the Statescheese. It is on the Eric Canal and the general, Prussia, Portugal and Savoy, D. L. and W., the N. Y. C., the H. R., signed separate treaties with France. the N. Y. Ont. and W., and the W. Shore railroads. Pop. (1910) 74,419.

The emperor refused to accede to the peace, and his differences with France that it is a signed separate. The interval of the peace, and his differences with France were subsequently adjusted by the were subsequently adjusted by the treaties of Rastadt and Baden in 1714. By the treaty with England, France, among other things, recognized the Hanoverian succession, engaged never to unite the crowns of France and Spain, and ceded to Britain Nova Scotia, New-foundland, St. Kitt's and Hudson Bay and Straits. Gibraltar and Minorca were also ceded on behalf of Spain. Holland retained the Spanish Nether-lands until a barrier treaty was arranged with Austria. (See Barrier Treaty.)
Louis XIV recognized the title of the King of Prussia, who received a part of Spanish Guelderland, and the sovereignty Spanish Guelderland, and the sovereignty of Neufchâtel in Switzerland, while renouncing the principality of Orange. Savoy and Nice were restored to the Duke of Savoy, who was recognized as presumptive heir to the Spanish monarchy, and received the title of king. Philip V was not recognized till the conclusion of these treaties, but France treated for Spain, and formal treaties corresponding with those with France corresponding with those with France were afterwards signed with that power.

Utrera (6-tra'ra'), a town of Spain, province of Seville, 18 miles s. E. of the city of Seville. It has a fine Gothic church and a Moorish palace Pop. 15,138.

(ū-trik-ū-lā'ri-a), the Utricularia bladderworts (which see).

U'vula. See Palate.

Uxbridge (uks'brij), a town of England, in Middlesex, on the Colne, 15 miles w. of London. It has Colne, 15 miles w. of London. It has an ancient church, an iron foundry, breweries, brick kilns, etc. There is a good trade in corn and flour. Pop. 10,374.

Uxmal (öz-mäl'), an ancient Indian town of Yucatan, Central America, about 35 miles s. w. of Merida. It is now an extensive group of ruins. Some of these are remarkable relics of a past state of Indian civilization. They comprise several large temple buildings

of striking architecture and adornment.

Uz, in the Old Testament, a region probably lying to the east or southeast of Palestine, known as the scene of the story of Job.

Uzbegs. See Usbecks.

V, the twenty-second letter of the English alphabet, a labial, formed by the junction of the upper teeth with the lower lip, and a gentle expiration. It vacuum (vak'ū-um), empty space, or esembles the letter f, but is sonant and space devoid of all matter not like it surd or hard.

Vaal River (väl), a river of South Africa, rises in the Quathlamba Mountains, and after a tortuous course of about 500 miles joins the Orange River (which see). It divides the Transvaal Colony from the Orange River Colony.

Vaccination (vak-si-nā'shun), in-oculation with vaccine in order to procure immunity from smallpox, or with modified virus of any disease in order to produce it in a mild form and so prevent a serious attack. The practice of anti-smallpox vaccination was intro-duced by Jenner, and it soon came into common use instead of inoculation. (See Jenner and Inoculation.) The usual method in vaccination is to make a tew scratches across one another, with a clean lancet point, upon the upper part of the arm. The matter from the cowpox, or from the vaccination pustule produced on another person, is then rubbed on the skin where the scratches have been made. If the vaccination proves successful a small inflamed pustule appears about the third day, and increases in size until the tenth day. On the eighth day the constitu-tional effects manifest themselves by slight pain in the part, headache, shiver-ing, loss of appetite, etc. These subside or two days. spontaneously in one spontaneously in one or two uays. Afterwards the fluid in the pustule dries up, and a scab forms which disappears about the twentieth day, leaving a slight scar in the skin. Repeated vaccinations, with intervals of several years, have been recommended by medical authorities.

Anti-typhoid vaccination has recently found favor. It was introduced into the United States army and navy early in 1912. The following year not a single case of typhoid occurred, despite the frequent exposure to unsanitary conditions. Anti-typhoid vaccination has also been practiced with satisfactory results in British armies in various parts of the world, in the Japanese and the French army.

Vacuum (vak'ū-um), empty space, or space devoid of all matter Whether there is such a thing or body. as an absolute vacuum in nature is a question which has been much controverted. The existence of a vacuum was maintained by the Pythagoreans, Epicureans, and Atomists; but it was denied by the Peripatetics, who asserted that nature abhors a vacuum. The modern theory, which seems to be warranted by experience, is that an absolute vacuum cannot exist, the subtle medium known as ether being believed to be everywhere present. In a less strict sense a vacuum (more or less perfect) is said to be produced when air is more or less completely removed from an enclosed space, such as the receiver of an air-pump, a portion of a barometric tube, etc. In the receiver of the air-pump the vacuum can only be partial, as the ex-haustion is limited by the remaining air not having sufficient elasticity to raise the valves. The Torricellian vacuum. that is, the space above the mercury in a carefully manipulated barometer tube, is more nearly perfect in this respect, but even this space is to some extent filled with the vapor of mercury.

Vacuum-brake. See Brake.

Vacuum Cleaner, a system of house cleaning by aid of machines creating a partial vacuum and by this means extracting the dust from carpets, sofas, and furniture in general, through a tube with a special nozzle. These machines have come largely into use, worked by hand or power, on small or large scale. The same principle has been applied to other purposes, on the farm, or elsewhere, such as the moving of grain, etc., and prom-ises to become somewhat wide in its applications.

Vacuum-tube. See Goissler's Tubes.

Vade Mecum (va'de me'kum; Lat. wat, i. e., with me). A portable object

for frequent or occasional use; a pocket but rising in Mount Popovagora to 1080 companion; a book or manual for carrying about on the person. It is popuing about on the person. It is popularly given to any readily available work of reference, or a key to any science or profession, as The Electrician's Vade Mecum, The Lawyer's Vade Mecum, etc.

Vail (vāl), ALFEED, inventor, born at Morristown, New Jersey, in 1807; in 1837 became associated with S. F. B. Morre in his electric telegraphy experi-Morse in his electric telegraphy experiments. He made several important inventions in this connection and is credited with that of the alphabet of dots, spaces and dashes which is the distinguishing feature of the Morse system. He was assistant superintendent of the first telegraph line in this country, invented the finger key, and received the first message from Washington. He

rist message from Washington. He died Jan. 18, 1859.

Vail, THEODORE NEWTON, electrician, was born in Carroll Co., Ohio, in 1845; a cousin of the preceding, and nephew of Stephen Vail, who built the engines for the Astananah, the first steamble to correct the Atlantic He studied. ship to cross the Atlantic. He studied medicine, but was soon engaged in the railroad mail service and in 1878 entered the telephone business, organizing the first Bell Telephone Co. After 1896 he was engaged in introducing street railways and telephones in Argentina. He built up the national telephone organization, and has secured control of the Western Union Telegraph Co., and since 1907 has been president of the American Telegraph and Telephone Co., and the New York Telephone Co.

Valais (vå-lä; German, Wallis), southern canton of Switzer-land, abutting on France and Italy; Valencia (vå-len'shi-à), a city of Spain, capital of the provinced on all sides by sections of the largest valley in mostly narrow winding streets, lined Switzerland. The mountain slopes are with good houses. It is an archbishop's covered with forests of pine and hard-see, and has a cathedral (dating from canton, forming the largest valley in Switzerland. The mountain slopes are covered with forests of pine and hard-wood trees, succeeded by productive

feet. They are well wooded, and contain the sources of the Volga, Dnieper, and Düna.

Valdepeñas (vål-dā-pān'yàs), a town in Spain, New Castile, province of Ciudad Real, 110 miles south of Madrid. It is celebrated for a red wine. Pop. 21,015.

(vål de trå-vär), Val de Travers a valley in the Swiss Jura, canton of Neufchatel, drained by the Reuse flowing into the lake of Neufchatel. It is cultivated in parts, and contains a deposit of asphalt, yielding annually upwards of 2000 tons. See Asphalt.

Valdivia (val-de've-ä), a seaport of Southern Chile, on the navigable Calle-Calle. Pop. 9704.— Its port is Valdivia Port, or Corral, one of the best harbors on the Pacific coast of South America.

Valdosta (val-dos'ta), a city, capital of Lowndes Co., Georgia, 157 miles s.w. of Savannah. It is in a cotton-growing region, and has manufac-

tories of yarn, oil, turpentine, lumber, and fertilizers. Pop. 7656.

Valence (va-lans), chief town of the department of Drome, France, on the left bank of the Rhone, 66 miles south of Lyons. It is a poorly-built town surrounded by old battlemented walls. It has a citadel, a small ancient cathedral, a public library, a court-house, and a theater. It is a bishop's see, and has manufactories of silk and cotton, and some trade in wine,

Switzerland. The mountain slopes are with good houses. It is an archbishop's covered with forests of pine and hardwood trees, succeeded by productive orchards. Rich pastures support numerous cattle, the chief source of subsistence of the inhabitants; and in the lower valley of the Rhone there is much versity, founded in 1500, is one of the arable land, the finer fruits are grown, and silk-worms reared. The canton produces a good deal of wine. In the Upper bottanic garden, and the Alameda, a Valais German, in the Lower French is spoken. The canton was admitted into the Confederation in 1553. Sion is the capital. Pop. 114,438.

Valdai Hills (vàl'di), a range of hills in Western Russia, averaging about 300 feet in height,

Valencia, a town of Venezuela, about 30 miles south of the Caribbean Sea, connected by railway with Puerto Cabello. It has a number of patchle building to a sea the control of the contro notable buildings, and an active commerce in coffee, sugar, rum, cattle, hides, etc. Pop. 38,654.

Valenciennes (va-lan-syen), a for-tified town of France, in the department of Nord, on the Scheldt, 30 miles s.E. of Lille. It is a somewhat gloomy town with narrow streets, but the houses are in general well built. There is a handsome cathedral of the thirteenth century and a notable town-hall of the seventeenth century. It has important manufactures of lace, fine linen, hosiery, beet-sugar, soap, etc. Pop. (1906) 25,977.

Valens (vă'lenz), Flavius, a Roman emperor of the East, born in Pannenic in 228 and delared emperor.

Pannonia in 328, and declared emperor of the East by his brother Valentinian I, who had already been elected emperor. The chief event of his reign was the war with the Goths under Athanaric, which lasted during the whole of Valens' reign. The Goths were several times defeated, and sued for peace, which was granted them (370). In 377 the Goths, driven southwards by the Huns, asked and received permission to settle on Roman territory. Irritated by the treatment they received at the hands of the importal effectles they goes took up arms. perial officials they soon took up arms, and in 378 defeated Valens and destroyed the greater part of his army. Valens was never seen or heard of afterwards.

Valentia, or Valencia (valen'shia), a small fertile island off the southwest coast of Ireland, belonging to County Kerry, about 5 miles long by 2 miles broad. It has slate and flag quarries and productive fisheries. The British Atlantic telegraph cables to Newfoundland start from Valentia, and there is a lighthouse.

Valentine, ST. (val'en-tin), a saint of the Roman calendar, said to have been martyred in 306 A.D. The custom of choosing valentines on his day (Feb. 14) has been accidentally associated with his name. On the eve of St. Valentine's day young people of both sexes used to meet, and each of them drew one by lot from a number of names of the opposite sex, which were put into a common receptacle. Each gentleman thus got a lady for his valengentleman thus got a lady for his valentine, and became the valentine of a lady.

The gentlemen remained bound to the on the N. E. coast of the island, situated

provinces of Valencia, Alicante, and service of their valentines for a year. Castellon de la Plana. It is one of the A similar custom prevailed in the Romost fertile and pleasant regions of man Lupercalia, to which the modern custom has, with probability, been traced. The day is now celebrated by sending anonymously through the post senti-mental or ludicrous missives specially prepared for the purpose. But this practice is also on the decline.

Valentinians (val-en-tin'i-anz), a sect of Gnostics (which see).

Valenza (vå-lent'så), a town of Northern Italy, province of Alessandria, pleasantly situated on the right bank of the Po. It has a cathedral of the sixteenth century. Pop. 7115.

Valerian (va-le ri-an; Valeriana officinalis), a plant of the order Valerianaceæ, native of Europe, der Valerianaceæ, native of Europe, which grows abundantly by the sides of rivers, and in ditches and moist woods.

The root has a very strong odor, which is dependent on volatile oil. It is used in medicine, in the form of infusion, decoction, or tincture, as a stimunervous lant and antispasmodic. Cats and rats are very fond of va-Valelerian. riana rubra, or red valerian, is cultivated in gardens, as well as



Valerian (Valeriana oficinalis).

many other species, on account of its elegant flowers. V. sylvatica, wild valerian, is found in swamps from Vermont to Michigan; V. pauciflora in Ohio, Virginia and Tennessee; V. ciliata in low grounds in Canada, Wisconsin and Ohio. The true valerian of the shops is a product of V. oficinalis.

Valerianus (va-le-ri-ā'nus), Pub-LIUS LICINIUS, a Ro-man emperor from 253 to 260. He was taken prisoner by the Persians in 260, and his after fate is unknown.

Valerius Flaccus (va-le'ri-us flak'-us), CAIUS, a Roman epic poet who flourished in the reign of Vespasian, about 70-80 A.D. He was author of the Argonautica, a poem which extended to eight books, but was left unfinished.

Valhalla **V**allisneria

on an elevated neck of land, with a large and commodious harbor on each side. The town has wide streets paved with lava, spacious squares, and fine quays, lined with elegant buildings. From the lined with elegant buildings. From the inequality of the site the communication between the different streets is maintained by flights of steps. The cathedral, built in 1580, contains the tombs of the knights of Malta or of St. John (see John, Knights of St.), and in a chapel are the keys of Jerusalem, Acre, and Rhodes. Other notable buildings are the governor's residence, formerly the palace of the grand-masters: the the palace of the grand-masters; the library, museum, university, and the military hospital. The dockyard is capable of admitting the largest menof-war. Some shipbuilding and various other industries are carried on, and the trade includes grain, wine, fruits, cotton, and other manufactures, coals, etc. The mail steemers for Alexandria Constant and other manufactures, coals, etc. The mail steamers for Alexandria, Constantinople, etc., call here, and it is the chief station of the British fleet in the Mediterranean. Pop. 61,268. See Malta.

Valhalla (val-hal'a), in Northern mythology, the palace of immortality, inhabited by the souls of heroes slain in battle, who here spent much of their time in drinking and feasting. The name is applied figuratively to any edifice which is the final restingplace of many of the heroes or great men of a nation, and specifically to an edifice built by Ludwig I of Bavaria, a few miles from Ratisbon. See Walhalla.

Valkyrias (val-kir'i-as), VALKYRS, in Northern mythology, the 'choosers of the slain,' or fatal sisters. the 'choosers of the slain,' or fatal sisthe 'choosers of the slain,' or fatal sisters of Odin, represented as awful and beautiful maidens, who, mounted on swift horses and holding drawn swords in their hands, presided over the field of battle, selecting those destined to death and conducting them to Valhalla, where they ministered at their feasts, serving them with mead and ale in skulls.

Valladolid (vål-yà-do-lid'), a city of S p a i n, capital of the province of the same name, 98 miles northwest of Madrid. It has a cathedral, many churches and suppressed convents, three hospitals, and a uniconvents, three hospitals, and a university. The church of Santa Maria la Antigua dates back to 1088. Columbus died in this city and Cervantes dwelt here 1603-06. It was formerly the capital of Castile. The manufactures capital of Castle. The manufactures consist of silks, cotton and woolen goods, hats, jewelry, paper, etc. Pop. 68,789.

— The province has an area of 3042 square miles, and a population of 278,-561. It is well watered by the Douro

and its tributaries, and is very fertile.

Valladolid, a city of Mexico, same which see). Vallandigham (va-lan'de-gam), (va-lan'de-gam), tician, born at New Lisbon, Ohio, in 1820. He was a member of Congress 1858-63, supported the Southern Confederacy in the House of Representatives, and made such violent harangues in favor of the insurgents that he was arrested in May, 1863, on a charge of uttering disloyal sentiments. He was tried by court-martial and sentenced to confinement until the end of the war, this being commuted to banishment to the connement until the end of the war, this being commuted to banishment to the Confederate lines. Not being warmly received there, he went to Canada. In the same year the Democrats of Ohio denounced his banishment and nominated him for governor, but he was beaten by the largest majority ever given in that state. He died in 1871.

Vallejo (val-a'hō or val-ya'hō), a city and seaport of California, capital of Solano Co., on an arm of San Pablo Bay, 23 miles N. E. of San Francisco, in a fruitful farming region. It has a spacious harbor, flour-mills, shiphas a spacious harbor, flour-mills, ship-yards, iron-foundries and machine-shops. Large quantities of grain are shipped. There is a United States navy yard on Mare Island, near this place. Pop. 11,340. Valleyfield, a town of Quebec prov-harnois Canal, 6 miles s. E. of Cotean Landing. Has cotton, flour and other industries. Pop. 9447.

Valley Forge, a village in Chester the Schuylkill River, and 24 miles w. N. W. of Philadelphia. It is celebrated as the place where Washington with about 11,000 troops went into winter quarters in December, 1777. It was here also that Baron Steuben became inspectorgeneral of the army, and the treaty of alliance with France was announced, May 6, 1778. During the winter the American army suffered very greatly American army suffered very greatly from cold and hunger, and about half of the men were rendered unfit for active duty. The state has converted the locality into a public park, as a historic landmark, and a monument has been erected by the Daughters of the Revolution to the memory of the soldiers who died in camp during that winter of suffer-

Vallisneria (val-is-nē'ri-a), a genus of aquatic plants, of the nat. order Hydrocharidaceæ. They grow at the bottom of the water, and the male and female flowers are separate. When the time of fecundation arrives the male flowers become detached, and

ficat on the water; the female flowers develop long spiral peduncles, by means of which they reach the surface, where they are fertilized by the male flowers. V. spirālis grows in still waters in Italy, and in the Rhone; it is commonly grown in aquariums.

(vä-lom-bro'sa), for-merly an abbey in a Vallombrosa weoded valley of the Apennines, belonging to the diocese of Fiesole, in the Florentine territory, where Giovanni Gualberto founded a house for monks in 1038, subject to the rule of St. Benedict. The building (dating from 1637) now accommodates an institute of forestry.

Valmy (val-mē), a village of France, department Marne, celebrated for the affair known as 'the cannonade of Valmy,' where the French republican troops under Kellermann defeated the Prussians in 1792.

Valois (val-wa), House of, a dynasty which ruled France from 1328 to 1589. In 1285 Philip III gave the county of Valois (now in the departments County of value (now in the departments of sea and Aisne) to his younger son, Charles, and upon the extinction of the Capet dynasty, in 1328, the eldest son of this Charles of Valois ascended the French throne as Philip VI, and founded the Valois dynasty, which was followed by the house of Bourbon. See France (History).

Valparaiso (val-pa-rī'sō), the principal port of Chile, capithe printal of the province of Valparaiso, situated on a large bay of the Pacific, 90

miles w. N. W. of Santiago. The bay is open to the north, but well sheltered from winds in other directions, and capable of accommodating a very large number of vessels. tom-house is the only public building worthy of note. Valparaiso is the great commer-

cial emporium of Chile, and is in railway communication with Santiago, the Vambery (vam bā-rē), Herman, a
capital. The chief imports into ValHungarian traveler and

the whole of the imports of Chile, while the exports form a large portion of the total exports. Pop. 180,600.—On August 16, 1906, the city was destroyed by an earthquake, but has been rebuilt.

Valparaiso, a city, capital of Porter Co., Indiana, 44 miles S. E. of Chicago. It contains several edu-

s. E. of Chicago. It contains several educational institutions and has manufactures of school specialties, mica, paints, and varnishes. Pop. 6987.

Valpy (val'pi), Richard, an English scholar, born in 1754. He was graduated at Pembroke College, Oxford, in 1776. He entered the church, and for several years held a living at Bury St. Edmunds. From 1781 to 1830 he was head-master of Reading Grammar School, and compiled a Latin and a mar School, and compiled a Latin and a Greek grammar and several classical textbooks, which enjoyed a wide reputation. He died in 1836.

(valv), a kind of movable lid or Valve cover adapted to the orifice of some tube or passage, and so formed con to open communication in one direction and to close it in the other, used to regulate the admission or escape of a fluid, such as water, gas, or steam. Some valves are self-acting, that is, they are so contrived as to open in the required direction by the pressure of the fluid upon their surface, and immediately to shut and prevent the return of the fluid when the direction of its pressure changes. Others are actuated by independent cxternal agency. Examples of the former kind are presented in the valves of

pumps, and in the safety-valves of steam boilers, and of the latter in the slidevalves appended to the cylinder of a steam-engine for the purpose of reg ulating the admission and escape of the escape of the steam. The construction of valves admits of an almost endless variety of devices. Sec



paraiso are manufactured goods, sugar, scholar, born in 1832. He studied at wine, tobacco, and cigars. The exports Pressburg, Vienna, and Budapest, and consist mainly of wheat, barley, wool, then went to Constantinople, where he etc., and of mining produce. The imports of Valparaiso constitute nearly published a Turkish-German dictionary.

In 1861-64, disguised as a dervish, he formerly and popularly described; but undertook an extensive journey of extensive is little doubt that they do attack undertook an extensive journey of exploration through Persia into Turkestan, ploration through Persia into Turkestan, and visited Khiva, Bokhara, and Samarcand. In 1865 he became professor of Oriental languages at the University of Budapest, and he wrote many valuable linguistic works as well as works on his travels, including Travels in Central Asia (1865); Wanderings and Adventures in Persia (1867); Sketches of Central Asia (1868); History of Bokhara take van, and is overlooked by an tured in Persia (1867); Sketches of Central Asia (1868); History of Bokhara teet above sea-level; area, about 1600 (1873); Central Asia and Anglo-Russian Frontier (1874); Islam in the Nineteenth Century (1875); The Origin of the Magyars (1882); The Coming Struggle for India (1885); Story of Hungary though what was at first considered the Magyars (1882); The Coming Struggle for India (1885); Story of Hungary though what was at first considered the metal was really an oxide; chemical Adventures appeared in 1888. He has symbol V; atomic weight 51.2. Vanaalso been a frequent contributor to discontinuous and cattle, and sometimes even man in his sleep.

Van (vän), chief town of a vilayet of the same name in Armenia, Asiatic Turkey. It is pleasantly situated noid citadel. Cotton cloth is manufactured and exported. Pop. about 30,000.

Lake Van is a salt-water lake, 5467 feet above sea-level; area, about 1600 (1873); Central Asia and Anglo-Russian feet above sea-level; area, about 1600 (1873); Central Asia and Anglo-Russian feet above sea-level; area, about 1600 (1873); Central Asia and Anglo-Russian feet above sea-level; area, about 1600 (1873); Central Asia and Anglo-Russian feet above sea-level; area, about 1600 (1873); Central Asia and Anglo-Russian feet above sea-level; area, about 1600 (1873); Central Asia and Anglo-Russian feet above sea-level; area, about 1600 (1873); Central Asia and Anglo-Russian feet above sea-level; area, about 1600 (1873); Central Asia and Anglo-Russian feet above sea-level; area, about 1600 (1873); Central Asia and Anglo-Russian feet above sea-level; area, about 1600 (1873); Central also been a frequent contributor to periodical literature in England, Ger-many, and Hungary.

Wampire (van'pir), a superstition of Eastern origin existing on the Lower Danube. A vampire is a checked by a vampire. On the checked by a vampire is a checked by a checked by a vampire is a checked by a checked b

in expanse of wing. It has large prominent upper incisors of peculiar shape, and upper canines somewhat similar, and

horses and cattle, and sometimes even

Vanadium (va-nā'di-um), a metal discovered in 1830, although what was at first considered the metal was really an oxide; chemical symbol V; atomic weight 51.2. Vanadium has a strong metallic luster, considerably resembling silver, but still more like molybdenum. When in mass it is not oxidised either by air or water, but the finely-powdered metal quickly

discovery of a vampire's grave the corpse must be disinterred, thrust through with a white-thorn stake, and burned.

Vampire-bat, a name for certain be a name for certain the blood-sucking habits attributed to these bats, but how many of them really attack animals and suck blood from ior, and then turned his attention to them is not quite clear. One species at least, known as the vampire-bat least, was followed by The last least, was followed by The least least, known as the vampire-bat least, was followed by The least lea regular food being fruits and insects. of the freedom of treatment which charlit has large leathery ears, an erect spear- acterized that period, but Esop was like appendage on the tip of the nose, moral and dull, and therefore unsuccesswings when extended measuring 28 ful. How he obtained his knowledge of inches. Several bats, however, have architecture is not known, but at this been proved to be blood-suckers, the best- time (1702) Vanbrugh designed Castle known being Desmodus rujus, a species Howard, the seat of the Earl of Caronly about 4 inches long and 15 or 16 lisle. Afterwards he entered with Conjugation of the conjugation of greve into a speculation to build a great in expanse of wing. It has large promiment upper incisors of peculiar shape, theater at the west end of London, in
and upper canines somewhat similar, and which he was his own architect; but it
the stomach and intestines are evidently did not prove a success. In 1706 he was
specially adapted for a diet of blood. commissioned by Queen Anne to present
This species of bat seems to be generally the garter to the Elector of Hanover,
distributed throughout the warmer parts and the same year he was occupied with
of South America from Chile to Guiana. the erection of Blenheim Palace. This
The blood-sucking propensities of these
bats are by no means so dangerous as trouble, as narliament, which voted it. bats are by no means so dangerous as trouble, as parliament, which voted it,

voted nothing for its payment. He built certain if there was a northwest passage many other mansions for the nobility; He sailed in the Discovery in 1791, spent in 1714 he was knighted by George I, some time at the Cape of Good Hope, in the following year appointed controller and afterwards at Australia and New of the royal works, and in 1716 surveyor Zealand, the coasts of which he surveyed. of Greenwich Hospital. He died March 26, 1726. Vanbrugh's plays are admirable in dramatic conception as well as in wit, and his architectural works received the approval of Sir Joshua Reynolds.

Van Buren (van bû'ren), MARTIN, eighth president of the eighth president of the South America, and reached England in United States, was born at Kinderhook, 1795, where a narrative of his voyage New York, Dec. 5, 1782. He early was published in 1798. studied law, and in 1812 was elected to the state senate. He was attorney-general from 1815 to 1819, and in 1821

Strait of Georgia, and forming the was elected United States senator. In western terminus of the Canadian Pa-1828 he became governor of New York, cific Railway. Though established as and in the following year President late as 1885, it has had a rapid growth Jackson appointed him secretary of and developed a flourishing trade and state. In November, 1832, he was numerous manufactures. Pop. (1914) elected vice-president by the Democratic 207,383.

Party in association with President Jackson, and in 1836 was elected presielected vice-president by the Democratic 207,383.

party in association with President Jackson, and in 1836 was elected president of the United States. The difficulties which his administration had to Portland, Oregon; served by five railface were chiefly connected with the deroads, the largest seagoing vessels reach posit of state funds in private banks, and the wharf, fruit, lumber, flour, walnuts, his term of office was made notable by potatoes, prunes, and dairy products a business depression of great intensity. being the principal shipments. There are a business depression of great intensity. He was again nominated for President in the elections of 1840 and 1848, but was unsuccessful on both occasions. He wrote a treatise entitled An Inquiry into the Origin and Course of Political Parties in the United States. He died in July, 1862.

as midshipman in 1771; ac-companied Captain Cook on his second and third voyages of exploration (1772-74 and 1776-79); was made first lieutenant in 1780; and served in the West Indies until 1789. In 1790 he was put in com-mand of a small squadron sent to take over Nootka from the Spaniards, and was also charged to as-

He sailed in the *Discovery* in 1791, spent some time at the Cape of Good Hope, He then went north and received formal surrender of Nootka, and spent the three summers of 1792-94 in surveying the coast as far north as Cook's Inlet. On coast as far north as Cook's Inlet. On his return voyage he visited the chief Spanish settlements on the west coast of South America, and reached England in 1795, where a narrative of his voyage was published in 1798.

saw-mills, fruit-packing industries, etc., mining and manufactures. Pop. 12,000.

Vancouver Island, an island in Pacific, off wrote a treatise entitled An Inquiry into
the Origin and Course of Political
the west coast of British Columbia, of
Parties in the United States. He died
which province of Canada it forms part;
in July, 1862.

Vancouver (van-kö'ver), George, from 10 to 70 miles; area, about 12,000
an English navigator, square miles. It is generally mounborn about 1758; died in 1798. He entered the navy

The Pacinc, on
th

perate, and the soil, in the south and east, fertile and favorable to agriculture and fruit growing. The interior is rocky, inter-spersed with small grass tracts suitable for pasturage, and with lakes small a n d streams. Coal is worked (% Nanaimo), and gold, copper and iron ore, and other minerals are found. Horses,



sheep and pigs thrive well, and the seas and lakes abound with fish. Large quan-tities of salmon are exported, and there is and lakes abound with usu.

and lakes abound with usu.

an extensive trade in fur, the skins exported being chiefly those of the mink, and then under Rubens, quitting the marten, sable, fox, bear, beaver, otter, studio of the latter after a few years to seal, and deer. There are numerous good harbors along the coasts, the chief of wyears (1623-28) chiefly at Genoa, which is Esquimault (which see). As Venice, and Rome, and then returned this island lies opposite the terminus of to Antwerp. Having acquired a great the Canadian Pacific Railway it has recently acquired great importance. The invited to England by Charles I, who island, and the capital bestowed upon him the honor of knighthood, a considerable annuity, and a sumcently acquired great importance. The invited to England by Charles I, who chief town of the island, and the capital bestowed upon him the honor of knight-of British Columbia, is Victoria, in the hood, a considerable annuity, and a sum-extreme southeast. Pop. of the island mer and winter residence. The painter about 50,000.

Vandals (van'dals), a German nation or confederation, probably allied to the Goths, who occupied at an allied to the Goths, who occupied at an early period the country on the south of the Baltic, between the Oder and the Vistula. At a later period they appear to have descended into Silesia, and subsequently occupied Pannonia, Moravia, and Dacia. In 406, in conjunction with a German host, they ravaged Gaul, and thence found their way into Spain. After defeating an allied army of Goths and Romans, they seized Seville and Carthagena, and, led by Genseric, crossed to Africa. Here they vanquished the Roman governor (429), and founded crossed to Africa. Here they vanquished the Roman governor (429), and founded a kingdom, which absorbed the greater part of the Roman possessions. Genseric immediately began to revive the maritime glories of Carthage, and extended his conquests to Sicily, Sardinia, and Corsice He also inveded Italy tended his conquests to Sicily, Sardinia, and Corsica. He also invaded Italy and sacked Rome in 455. Genseric concluded a long reign in peace in 477. The kingdom of the Vandals was continued under his descendants—Hunneric, his son, who immediately succeeded him; Gundamund, 484; Thrasimund, 496; Hilderic, 523; Gelimer, 530. It was overthrown in 534 by Belisarius, the general of the eastern Emperor Justinian. tinian.

Vanderbilt (van'der-bilt). Corne-LIUS, capitalist, born on Staten Island in 1794; died in 1877. A poor boy, he engaged in steamboat en-terprises, which greatly expanded, and in later life in railroad management, and acquired great wealth. His son, Wilacquired great wealth. His son, William Henry (1821-85) added enormously to this wealth. The Vanderbilt University (Methodist Episcopal) at Nashville, Tennessee, was founded by Cornelius, who presented it with \$1.000.000; to which William H. added \$310,000.

Van Diemen's Land (van de'men). See Tasmania.

Van Dyck (van-dik'), Sir Anthony, except perhaps Titian the

greatest of all portrait-painters, was born at Antwerp on March 22, 1599, where his father was a merchant. He



Sir Anthony Vandyck.

rewarded this generosity by unceasing diligence, and executed, besides a multitude of portraits, several mythological and historical paintings. He was fond of splendor, and lived in a very expensive style. Shortly after his marriage to Mary Ruthven, a granddaughter of the Earl of Gowrie, he died (December 9, 1641), and was buried in St. Paul's. Vandyck's great strength lay in portrait vainting and he excelled in the knowlpainting, and he excelled in the knowledge of chiaroscuro, but he sometimes amused himself with engraving and etching.

Van Dyke (van dik), Henry, author, was born at Germantown, Pennsylvania, in 1852. He was educated at Princeton and Berlin, became educated at Princeton and Berlin, became a pastor at Newport in 1878, at New York in 1882, preacher to Harvard University in 1890–92 and 1898–99, and lecturer at Yale in 1896. As an author he has been prolific, some of his works being The Poetry of Tennyson (1889), The First Christmas Tree (1897), The Tolling of Felix and other Poems (1900), The Open Door (1903), The Spirit of Christmas (1905), Out of Doors in the Holg Land (1908). In 1913 he was appointed tropical Amerambassador to the Netherlands.

Vandyke Brown, a pigment obkind of peat or bog-earth, of a fine, deep, semitransparent brown color; so called from its being supposed to be the brown used by Vandyck in his pictures.

Vane (van), Sir Henry, an English statesman and writer, born in 1612, eldest son of Sir Henry Vane, secretary of state. He was educated at Westminster and Oxford, afterwards completing his education at Geneva, where he became a puritan and a republican. Returning to England, he found that his religious and political opinions exposed him to much ill-will and annoyance, and he consequently emigrated to New England, arriving at Boston in 1635. He was elected governor of Massachusetts in 1636. In 1637 in department of Morbihan, 64 me he returned to England, after which he was knighted, entered parliament, and became treasurer of the navy. He took part in the impeachment of Strafford, and was a sealous supporter of parlia-ment in the civil war and one of the leaders in the Long Parliament. He was also a supporter of the Solemn League and Covenant. He was averse to the execution of the king, and came into conflict with Cromwell in consequence of conflict with Cromwell in consequence of the forcible dissolution of the Long Parliament (1653). In 1656 he was im-prisoned in Carisbrooke Castle for four months, by order of Cromwell, on ac-count of a pamphlet he had written. On his release he continued to resolutely op-pose the government of Cromwell and of his son Richard. In 1659 he was a member of the committee of safety and of his son Richard. In 1659 he was a member of the committee of safety and president of the Council of State. After the Restoration he was sent to the Tower (Feb., 1660), and subsequently moved from prison to prison. A rising of the Fifth Monarchy party (Jan., 1661) led to increased severity towards him, and he was tried for high treason before the Court of King's Bench, June 2, 1662. the Court of King's Bench, June 2, 1662, condemned, and beheaded on Tower Hill on June 14th. He wrote various theological works characterized by excessive mysticism, and his religious views gave rise to a small circle of disciples known as Vanists.

Vanella. See Lapwing.

Van Eyck. See Eyck.

the preparation of liqueurs, procured has been otherwise explained to be one from the fruit of Vanilla aromatica and not so much of kind as of degree; steam V. planifolia, orchidaceous plants of in the boiler of a steam-engine being said

account of on their climbing habits, and now cultivated various in tropical coun-



Vanilla (Vanilla aromatica.)

department of matica.)
Morbihan, 64 miles N. W. of Nantes. It
has ancient walls and gates. There is a cathedral, and a museum rich in Celtic antiquities. Pop. (1906) 16,728.

(ren'sel-ler), STEPHEN, states-Van Rensselaer man, was born in New York in 1764; man, was born in New York in 1764; died in 1839. He became known as 'the Patroon,' being a descendant of the older patroons, or great land holders. He was lieutenant-governor of the State for six years, and commanded the New York militia in 1812. He coöperated with Clinton in building the Eric Canal, and founded in 1824 Rensselaer Institute (now the Polytechnic School) at Troy; was distinguished for his zeal in the cause was distinguished for his zeal in the cause of science.

Van Wert, a city, capital of Van Wert Co., Ohio, 27 miles w. N. w. of Lima. It has railroad shops, lumber and flour mills, and oil-well supply works, etc. Pop. 7157.

Vapor (vā'pur), in physics, a term applied to designate the gas-

eous form which a solid or liquid substance assumes when heated. Vapor is, therefore, essentially a gas, and seeing that all known gases have now been proved to be liquefiable, no physical dif-ference can be said really to exist between an ordinary gas, such as oxygen, and a vapor, such as steam. In common language, however, a difference is usually recognized; a gas is a substance which at ordinary temperatures and pressures Vanilla (va-nil'a), a flavoring agent to a substance which normally exists in the preparation of liquid to a solid or liquid form. The exists in a state of vapor; while a vapor

ous vapor formed on the surface of the land and water is always present in suspension in the atmosphere, and when it meets with a reduction of temperature it condenses into water in the form of rain or dew.

Var (vär), a department in the south-east of France, bordering upon the Mar east of France, bordering upon the Mediterranean, and covered in the interior with ramifications of the Alps; area, 2349 square miles, of which only a small portion is arable. There are magnificent forests of pine and oak, and the vine, olive, mulberry and tobacco are extensively cultivated. Minerals include salt, lead, coal, marble, gypsum and building stone. The manufactures consist of woolens, perfume, liqueurs, olive-oil, soap, leather and silk. The coast is bold and deeply indented; and the fishing, both of tunny and anchovies, is actively carried on. The capital is Draguignan. Pop. 326,384.

Varanojans (vā-ran'ji-anz), or Va-

Varangians (vā-ran'ji-anz), or VA-RAGIANS, the name applied to the Norse vikings, who, at the close of the ninth century, founded various principalities in Russia. Some of them afterwards entered the service of the Byzantine emperors, and became the imperial guards at Constantinople. Here they were recruited by Anglo-Saxons and Danes, who fled from England to escape the Norman yoke.

Varanidæ. See Monitor.

Varasdin (va-ras-dēn'), a town of Austria, capital of a county of the same name in Croatia. It has an old castle, several Roman Catholic churches, a high school, and manufactories of tobacco, liqueurs, vinegar, and silk wares. Pop. 12,930.

Variable Quantities, in mathematics, such quantities as are regarded as being subject to continual increase or diminution, in opposition to those which are constant, remaining always the same; or quantities which in the same equation admit of an infinite number of sets of values. Thus, the abscissas and ordinates of a curve are variable quantities, because they vary or change their magnitudes they vary or change their magnitudes together, and in passing from one point to another their values increase or sian diplomatic service. Among his chief diminish according to the law of the works are Biographische Denkmale, curve. See Calculus (in mathematical Denkwärdigkeiten und Vermischte Schrifsense). in opposition to those which are constant, sense).

Variable Stars, stars which under-go a periodical in-crease and diminution of their luster. This is supposed to be due to dark com-

to be in a state of vapor, while super-panions, which cut off part of their heated steam is said to be a gas. Aque-light at intervals by rotating around them.

Varicose Veins (var'i-kōs), veins in a diseased state, which became dilated and uneven, and form hard knotty swellings in the situation of their valves. The disease is a common affection of the lower limbs, where sometimes the varix bursts and hemorrhage takes place. It also occurs in the veins of the scrotum and lower rectum, producing in the latter case bleeding piles. Varicose veins are caused by local obstruction of the circulation of the blood, and are common in pregnancy, while stout people, and those who stand most of the day at work, are apt to suffer from them. The

work, are apt to suffer from them. The treatment consists in the application of proper bandages, and rest to the limb supported in an elevated position.

Variety (va-ri'e-ti), in scientific classifications, a subdivision of a species of animals or plants; an individual or group of individuals differing from the rest of the species to which the longs in some accidental circumit belongs in some accidental circum-stances which are not essential to the species. Varieties are considered as less permanent than species, and those naturalists who look upon species as strictly distinct in their origin, consider varieties as modifications of them arising from particular causes, as climate, nourishment, cultivation, and the like. See Species.

Varna (var'na), a fortified town of Bulgaria (of which it is the chief port), on the Black Sea. It has a good harbor, and a large trade with Constantinople in grain. It is the see of a Greek archbishop. A memorable battle between the Turks and Hungarians was fought here in 1444. It was rians was fought here in 1444. It was taken by the Russians in 1828, but restored to Turkey a year later by the Peace of Adrianople. The Crimean expedition sailed from Varna in 1854. Pop. (1906) 37,155.

ten, Tagebücher, and Lives of Von Seydlitz, Sophia Charlotte, Marshal Keith, etc.

Varnish (var'nish), a solution of res-inous matter, forming a

clear, limpid fluid, capable of hardening without losing its transparency, and used by painters, gilders, cabinet makers, etc., for coating over the surface of their work, in order to give it a shining, transparent, and hard surface, capable of resisting in a greater or less degree the influences of air and moisture. The resinous substances most commonly employed for varnishes are mastic, sandarac, lac, copal, amber, and asphalt; and the solvents are fixed oil, volatile oil, and alcohol. Varnishes are colored with arnotto, gamboge, saffron, dragon's-blood, etc. Fixed-oil varnishes are the most durable, and are the best adapted for exposure to the weather. Volatile-oil varnishes consist of a solution of resin in oil of turpentine. They are chiefly used for paintings.

Varnish Tree, the name given to the furnish a resinous juice used for varnishing or for lacquering. They are chiefly natives of the hotter parts of the East-

ern Hemisphere.

Varro (var'o), MARCUS TERENTIUS, one of the most learned men and prolific writers of ancient Rome, born B.C. 116, served in the army, and subsequently filled several public offices. Varro was the intimate friend of Cicero, and was proscribed by Antony, but he escaped and returned to Rome under Augustus, and died there in B.C. 27. Of his numerous writings, chiefly on language, history, and philosophy, only one has come down to us entire—a. treatise upon agriculture (De Re Rustica). Fragments of a treatise on the Latin language (De Lingua Latina) are also extant.

Varuna (va'rō-na), in Hindu my-thology, the god of water, the cause of rain, lord of rivers and the sea,



nally the sky or heavens. He is represented as a white man, four-armed, riding on a sea animal.

Varus (va'rus), Publius Quintilius, a Roman general. In 7 B.C., having received from Augustus the com-mand to introduce the Roman jurisdiction into the German territory conquered by Drusus, he was carrying out his mis-sion when he was suddenly attacked by when he was studently attacked by an immense host under Arminius, and his whole army destroyed. Varus put an end to his own life. See Arminius.

Vasa (vá'sà), Gustavus. See Gustavus I.

Vasari (vå-så'rē), Giosgio, an Italian painter and architect, but most painter and architect, but most distinguished as the biographer of artists, was born at Arezzo, in Tuscany, in 1512, and studied under Luca Signorelli, Michael Angelo, and Andrea del Sarto. As an architect he showed great ability; as a painter he was less successful. His Vite de' più eccellenti Pittori, Scultori ed Architetti ('Lives of the Most Excellent Painters, Sculptors and Architects') is of great interest, but contains many errors. Vasari died in 1574.

Vasculares ('Vas-Kt-la'rēz), or VAsculares ('Vas-Kt-la'rēz), or VAsdivision of plants, consisting of those in which vascular tissue appears, and including all phanerogamous plants, both exog-

ing all phanerogamous plants, both exogenous and endogenous. See Cellulares.

Vascular Surgery, the surgery of the blood vessels, practically created by Alexis Carrel. Vascular surgery was only in its initial stage when Dr. Carrel began his investigations, so that an entire system had to be worked out. The first point was to show that the wall of a vessel could be sutured without giving rise to coagulation in the interior. This had already been done in the case of a puncture in the wall of a vein, but it was now demonstrated that an incision in the wall of an artery could be sutured while the continuity of the 'lumen' or point of opening was preserved. The methods which had proved successful in the surgery of other organs, however, were too gross for the surgery of the blood-vessels and only infinite care led to the desired results. It is now the standard treatment of an incised wound to suture the wound and not to tie the vessel in its continuity.

Varuna, the Indian God of Waters.

Varuna, the Hindu Neptune or Poseidon indeed.
His name corresponds with Greek Guranos (Uranus), and meant origi-

Vase (vaz, vaz), a name applied to cer-were introduced. Italy, France, and Gertain vessels of an ornamental many in the sixteenth and seventeenth character. Vases were made in ancient centuries produced many vases which are



Grecian Vases.

style mostly come from Corinth and the style mostly come from Corinth and the islands of Thera and Melos; and those of the late rich style have been almost exclusively discovered in Lower Italy (Apulia and Lucania), and were probably manufactured there, chiefly in the fourth and third centuries B.C. Vases were used for all purposes, but one peculiar and very common application of them was to adorn sepulchers. Chased metal vases were in use in ancient times both among the Greeks and cient times both among the Greeks and



Chinese, Japanese, and Indian Vases.

Romans, and many of the more valuable and beautiful kinds of stone were also used for making vases. Murrine vases (which see) were highly esteemed at Rome. Another favorite kind of vases at Rome was that called cameo vases, made of two layers of glass, the outer of which was opaque, and was cut down so as to leave figures standing out upon the lower layer as a ground. The celeptated Portland wase is an example of brated Portland vase is an example of Vassar College, a university at this kind. At a later period glass vases surrounded with delicate filigree work York, founded by Matthew Vassar in

times of all materials, but those which the perfection of artistic form and extimes of all materials, but those which the perfection of artistic form and exhave come down to us in greatest numbers are the so-called Etruscan vases, many masterpieces of the glass art in made of terra cotta, and adorned with painted figures. (See Etruscan Vases.) Venetian manufactories. From India, Such vases have been found in most China and Japan have also been ob-Greek cities as well as in Etruria, and and Japan have also been obtained vases of varying materials, espeall are really the productions of Greek cities as well as in Etruria, and tare really the productions of Greek cities as well as in Etruria, and tare really the productions of Greek art. The Greek vases of the oldest Venetian manufactories. From India, China and Japan have also been obtained vases of varying materials, especially of porcelain, vying in elegance of form and beauty of ornamentation with those produced in Europe.

Vasectomy (va-sec'tu-mi) is the operation of cutting out

a small section of the vas deferens of the male. It is done in some penal institu-tions and homes for mental defectives to prevent procreation of similar public charges. It is legally enforced on these classes of persons in eight states. The result of the operation is to prevent propagation of unfit persons and improve the mental and physical condition of those operated upon This operation has those operated upon. This operation has already been carried out for over six years in one of the States of the Union, which has the most intelligent criminal and charitable code, with actual results that far exceeded expectations. The effect upon the male criminal was to render him much more amenable to discipline, to improve his general nutrition and his mental balance, and to give him a sense of protection against himself and of a new grip upon his life problem. For instance, while the average rate of re-lapse and return of thousands of convicts sent out from this institution has been about 25 per cent., out of 106 men set at liberty on parole after being submitted at liberty on parole after being submitted to vasectomy, only 5 have relapsed and been brought back. It originated with Dr. H. C. Sharp, of Indianapolis, and is called the 'Indiana plan.' The vas deferens can at any time be reunited and thus restored to its pre-operation condition, with the function of procreation restored. The corresponding operation on the female is called salpingotomy (which see) (which see).

Vaseline (vas'e-len), a name given to a product obtained from petroleum after the lighter hydrocarbons are driven off, and composed of a mixture of paraffins. It is used as a base for ointments, pomades, cold-cream, etc., and for coating surgical instruments and steel surfaces generally to protect them from rust.

See Feudal System. Vassal.

1861 for the higher education of women. It confers the degrees of B.A. and M.A., and the course of studies resembles those of other first-class colleges. Its annual class of students numbers over 1000 and it has endowed funds of nearly \$1,400,000. Vateria (va-të'ri-a), a genus of plants, nat. order Dipterocarpacess. Two species, V. indica and V. lancesfolia, belong to India, forming large trees, valuable both for their timber, and also for the products which the ber, and also for the products which they per, and also for the products which they writer, born in reductate: in 1117, decayield. V. indica, whose timber is much in 1767. His great work was The Right employed in shipbuilding, produces the of Natives, or the Principles of Natural resin called in India copal and in England gum anime. It also yields a fatty of Natives and Sovereigns. This has been substance called size of Allers. substance called piney-tallow. Vathi. or VATHY. See Ithaca.

or the river from the bulk of the city, immediately to the north of the cathedral of St. Peter's. It is a long rectangular edifice lying north and south, with an irregular cluster of buildings at either end. The present building was begun by Pope Eugenius III (1145-53), and has been enlarged and embellished by many subsequent process down to the by many subsequent popes down to the last one (Pius X). It now possesses twenty courts, and, it is said, 11,000 rooms of one sort or another. Immense treasures are stored up in it. Here are celebrated collections of pictures of many celebrated collections of pictures of many of the great masters, and museums in which all periods of the arts are represented by many of their most perfect mountainous in the east, but more than productions. Among its mobile of the southeast of France; sented by many of their most perfect mountainous in the east, but more than productions. Among its noblest art one-half of the whole surface is arable, treasures are the frescoes on the ceiling and vineyards occupy about one-sixth of of the Sistine Chapel, painted by Michael and vineyards occupy about one-sixth of of the Sistine Chapel, painted by Michael this portion. The mulberry (for the Angelo, and consisting of scenes and rearing of silk-worms) and olive are exfigures connected with sacred history; tensively cultivated, and much attention and the ceilings and walls of certain apartments known as Raphael's stanze, the name from the valley and village of that subjects being biblical, allegorical, etc. name, celebrated by Petrarch. Avignon Since the return of the popes from Avignon, the Vatican has been their principal residence, and here the conclaves always western canton of Switzerland; area, western canton of Switzerland; area,

Vatican Codex. See Codex.

Vatican Council, the Ecumenical Council of the Church of Rome which met in the Vatican in 1870, under Pope Pius IX, and declared the personal infallibility of the pope when speaking ex cathedra to be a dogma of the Church.

Vattel, EMRICH von (fon vat-tel'), a celebrated Swiss jurist and writer, born in Neufchatel in 1714; died been published in numerous editions and translated into the principal European

Vatican (vat'i-kan), the most extensive palace of modern Rome, the residence of the pope, built upon shal of France, and the greatest military the Vatican Hill, from which it has received its name, on the opposite side an ancient and noble family, was born of the river from the bulk of the city, immediately to the north of the cathermal where he rose to the highest military rank by his merit and services. He was rank by his merit and services. He was made governor of the citadel of Lille in 1668, commissioner-general of fortifica-tions in 1677, and marshal of France in 1703. He died at Paris in 1707. As an engineer he carried the art of fortification to a degree of perfection unknown before his time. He strengthened and improved above 300 citadels, erected thirty-three new ones, and directed fiftythree sieges.

non, the Vatican has been their principal residence, and here the conclaves always meet for the election of new popes. The Vatican Library was first constituted by Pope Nicholas V (1447-55), and was systems—the Alps in the southeast, the added to and enlarged by Leo X, Pius Jura in the west, and the Jorat in the IV, Pius V, and other popes. The most south, connecting the other two. Vaud important part of the library is the manuscript collection, which is said to contain about 25,600 MSS. The number of printed volumes has been estimated at from 150,000 to 220,000, including 2500 fifteenth-century editions, and a great number of bibliographical rarities.

Vaud, German, Waadt or Waadtland), German, Waadt or Waadtland), was weeten canton of Switzerland; area, 1244 sq. miles. It has three mountain 244 sq. miles. It has three mountain the southeast, the Jura in the west, and the Jorat in the south, connecting the other two. Vaud belongs partly to that of the Rhone. The tain about 25,600 MSS. The number of soil is moderately fertile; and the vine printed volumes has been estimated at the properties of the Rhone. The south are not printed volumes has been estimated at the properties of the Rhone. The tain about 25,600 MSS. The number of printed volumes has been estimated at the properties of the Rhone. The tain about 25,600 MSS. The number of printed at the properties of the Rhone. The tain about 25,600 MSS. The number of partly to that of the Rhone. The tain about 25,600 MSS. The number of partly to that of the Rhone. The tain about 25,600 MSS. The number of partly to that of the Rhone. The tain about 25,600 MSS. The number of partly to the basin of the Rhone. The tain about 25,600 MSS. The number of partly to that of the Rhone. The tain about 25,600 MSS. The number of partly to the basin of the Rhone. The tain about 25,600 MSS. The number of the Rhone are not tain the tain about 25,600 MSS. The number of the Rhone are not tain the tain about 25,600 MSS. The number of the Rhone are nother tain about 25,600 MSS. The nu

the Swiss Confederation in 1803. The capital is Lausanne. Pop. 281,379.

Vaudeville (va'de-vil), a term first applied to the Norman folk-song of the fifteenth century, which originated with Oliver Basselin, who lived in the val or Van de Vere The folk-song in the val or Vau de Vere. The folk-song led to a series of plays interspersed with songs, and known as Vaudevilles, occasionally as Virelais. The word is now applied to light theatrical entertainments. Vault, in architect re, a continued arch, or an arched roof, so constructed that the stones, bricks, or other material of which it is composed sustain and keep each other in their places.



the quintessence of the Vedas. This system is based, like that of the Eleatics The two tribes do not intermarry, and among the Greeks, upon the unity of all they have their own chiefs whom they real existence. The sole real existence elect and obey. It is denominated knowledge (jnāna), soul, or God. The multiplicity of individual life and variety of external life in the universe is merely phenomenal, and has all proceeded from the one real being by residence. His works are frequently the exercise of the power of ignorance marked by a mystical and poetical qual-(ajnāna), which may be vanquished by a religious and ascetic mode of life, or by pictures are The Lair of the Sea Sermeditation on the one supreme spirit, pent, A Venetian Dancing Girl, The

The Brahma, and by the extinction of all consciousness of outward things.

consciousness of outward things.

Vedas (va'daz; from the Sanskrit root vid, meaning 'know'), the oldest of the Shastras or sacred writings of the Brahmans, and the oldest compositions in the Sanskrit language. Their date is unknown. Sir W. Jones fixes it at 1500 B.C., and Ritter at 1400 to 1600 B.C. They are four in number, called respectively the Rig, Vajur, Sāma, and Atharva Veda. All the Vedas are believed to be inspired, and are held by the Brahmans in the highest respect. The religious system of the Vedas is at bottom monotheistic. It derives a polytheistic appearance from the mention of the deity by various names according to the delty by various names according to the difference of his manifestations and attributes (Sūrya, Mitra, etc., the sun: Soma, the moon; Agni, fire; Indra, the firmament, etc.), but the unity of the supreme being is expressly asserted in more than one passage. Each of the Vedas is divided into three parts: the first called the Sankita, a collection of hymns and prayers called manifas or ogânas; the second, Brāhmana, which relates chiefity to ritual; and the third, the Jnāna or Upanishadas, which is the philosophical portion of the work. The Upanishads are sometimes called collectively the Vedānta. The Rig-veda is the oldest of the Vedas, and the Atharva-With L. L. Olmstead he devised the veda the latest. Some scholars question plans for Central Park, New York, and the Metropolitan Museum and the State as a Veda. Varying greatly in age, the Reservation at Niagara. He died in 1895. Vedas represent many stages of thought the deity by various names according to

the Metropolitan Museum and the State as a Veda. Varying greatly in age, the Reservation at Niagara. He died in 1895. Vedas represent many stages of thought Vector (vek'ter), in mathematics, the and worship, the earliest being the simname given to any quantity plest, the later following and reflecting which involves direction as well as magnitude. The simplest example is the position of one point with respect to another, rites. fully represented by the straight line joining them. Other vector quantities are velocity, force, electric induction, etc.

Vedanta Philosophy (ve-dan'ta), a wild, semi-sav-age race, about 400 in number of the Brahmanic philosophy, first set forth in a live in trees and caves and subsist on work called the Vedanta, said to have been written more than two thousand years ago, and described as containing the quintessence of the Vedas. This system is based, like that of the Eleatics The two tribes do not intermarry, and among the Greeks, upon the unity of all the veder in the interior of the part of the part of the part of the part of the veder and arrows. The village Veddahs dwell in certain districts, but hold slight intercourse with the other inhabitants. The two tribes do not intermarry, and among the Greeks, upon the unity of all they have their own chiefs whom they real existence. The sole real existence elect and obey.

Death of Abel, and An Arab Listening to pending upon solar energy, organic and the Sphina. His illustrations of Fitz-mineral constituents, and water. See gerald's translation of the Rubaiyat Botany.

of Omar Khayyam (1884) won great Vegetable Ivory, the name which praise.

Vega Carpio (va'ga kar'pē-o), FE-LIX LOPE DE, a Span-ish poet and dramatist, born at Madrid in 1562 of poor but noble parents; died there in 1635. After studying at Alcala he became the secretary of the Duke of Alva. In 1582 he joined the army, and in 1588 accompanied the Invincible Armada. After being twice married and twice a widower, he in 1609 became a priest, and subsequently entered the order of St. Francis. He had already published various poems, but his dramatic and poetical productions were now multiplied with extraordinary rapidity. He enjoyed an immense popularity, and sceived marks of distinction from the Ling of Spain and Pope Urban VIII. About three hundred of his dramatic works have been printed. They reveal an inexhaustible but ill-regulated imagination a strong mixture of the subination, a strong mixture of the sub-lime and the ridiculous, and extraor-dinary facility in versification. He wrote altogether upwards of eighteen hundred comedies, but only some four hundred and fifty are extant in print or manuscript.

Vegetable Chemistry, the department of organic chemistry which investigates the chemical compounds found in vegetables. These compounds are chiefly made up of carbon, hydrogen, oxygen and nitrogen, but potash, soda, rime, and other substances are occasionally present in small and variable quantities. Sugar, starch, gum, and other distinct compounds existing already formed in plants, and capable of separation without suffering decomposition are called accompate. ing decomposition, are called proximate or immediate principles of vegetables. Proximate analysis is the separation of a particular principle from others with which it is mixed. Ultimate analysis consists in the reduction of the proximate principles to their simplest parts. The more important classes of compounds to be obtained from vegetables are acids, alkalis or alkaloids, oils and resins. Coloring matter, tannin, albumen, gluten, yeast, and other substances are also obtained. Of the acids the chief are acetic acid or vinegar, oxalic, tartaric rocks.

and benzoic acids. The alkaloids are organic bases which produce remarkable toxicological effects. During the germination of seeds there is a conversion of the purpose of returning the impure starchy matter into sugar. The nutriblood to the heart and lungs, after it tion of plants may be regarded as de-

kernels of the nuts (corco-nuts) produced by the Phytelephas macrocarpa, a palm growing in South America. It is very hard and compact, has the appearance of ivory, and may be turned in the lathe, being used for buttons, umbrella handles, etc. The stem of the palm is extremely short, but the leaves rise to the height of 30 or 40 feet.

Vegetable Marrow, a species of gourd cultivated as a culinary vegetable, and used fried, boiled, or otherwise. See Squash. Vegetable Physiology, the functional activities of plants. These include the functions of germination; respiration, as shown in the inhalation of oxygen and exhalation of carbon dioxide; transpiration, the vaporization of water by the heat yielded in respiration; assimilation, the taking in of carbon under the influence of sunlight, a process the reverse of respiration; absorption, the intaking of water from the air and soil; metabolism, the formation of complex organic substances from the simple chemical elements; growth; plant movements; reproduction, and other processes of a physiological character.

Vegetarianism (vej-e-tā'ri-an-ism), the theory and practice of living solely on vegetables. doctrines and practice of vegetarianism are as old as the time of Pythagoras, and have for ages been strictly observed by many of the Hindus; and of late years the practice of subsisting solely upon vegetable food has come prominently be-fore the public in connection with dietetic reform.

Veii (vē'yī). See Camillus and Rome.

Vein (van), in mining, a crack or fis-sure in a rock, filled up by substances different from the rock, and which may either be metallic or non-metallic. Veins are sometimes many yards wide, having a length of many miles, and they ramify into innumerable smaller parts, often as slender as threads. Metallic veins are chiefly found in the primary, and lower and middle secondary

capillaries. These minute branches unite to form veins, which similarly unite in turn, forming gradually larger branches and trunks as they approach the heart. The venous blood from the head, neck, and upper limbs is all rehead, neck, and upper limbs is all returned to the heart by one great vein, be found in the royal collections and the vena cava superior, while that from the lower limbs and belly is returned by the vena cava inferior. The portal vein (vena porta) receives the venous blood from the intestines and conveys it through the liver to the vena cava inferior. From each lung to the heart come two pulmonary veins carrying back coasts, but more frequently in warm the blood that has been purified in the seas. The best-known member, Veletla lungs, after being carried to them by the pulmonary artery. See Heart.

Velasquez (ve-las'keth), or in full SILVA Y VELASQUEZ (or VELAZQUEZ), an eminent Spanish historical and portait painter, was born at Seville in 1599. He studied first under Francisco Herrera the elder, and afterwards under Velez, province of Malaga, on the Velez, and members and the vena cava inferior. Figure 1970 and 1970

Herrera the elder, and afterwards under Francisco Pacheco. He was appointed principal painter to Philip IV in 1623. In 1629 he went to Italy, where he closely studied the works of Michael Angelo, Raphael, and Titian. On his return to Spain in 1631 he was received with great distinction, and in 1658 the king raised him to the dignity of a noble. He died in 1660. His compositions exhibit strong expression, freedom of pencil, and admirable coloring. Among his best works are the Aguador, or 'Water Carrier'; the Orlando Muerto; a Nativity, or Adoration of the Shepherds; the Brothers of Joseph; Moses Taken from the Nile; portraits of Philip IV and of Elizabeth his queen, Pope Innocent X, and other dignitaries; and many pictures from history and from common life.

Velde (vel'de), ADRIAN VAN DEE, a celebrated Dutch landscape painter and engraver, was born at Amsterdam in 1632 and died in 1672. Herrera the elder, and afterwards under

by the arteries. They are not elastic a number of plates.— His father, WIL-and have no pulsation (thus differing LEM VAN DER VELDE the Elder, was from the arteries), the motion of the born at Leyden in 1610. He was origi-blood in them being mainly secured by nally bred to the sea, but afterwards blood in them being mainly secured by nally bred to the sea, but afterwards pressure of the moving parts between studied painting, and early became diswhich they are embedded, the backward tinguished for his excellence in marine flow of the blood being prevented where subjects. He entered the service of necessary by a series of valves which Charles II of England. He chiefly permit a current only towards the heart. The veins at their farthest extremities to have been present at several seaform capillaries which collect from the fights in order to sketch the incidents. tissues the blood brought by the arterial He died at London in 1693.—Another capillaries. These minute branches son, WILLEM VAN DER VELDE, the unite to form veins, which similarly unite Younger. was born at Amsterdam in painted in black and white, and is said to have been present at several seafights in order to sketch the incidents. He died at London in 1693.—Another son, WILLEM VAN DER VELDE, the Younger, was born at Amsterdam in 1633, and painted the same class of subjects as his father, whom he surpassed. He also entered the service of Charles II. His principal works are chiefly to II. His principal works are chiefly to be found in the royal collections and cabinets of England. He died at London in 1707.

Velez-Malaga (vā'lāth mā'lā-gā), a city of Spain, in Andalusia, province of Malaga, on the Velez, 1½ miles from the Mediterranean, and 14 miles N. E. of Malaga. The district is near facility.

and 14 miles N. E. of Maiaga. The district is very fertile, and produces sugarcane, maise, etc. Pop. 23,586.

Velino (vā-lē'nō), a small stream of the Nera, at its junction with which it forms beautiful falls about 650 feet high. See Terni.

See Pater-Velleius Paterculus. culus.

cii, and admirable coloring. Among his best works are the Aguador, or 'Water Carrier'; the Orlando Muerto; a Nativity, or Adoration of the Shepherds; the Brothers of Joseph; Moses Taken from the Nile; portraits of Philip IV and of Elizabeth his queen, Pope Innocent X, and other dignitaries; and many pictures from history and from common life.

Velde (vel'de), Adrian Van Der, a Velde (vel'de), Adrian Van Der, a Velde (vel'de), a dominant of Celebrated Dutch landscape painter and engraver, was born at Amsterdam in 1635, and died in 1672. He came under the influence of Wouverman, and excelled in pastoral scenes, which he executed in admirable drawing and color. He also painted some large historical and religious pieces, and etched

Velocipede (ve-los'i-pēd), a light ve-hicle or carriage impelled by the feet of the rider himself. One of the older forms of this carriage con-sisted of two wheels of nearly equal size, placed one before the other, and conplaced one before the other, and connected by a beam on which the driver's seat was fixed. The rider, sitting astride the machine, propelled it by the thrust of each foot on the ground. This form dates from the early part of the last century. In the latter half of the century that the contribution of the value of of the va tury treadles operating cranks on the axle of the front wheel came into use, and soon many modified and improved kinds became popular under the name of the bicycle and tricycle. See Bicycle, Tricycle.

Velocity, the rate at which a body changes its position in space. Velocity is popularly expressed as so many miles per hour, or as so many feet per second. The velocity of a body is uniform when it passes through equal spaces in equal times, against a whom the spaces passed through variable when the spaces passed through in equal times are unequal, accelerated when it passes through a greater space in equal successive portions of time, as is the case of falling bodies under the action of gravity, and retarded, when a less space is passed through in each successive portion of time. Angular velocity is such a velocity as that of the spoke of a wheel, being measured as a number of angles of a specified extent (as right angles) divided by a measure of time in specified units. See Fall of Bodies, Dynamics, Projectiles, Motion, etc.

Velvet (vel'vet), a rich silk stuff, covered on the outside with a close, short, fine, soft shag or nap. In this fabric the warp is passed over wires so as to make a row of loops which project from the backing, and are thus left, by withdrawing the wire, for an uncut or pile velvet, but are cut with a sharp tool to make a cut velvet. Florence and Genoa have been long noted for the manufacture of velvet, but Lyons, in France, is now its principal seat. Cotton and woolen fabrics woven in this manner are called velveteen and plush respectively.

Vendace (ven'das), a species of fishes, of the family Salmonidæ, genus Coregonus (C. Willoughbii), found in Europe in some of the

2595 sq. miles. The surface is much diversified, and is watered in the north by tributaries of the Loire, and in the south by the Lay and tributaries of the Charente. The principal crops are grain, flax, and hemp; and a white wine is also produced. Capital, La Roche-sur-Yon. At the time of the revolution the Yon. At the time of the revolution the Vendéans espoused the royalist cause, and, inspirited by La Rochejaquelein, Cathelineau, and other leaders, and aided by the hilly and wooded nature of the ground, they resisted the republicans with varied success from 1793 to 1796, when the rising was completely quelled by the activity of General Hoche. In 1799-1800, and again in 1814 and 1815, some risings took place in favor of the Bourbons, but they were quickly suppressed. Pop. (1906) 442,777. See Chouans and La Rochejaguelein.

(van-da-mi-ar; that **V**endémiaire is, 'vintage month'), the first month in the French revolu-tionary calendar, from September 22 to October 21. See Calendar.

Vendetta (ven-det'a; an Italian word from L. vindicta, revenge), a blood-feud; the practice of the nearest of kin executing vengeance on the mur-derer of a relative. In Corsica the vendetta is regarded as a duty incumbent on the relatives of the murdered man, and, failing to reach the real murderer, they take vengeance on his relatives. The practice exists, although to a more limited extent, in Sicily, Sardinia and Calabria, as well as among the Druses, Circassians, Arabs, etc.

Vendôme (van-dôm), a town of France, in the department of Loir-et-Cher, on the Loir. It is regularly and well built, and contains a fine old church. Pop. (1906) 7381.

Vendôme, LOUIS, DUKE OF, the celebrated general of Louis XIV, was the grandson of César, eldest son of Henry IV and Gabrielle d'Estrées. He was born in 1654, early entered the military service, and received, in 1702, the command of the French army in the war of the Spanish Succession. After having distinguished himself in Italy, Tyrol, and Belgium, the Duke of Burgundy was placed over him: and the disof gundy was placed over him; and the disagreement of the two commanders caused the defeat of the French at Oudenarde (July 11, 1708) Vendome was recalled. rivers and lakes of Britain and Sweden. Soon after being placed in command in The average length is about 6 to 7 Spain he gained several distinguished inches. The fish is esteemed a great successes, but died in 1712. His brother, delicacy, and is taken with the sweephet about August.

Vendée (van-da), a western maritime was born in 1655, served in the Spanish department of France; area, war of Succession, and died in 1724.

Venezuela Veneer

Veneer (ve-ner'), a thin layer of and the seasons are distinguished into choice hard wood, such as mathewet and the dry. It is not unhogany, rosewood, maple, etc., glued to the surface of wood of a commoner sort, of Venezuela is liable to earthquakes. such as fir or pine, so as to give the The valleys and tablelands of the coast such as fir or pine, so as to give the whole the appearance of being made of the more valuable material. It is mostly used for furniture, and owing to recent improvements in sawing machinery, layers as thin as paper can be obtained. Venesection. See Phlebotomy.

Venetian Architecture (ve-ne'-VENETIAN GOTHIC, that style of Italian architecture employed by the Venetian architects from the fifteenth to the early part of the seventeenth century. The principal characteristics are: each story is provided with its own tier of columns or pilasters, with their entablature, and separated from the other stories by con-spicuous friezes or belts, often in the form of balustrades broken by pedestals and ornamented by figures; arched win-dows ornamented with columns, the spandrels being often filled with figures; spandress being often filled with figures; ornamental parapets are common; and the whole has a rich and varied effect. This style of architecture is characterized by Fergusson as "Gothic treated with an Eastern feeling, and enriched with many details borrowed from Eastern styles."

Venetian School, in painting, that school which counts among its masters Titian, Paul Veronese, Giorgione, Tintoretto, and many other illustrious names. See Painting.

Venezuela (ven-e-zwe'la), a north-ern republic of South America, bounded by the Caribbean Sea, British Guiana, Brazil, and Colombia; area, 599,538 square miles. The Andes enter Venezuela from the west in two branches; the western branch has a moderate elevation, rarely exceeding 4000 feet, but the eastern branch, which is about 300 miles long by 60 miles broad, has an average altitude of 12,000 feet, culminating in Sierra-Nevada-de-Merida with summits attaining 15,000 feet. There are other branches running northeast and parallel to the north coast, and in the south, on the frontiers of Guiana,

mountains are the chief seats of cultivation. The region of palms extends from the sea-level to the height of 3300 feet; mingled with the palms are cacti, mi-mosse, the pineapple, the milk tree, ma-hogany, and trees yielding caoutchouc, sarsaparilla, copaiba, and other drugs. Above 2000 feet are the forests of cin-Above 2000 feet are the forests of cinchona or Peruvian-bark tree, the vanilla. plantain, etc. All the grains of temperate regions attain perfection at an elevation of 8000 feet. Cultivated plants include the cacao, cocoanut, tobacco, maize (two crops yearly), cotton, coffee, sugar and indigo. Among the minerals are gold, silver, tin and copper; good coal is found in the coast districts asphalt and petroleum abound round Lake Maracaibo. The gold mines are now being worked by English and other capital. The wild animals include the jaguar (now rare), puma, tapir, ounce, monkeys, serpents, alligators, the manatee, etc. The population is of Spanish, Indian and Negro origin, either of pure or mixed blood. More than half the population are mestizoes, mulattoes and population are mestizoes, mulattoes and other mixed breeds. Venezuela was formerly divided into twenty states, four territories, and a federal district, but a readjustment in 1904 reduced the numreadjustment in 1904 reduced the number of states to thirteen, and made the territories five. The Republic of Venezuela was formed in 1831 by secession from the other members of the free state founded by Bolivar. (See Colombia.) The capital is Caracas. The chief ports are La Guayra, Puerto-Cabello, Maracaibo and Ciudad Bolivar. Discovery of gold led Great Britain to claim that the boundary of British Guiana extended of gold led Great Britain to claim that the boundary of British Guiana extended to the Orinoco, thus including the gold fields. Upon Venezuela's protest, and at the instance of the United States government, the dispute was arbitrated by the Congress at The Hague, and a satisfactory adjustment made. Columbus reached the coast of Venezuela in 1498, and it was visited by Ojeda and Vespucci in 1499. It was settled by Spain, but a struggle for independence begun in 1810, resulted in its freedom and formation in the south, on the frontiers of Guiana, struggle for independence begun in 1810, are the mountains of Parima. From resulted in its freedom and formation these mountains to the coast chain at into a federal republic. As in Latin Caracas, and from the Andes to the mouth of the Orinoco, extend vast of many rebellious outbreaks, and under plains (or llanos) with an area of 300, its recent president, Castro, it came into 000 sq. miles. The chief rivers are the hostile relations with several foreign Orinoco and its affluents; the principal nations, Castro disregarding his comlakes are Maracaibo and Tacarigua. mercial engagements. This gave disast-The climate is equatorial in character, isfaction among the people, and, in De-

Italy, capital of the province of the same name, on a number of islets in a shallow lagoon in the northwest of the Adriatic, agoon in the northwest of the Adriance, 23 miles east of Padua by rail. The islets are very low, and the houses are mostly supported on piles. A railway viaduct nearly 2½ miles long connects the town with the mainland. The city is divided into two parts by the Canalazzo or Grand Canal, spanned by an elegant bridge, the Righte, and several lesser gant bridge, the Rialto, and several lesser bridges. The numerous branch canals are crossed by about 380 bridges, which rise rapidly towards the center to afford passage to the gondolas and other boats. The city is also intersected by calli or



narrow lanes for pedestrians: but the canals are really the streets of Venice, and it possesses neither horses nor wheeled carriages. Near the center of the city there is one street about 18 feet wide, the Merceria, but the great center of business and amusement is the Piazza, or Square of St. Mark, and the plazetta adjoining it. The Piazza is about 570 feet long by 200 broad, contains some of the more remarkable public buildings, and is lined with handsome shops and cafes. The piazetta faces the sea. The Palace of the Doges, reconstructed by Marino Falieri in 1854, abuts on the piazetta. It is in the Venetian Gothic style, and has two of the sides resting on double ranges of arcades. It contains a number of beautiful halls, some with

cember, 1908, during a visit to Europe, he was deposed, Vice-President Gomez being installed in his place. Pop. 2,591, masters. The Ponte-dei-Sospiri (Bridge of Sighs) connects the palace with the Venice (ven'is; Italian, Venezia), a public prisons on the opposite side of side of a public prisons on the opposite side of a public prisons on the opposite side of now the cathedral (erected 976-1071), is in the Romanesque-Byzantine style, and is surmounted by five domes. The principal front is adorned with 500 columns of precious marbles, and the interior is lavishly decorated. Above the doorway are the four celebrated bronze horses brought from Constantinople by the Doge Dandolo in 1204. Other notations of the columns of ble churches are Santa-Maria-Gloriosa-de'-Frari (thirteenth century), contain-ing the tomb of Titian, and numerous works of art; San Giovanni-e-Paolo; and Il-Santissimo-Redentore, one of Palla-dio's finest structures. Of the numerous palaces the chief are the Palazzo-Reale; the Palazzo-Giustiniani; the Palazzo-Contarini-Fasan, restored in 1867; and the Palazzo-Corner della-Ca-Grande, now the seat of the government authorities. The remaining public buildings include the Accademia delle Belli Arti, contain-ing works by Titian, Giorgione, Tin-toretto, Paolo Veronese, and others; the Dogano, or custom-house; the arsenal; the Zecca, or mint; etc. The chief manufactures are woolen cloth, cloth of gold and silver, velvet, lace, ornamental and colored glass, mosaic, jewelry, castings, etc. The trade is extensive; the imports include colonial goods, dye-woods, coal, iron, oil, etc.; exports, timber, rice, linen, glass, coral, etc. The harbor is spacious, but the entrances are shallow.— Venice is supposed to have been founded in the fifth century by inhabitants of the surrounding districts, who took refuge from the cruelty of Attila on the islets at the mouth of the Brenta. In 697 Pauluccio Annfesto was elected the first doge or duke, and in 819 the seat of government was removed from Malamocco to Rivoalto (Rialto), and the adjacent islands were connected by bridges. The Crusades (1096-1271) greatly increased the wealth and power of the Venetians by giving employment to their shipping. In 1204 the Doge Enrico Dandolo conquered Constantinople, and upon the division of the Byzantine Empire Venice received a large accession of territory. Under Dandolo's successors the Venetians gradually lost all their mainland possessions. But in 1386 they captured Corfu, Durazzo, Argos, etc.; in 1405 their general, Malatesta, conquered Vicenza, Helluni, Verona, and Padua: on double ranges of arcades. It contains and besides these and other conquests on a number of beautiful halls, some with land, the Venetian fleet defeated the Turkish at Gallipoli in 1416, and in 1421 is a bishop's see, and is surrounded by subjugated all the towns along the forts. Pop. 5659.

Dalmatian coast. At the close of the fifteenth century Venice had a population of 200,000, and was the center of east shore of the Isle of Wight, in the activity of the commerce of Europe. Its district of Undercliff. It has many accommendation of the commence of the seed of the commenc power then began to decline, its commerce was gradually superseded by that of the Portuguese, and in 1508 a league to subdue the republic was formed at Cambrai between Pope Julius II, the Emperor of Germany, and the kings of France and Spain. All its possessions on the main-

Venice, GULF OF. See Adriatio Sea.

Venice, GULF OF. See Adriatio Sea.

Venire facias (ve-ni're fa'si-as; dexterously modifying and diminishing dexterously modifying and diminishing the sound of the voice; besides this he moves his lips as little as possible, and the neighborhood where a cause is brought to issue to try the same. This writ was abolished in England in 1852, but the precept issued by the justices of assize, which is substituted, is sometimes loosely spoken of as a venire.

Venue (ven'û), in English law, the place, that is, the county, but the precept issued by the justices of assize, which is substituted, is sometimes loosely spoken of as a venire.

Venue (ven'û), a town of the Neth-

Venlo (ven-lo'), a town of the Netherlands, province of Limburg, on the right bank of the Meuse. It has manufactories of needles and cigars.

Pop. 15,000.

Venomous Animals, animals cap-able of in-flicting poisonous wounds by means of special organs or contrivances. They include spiders, bees, wasps, hornets, scorpions, certain serpents, etc. In all cases the venomous matter must be introduced

Ventnor (vent'ner), a watering-place of England, on the south-east shore of the Isle of Wight, in the district of Undercliff. It has many accommodations for visitors and a good beach for bathing. Pop. 5787.

Ventose. See Calendar.

Ventose.

Ventricle. See Heart.

Ventriloquism (ven-tril'u-kwism), the art of speaking in such a way as to cause a hearer to Spain. All its possessions on the mainland were taken, and the work of destruction was all but completed by warfare with the Turks at intervals from 1649 to 1718. The French took possession of the city in 1797. It subsequently, became part of the Austrian Empire, of Napoleon's kingdom of Italy, and from 1815 to 1866 of the Lombardo-Venetian Kingdom under Austria. In 1866 the city and province were ceded to Napoleon attered were formed in the belly, whereas Kingdom under Austria. In 1866 the city and province were ceded to Napoleon attered were formed in the belly, whereas practice alone is necessary to carry this act of illusion to a high degree of perfection. The sounds are formed by the auspices they were united by a plebiscite to the Kingdom of Italy. Pop. palate, the tongue, the lips, etc. The art of the ventriloquist consists merely Venice.

civil and criminal, may be changed for sufficient cause.

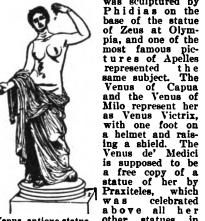
venus (venus), the Roman name of the goddess of love, called by the Greeks Aphroditë. In the Iliad she is described as the daughter of Zeus and Dionë; but Hesiod represents her as the offspring of Uranus, born among the foam (Greek, aphros) of the sea. She surpassed all other goddesses in beauty, and hence received the apple which was to be awarded to the most beautiful by the venomous matter must be introduced to be awarded to the most beautiful by directly into the circulation to produce Paris. She was the wife of Hephæstos directly into the circulation to produce its effects.

Venosa (vā-nō'sā; anc. Venusia), a town of Italy, province of chus), Hermes (Mercury), and Poseidon Potensa. It has a cathedral, and a castle dating from the fifteenth century. Horace was born here. Pop. 8503.

Ventilation (ven-ti-lā'shun). See Warming and Ventilation.

Ventilation (-mēl'yā), a town of Italy, province of Porto Maurisio, 7 miles east of Mentone. It her under different names. In the best

days of art this goddess was always represented draped, in later times nude.



Venus, antique statue in the British Museum.

bath.

of all the planetary bodies. From its alternate appearance in the morning and evening it was called by the ancients Lucifer and Hesperus, the morning and evening star. The mean distance of Venus from the sun is about 66,134,000 miles, its diameter 7510 miles, and its period of revolution round the sun about 224.7 mean solar days. Its volume is equal to about 171ths of the earth, but its density being slightly greater its mass is actually equal to about \$\frac{1}{16}\$ ths of the earth. It probably revolves about an axis, in a period of about 23 hrs. 21 min., the axis of rotation being inclined to the ecliptic at an angle of about 75°. According to its various positions relatively to the sun and earth it exhibits phases like the moon. Like Mercury, Venus transits the face of the sun, but at longer intervals. The transits of Venus are of much more importance than those of Mercury, because, being nearer to us when in transit, its position on the sun is measurably different for observers placed on different parts of the earth. See Transit.

Venus' Fly-trap. See Dionas.

Vera Cruz (va'ra krös), the chief seaport of Mexico, and capital of a state of the same name. The The scene of her arising from the sea capital of a state of the same name. was sculptured by harbor is merely an open, unsafe road. Phi dias on the stead, but there is a large trade. The base of the statue town has broad and regular streets, and of Zeus at Olymsome good buildings, and is defended by pia, and one of the the fortress of San-Juan-de-Ullon on an pia, and one of the the fortress of San-Juan-de-Ulloa on an most famous pictures of Apelles ation of the town is exceedingly unrepresented the healthy. It was founded by Cortez in
same subject. The 1520 and was captured by General Scott
Venus of Capua in 1847. Pop. 48,633.—The state
and the Venus of stretches along the s. w. part of the Gulf
Milo represent her
as Venus Victrix, The products embrace all kinds of grain
with one feet on cross tobseco sugar, cotton fruits divecrops, tobacco, sugar, cotton, fruits, dyewoods and timber. Cattle, horses and sheep are numerous. Pop. 981,030.

Veratrin (ve-rā'(rin), or Veratrin (C₁₁H₁₈NO₁₁), a vegetable alkaloid found in Veratrum Sabadilla, Veratrum album, etc. It is generally obtained as a crystalline powder, nearly was celebrated white, very acrid and poisonous, meaning above all her in water, but very soluble in alcohol. other statues in the form of tincture, and still more ancient times, in that of ointment, veratrin is much Among modern used as an external application in cases statues of Venus, one of the most of neuralgia and obstinate rheumatic famous is that by Canova, in which pains. The smallest quantity entering she is represented as issuing from the the nose causes violent and even dangerous sneezing.

Venus, one of the inferior planets, Veratrum (ve-ra'trum), a well-known genus of plants becury and the earth, and the most brilliant longing to the nat. order Melanthacese. Veratrum aloum (common white helle-bore) is a native of most alpine meadows in the southern, central and northern parts of Europe. It has large plaited leaves, erect stems, and large panicles of greenish flowers. It yields the substance veratrin (which see). Every part of both is acrid and poisonous, especially the rhizomes. The V. viride of North America (American hellebore) is an acrid emetic, and acts strongly in lowering the action of the heart.

Verb, in grammar, that part of speech whose essential function is to predicate or assert something in regard to something else (the subject or thing spoken of); as, the boy runs, the man lifts the stone, fishes swim, he suffers much. Verbs usually have the power of indicating time and mode by means of tenses and moods, these varying in the different languages, as does also the conjugation or system of verbal inflections and forms as a whole. They have been divided into active and neuter verbs, according as they predicate action or state. Active verbs are divided into intransitive and transitive, according as the action is confined to the actor or passes from

him to an object. Intransitive verbs often take an objective of their own nature; as, he runs a race; he sleeps the sleep of death. When a verb may be used either transitively or intransitively, as he walks the horse, he walks to church, the verb in the former use is said to be causative. Many causative verbs are distinguished from their corresponding intransitives by a change of form, as sit, set; lie, lay; fall, fell. Passive verbs affirm suffering or endurance of what another does. Hence, only verbs which take an object after them can have a passive voice, be-cause it can be said of objects only that they suffer or endure the action directed on or towards them by the subject of the active verb. Passive verbs are thus the correlatives or complements of active verbs.

See Mullein. Verbascum.

(ver-be'na), a genus of plants, the type of the nat. Verbena order Verbenacese. Most of the species



Verbenas Garden varicties.

are American; about seventy are enumer-V. officia ted. nālis (common vervain), a plant widely distributed, was once held in great repute for its mediciand entered into the compositie n of various charms and love philters. Several species are cultivated for

the great beauty of their flowers, being fine border plants. The verbena of the perfumers is the lemon-grass, from which the 'oil of verbena' is extracted.

Verbenaceæ (verbena'se-ë), a nat. order of plants, consisting of trees, shrubs, and herbaceous plants common in the tropics of both hemispheres, but rare in Europe, Asia and North America. They have generally opposite or whorled, simple or compound leaves without etipulest deverger in leaves without stipules; flowers in opposite corymbs, or spiked alternately,

converted into courts of justice; hospital, cavalry barracks, etc., flourishing manufactures and trade. Pop. 17,922.

Verd-antique (verd-an-tek'), in mineralogy, an aggre-

gate of serpentine and white crystallized marble, having a greenish color. It is beautifully mottled, takes a fine polish, and is much used for ornamental purposes. The term is also given to a green incrustation on ancient coins, brass or copper. Oriental Verdantique is a green

porphyry used as marble.

Verden (far'den), a town of Prussia, in Hanover, on the Aller, 21 miles s. E. of Bremen. It has a fine Gothic cathedral, a gymnasium, breweries, distilleries and manufactories of cigars. Pop. 9842.

(ver'dē), GIUSEPPE, an Italian operatic composer, born in 1814. Verdi district operatic composer, born in 1814. His first production was Oberto, Conte di San Bonifazio (1839), and in 1842 he brought out with great success at the La Scala, Milan, his Nabuco, followed by I Lombardi (1843), Ernani (1844), Rigoletto (1851), Il Trovatore (1853), La Traviata (1853), Un Ballo in Maschera (1869), Aida (1871), Monteguma (1878), and Otello (1886). Verdi had a fine dramatic gift, and his melodies are showy and taking. He died in 1901. Verdict. See Jury.

t repute Verdigris (ver'di-gris), a poisonous substance, prepared by exvirtues, posing copper to the air in contact with acetic acid, and used as a pigment, as a

wordant, in medicine, etc.

Verditer (ver'di-ter), a blue pigment prepared by dissolving verdigris in acetic acid.

Verdun (verdun), a town of France, department of the Meuse, 150 miles E. N. E. of Paris. It is a walled town defended by a citadel, the work of Vauban. The chief buildings are the episcopal palace, the barracks, and the public library. Verdun is famous for its liqueurs and confectionery, and it has breweries, tanneries, dye-works, etc. The Germans captured it in 1916. This siers ously besieged it in 1916. This siege was of such importance in the history of the European war that a special description of its purpose and general events is requiposite corymbs, or spiked alternately, site to a just conception of this great consometimes in dense heads, seldom axillary flict. It constitutes one of the leading or solitary. The verbena and teak are phases of the war in its western field, examples.

Vercelli (ver-chel'lē), a town of as a desperate effort to break through the Varcelli (ver-chel'le), a town of as a desperate effort to break through the North Italy, province of No-French lines at a vulnerable point and vara, near the right bank of the Sesia, expose Paris to peril of capture. Verdun 44 miles w. s. w. of Milan by rail. It was a specially hard point at which to has a modern cathedral, a castle, now smash the French line, being the strongthe German frontier. An attack on it at

was selected to undertake its capture.

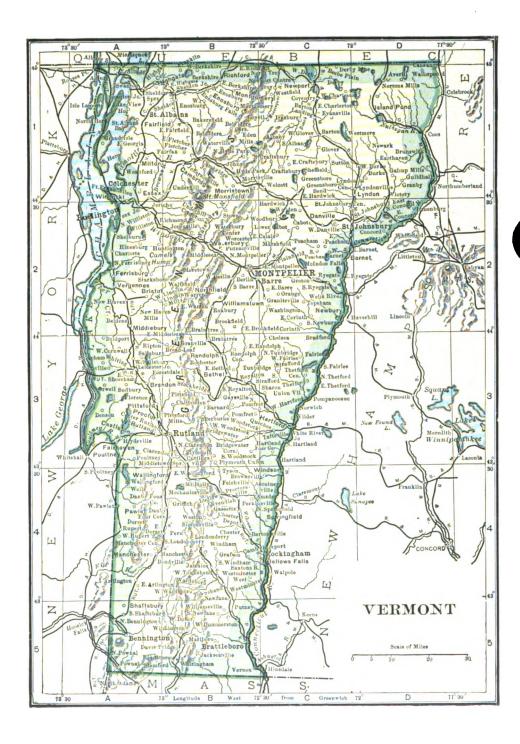
A well-devised effort to take the city
by surprise, one that nearly succeeded,
was the method pursued. A series of vio-February, Arras being specially their center, the indications being that a drive was about to be made upon Dunkirk and Calais. The French were next attacked in Champagne and at other points, while all remained quiet at the strong fortress on the Meuse. The result was a weaken-ing of the garrison of Verdun. Suddenly, on the 23d of February, the storm broke, eight German army corps (300,000 men) taking part in it. These were hurled upon the weakened French lines with such impetuous force that in the first day's assault more that in the first day's contest had contain assault more than six miles of trenches Germans had ga were carried, the defenses being penetrated to a depth of nearly two miles, Verdun remained while 3000 French prisoners were taken. effort to break to the second day added as much more to had so far failed. The captures, bringing the Germans from a distance of 8 miles to a point only 4½ sections of the lo miles from the fortress. The next day Fort parative quiet report was taken and held firmly the end of Octob Douaumont was taken and held firmly against the furious counter-attacks of the French. The purpose of the Germans had now become evident and troops were hurried to the danger point in all haste, the British taking over several miles of French trenches to permit this reinforcement. In the first six days the Germans claimed to have taken 16,800 prisoners and 78 cannon. But French resistance in this direction now stiffened, and the Germans days the Germans days the Germans days are the stiffened. mans found it advisable to shift to new points of attack. The first assaults on the left bank of the Meuse were made on March 6 and defensive points were carried there and during the following week, including the Forest of Cumières, but in the succeeding period the Germans were firmly faced.

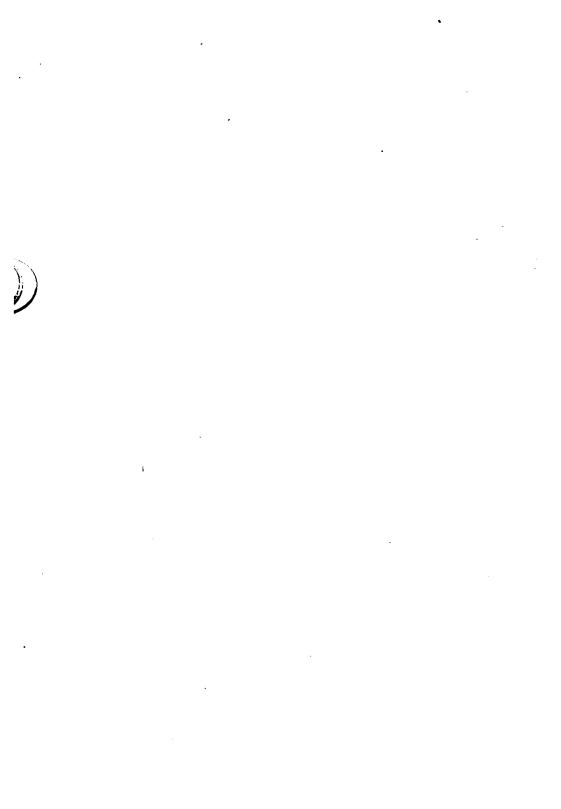
est of a series of fortified places facing Harcourt was captured and on the 6th the German frontier. An attack on it at Bethincourt fell into their hands. On the the beginning of the war had led to great 11th Germany claimed a total of 36,000 development in its outer defenses, so that French prisoners, but the loss of the Gerit became rather a fortified area than a mans in their assaults on the French posts fort. Its fall, then, would have been so had been very heavy and their efforts now much the more serious for France, and slackened, while the French began a series the army under the German Crown-Prince of counter-attacks, though with no marked change in the situation, losses and gains being successively made. Thus on May 22 the French recaptured part of Fort was the method pursued. A series of violent attacks, extending widely along the western front, was made in the early fort three days later and also the village weeks of 1916, which was intended to mislead the Allies as to the projected sant assaults on the part of the Germans assault, Verdun being left at rest. These followed, with no marked gains, but on continued through late January and early June 7, by a sudden shifting of the point representation. followed, with no marked gains, but on June 7, by a sudden shifting of the point of attack, Fort Vaux was captured. On the 23d, after two weeks of furious fighting, Thiaumont was taken by the Germans and by July 1 it had been lost and taken three times by either side, while on the 4th it again fell into German hands. The Somme drive had now been launched on the part of the Allies and it was hoped that this would lessen the German pressure on Verdun, but the attacks continued, though with no marked gains. For more than four months this great contest had continued and though the Germans had gained considerable territory and a number of the outlying forts, Verdun remained intact and the great effort to break through the French line

The fighting points now shifted to other sections of the long battle-line, and comparative quiet remained at Verdun until the end of October, when the policy of surprise shifted to the other side. An attack was made on October 24, and was so sudden and impetuous that the Germans were utterly overwhelmed. Not at a single point were they able to stop the furious rush. Douaumont and Thiaumont were wrested from their hands, the German line being broken over a front of 4 1.3 miles and penetrated to a depth of nearly two miles. Thus in three hours the French recaptured ground which it had taken the Germans months to capture and hold.

Verdun, a town of Quebec province, Canada, 14, miles from Montreal. Pop. (1911) 11,629.

Vereshtchagin (ve-res-tcha'gin), WASILIY, a Russian Le Morte Homme (Dead Man's Hill) historical painter, born in 1842, and was became a central point in the struggle in educated at the naval school in St. mid-March, both sides claiming its cap-Petersburg. In 1864 he entered the ture, though each referred to a different Ecole des Beaux Arts at Paris, where hill. Malancourt was taken by the Ger-Gerôme was his master. He joined the mans on March 31, and the village of Caucasian expedition under General Vaud and Caillette Wood. On April 5 Kaufmann in 1867, and in 1869 went to





Siberia. He took part in the Russo-Turkish war, and was wounded at Plevas. From that time on he visited all the chief cities of Europe exhibiting his pictures. He was drowned in the sinking of a Russian warship during the Russo-Japanese war in 1904. Vergil. See Virgil.

Verjuice (ver'jos), a sharp vinegar called v made of the juice of the respect. crab-apple; also the sour juice of unripe Varme

grapes is used for culinary purposes.

Verlaine (ver-lān'), PAUL, French lyrical poet, born in 1844; died in 1896. In a quarrel with Rimbaud, he aimed a pistol and was imprisoned for two years. He left prison a devent Catholic. vout Catholic. His poems are remarkably beautiful both in thought and rhythm.

Vermeer (ver-mar'), or Jan Van der Meer of Delft, a Dutch painter, born in 1632; died in 1675. He

Vermiform Appendix, an outgrowth from the intestines which, so far as is known, is peculiar to man, certain of the higher apes, and the wombat. The vermiform appendix in the human species hangs from the cæcum, which is the point of junction between the smaller intestines and the ascending colon. In size and shape it resembles a man's little finger. It is functionally useless to man and it appears to be the relic of an organ of utility to some of the lower animals. Its lining membrane secretes a mucus which in health constantly wells up into the lower end of the colon where the ileocæcal valve opens, and this mucus acts as a lubricant to the valve. The appendix is subject to inflammatory attacks arising probably from the ingestion of matter from the bowels. Attacks of this kind are somewhat frequent, the asual treatment being surgical, the diseased organ being removed. Lighter attacks are treated in remedial methods. Vermifuge (ver'mi-fûj). See An-

(ver-mil'yun), the name Vermilion

beautifully scarlet color, obtained from crystallized mercuric sulphide. It is extensively employed in painting, in making red sealing-wax, and other purposes.

Vermin (ver'min), obnoxious insects, as bugs, fleas and lice; troublesome animals, as rats and mice; rame-destroying species as weekls rolls.

game-destroying species, as weasels, polecats, also hawks and owls. The fox is called vermin, but not in a sense of dis-

Vermont (ver-mont'), one of the United States, bounded N. by Quebec, r. by New Hampshire (from which it is separated by the Connecticut Which it is separated by the Connecticut River), s. by Massachusetts and w. by New York and Lake Champlain. Length 143 miles, width 40 to 85; area, 9564 square miles. The surface is traversed from south to north by the Green Moun-tains (French, Verts Monts), which cul-Vermeer (ver-mār'), or Jan Van der tains (French, Verts Monts), which culminate, born in 1632; died in 1675. He was greatly influenced by Pieter de Hooch. His genre pictures are highly prized.

Vermejo (ver-mār'), or Rio Grande.

Vermejo (ver-mār), or Rio Grande.

Vermejo (ver-mār), or Rio Grande.

Vermes (ver-mār), and the Connecticut and its affluents whe sixth class of animals in the Linnæan arrangement of the animal in the Linnæan arrangement of the animal which could not be arranged under Vertebrata and Insecta.

Vermicelli (-chel'lē; Italian, 'little worms'). See Maca-cocupations, all the agricultural staples roni. being abundantly produced, while the yield of maple sugar is nowhere equaled. Wool and dairy products are large and excellent, and cattle, sheep and horses are raised in large numbers. Vermont are raised in large numbers. Vermont is the greatest breeding state for fine horses and for Spanish merino sheep. Manufactures are of much importance and cover a wide range of goods, includ-ing cotton and woolen goods, leather, bar and pig iron, machinery, etc. Large quantities of lumber are exported and there are extensive marble, granite and slate quarries. Rutland is the largest marble center in the world, and Barre the largest granite center. There is a the largest granite center. There is a considerable internal and transit trade, but the foreign trade is limited, being chiefly carried on through New York and Massachusetts. Vermont was first settled Massachusetts. Vermont was first settled by emigrants from Massachusetts, and joined the Union in 1791, after the state of New York had renounced a claim to the territory for \$30,000. Montpelier is the capital, but Burlington (1910) (pop. 20,463) is the largest town. Pop. 355,-956.

Vernal Grass (vernal; Anthoxangiven to a nigment of a sweet-scented pasture grass, that to States.

Vernation (ver-na shun), a botan-ical term, indicating the manner in which the leaves are arranged in the leaf bud. In some plants the leaves are placed together in a very simple method, in others they are curiously folded, rolled, or plaited and interlaced with each other, but so as to separate readily when the time for their expansion comes.

time, but afterwards began writing short pieces for the stage. In 1863 he published Five Weeks in a Balloon, and the vein of the marvelous, tinged with a quasi-scientific truthfulness, was afterwards worked by him with great success. His more popular works are: Twenty Thousand Leagues under the Sea, From

which the odor of new-mown hay is scale (as that of a barometer) and have chiefly due, growing in most of the ing divisions marked upon it, by means of which readings may be taken to small fractions of the parts actually marked on the scale. Suppose we have a scale of inches and tenths of an inch, and suppose the index is 76ths of an inch, and divided into 10 divisions. Suppose that in taking a reading the end of the index is past the 8 figure on the scale we write down 8, that it is past 3 of the tenth spaces and part of another we add 3, then looking up the index we find that Verne (vern), Jules, a popular its 6th division most nearly coincides French romancer, born at Nan-with a division on the scale and we add tes in 1828. He studied law for some .06, and so the position of the index is taken as marking 8.36 inches.

Vernon, a town (township) in Tol-contains the city of Rockville and the village of Vernon, in which woolens, warps, and yarns are manufactured. warps, and Pop. 9087.

wards worked by him with great success. His more popular works are: Twenty Thousand Leagues under the Sea, From the Earth to the Moon, Across Africa in a Balloon, To the Center of the Earth, and Round the World in Eighty Days. Most of his works have been translated into English and German. He died in 1906.

Vernet (vernā), Jean Emile Hobaton of Claude Joseph Vernet, a distinguished painter of sea pieces and seator of claude Joseph Vernet, a distinguished painter of sea pieces and seator of claude Joseph Vernet, a distinguished painter of sea pieces and seator of claude Joseph Vernet, a distinguished painter of sea pieces and seator of the Formace Vernet, painter of battle and genre pictures. He was born in Paris in 1798; and died in 1863. His first master in art was his father, and at an early age he acquired the favor of the imperial court by his battle pieces, in which he adopted a realistic treatment in opposition to the classical school of David. His pictures connected with the wars of Napoleon are very numerous. In 1828 Charles X appointed him director of the French Academy in Rome, a post he ably filled till the end of 1834, sliks, woolens, hats, etc. and a considerable the commissioned him to paint galleries of the museum at Versailles with scenes relating to the conquest of Algeria, a considerable trade. Verona was subject to the Roman in 1840 we find him travelling in Egypt, Palestine, and Syria; in 1842 he accompanied the Emperor Nicholas on a fourney from St. Petersburg to Sebastopol; and in 1845 he visited Spain and Algeria. In 1853 he followed the French agained to Paris and produced his last great picture, The Battle of the Alma.

Vernier (vernier), an index fitted to Paris and produced his last great picture, The Battle of the Alma.

Vernier (vernier), an index fitted to Paris and produced his last great picture, The Battle of the Alma.

Vernier of Palastine and Franch and paris and parts and paris and paris and parts and paris and paris

The Battle of the Alma.

Veronese (va-ro-na'ze), PAUL, the popular name of Paolo slide along the edge of a Cagliari, an eminent Italian artist, born

Veronica Vertigo.

at Verona in 1528. He studied painting under his uncle, Antonio Badile, and ters at Versailles; and from March, 1871, worked successively in Venice, Rome, till 1879 it was the seat of the French and other cities of Italy, but Venice government. Pop. (1911) 60,458. was his chief residence. He was an excellent colorist, and was distinguished verse, and fertility of his important of speech or composition, usually but the richness and fertility of his important of the terms to be the

Veronica, (ve-ron'i-ka). See Speedwell.

Veronica, Saint, a female saint who, according to legend, met out Saviour bending under the weight of the cross, and offered him her veil to wipe the sweat from his brow, when the divine features were found miraculously impressed on the cloth. This veil was brought from Palestine to Rome, where it is still preserved by the canons of St. Peter's.

Verrazzano (ver-rat-sa'no), or Verbett's, a Russian measure of length, an Italian navigator, born about 1486.

Verses are of various kinds, as hexameter, pentameter, etc. Blank verse is verse in which the lines do not end in rhymes. (See Blank Verse.) Heroic verse is rhymed verse in which the lines usually consist of ten syllables, or in English of five accented syllables, constituting five metrical feet.

Versecz (ver'shets), a town of Hungary, county of Temesvar, It is the see of a Greek bishop, and has silk mills, and a large trade in silk and wine. Pop. 22,199.

Verst, a Russian measure of length, equal to 3500 English feet, or very nearly two-thirds of a mile.

talian navigator, born about 1830. equal to 3000 English reet, or He is believed to have visited the coast very nearly two-thirds of a mile. of North America in the service of Ver'tebra. See Spine.

France in 1508 or earlier. In 1524 he is said to have traced the coast from Cape Fear to New England, probably entering the Hudson River and Newport. kingdom of animals, consisting of those This visit has been doubted by some animals which in early life nearly life probably nose.

handsomest towns in Europe, having been built under the auspices of the sovereigns of France, particularly Louis XIV, who made it the seat of his court and erected the palace. The latter is a large and imposing building with an extensive park and gardens, fine fountains, etc. Louis Philippe converted the palace into a national museum, and it contains an im-mense collection of statues and paintings Vertico

by the richness and fertility of his imadopted in poetry. It seems to be the agination. He was a contemporary of natural language of passion, yet it has Titian and Tintoretto. He died at unquestionably been improved and deat Venice April 19, 1588. His pictures veloped by art. The use of rhymed at Venice April 19, 1588. His pictures are exceedingly numerous and varied in subject. Among his masterpieces are: vertion. (See Rhyme.) Grammarians The Marriage at Cana (now in the Louvre), The Calling of St. Andrew to of verse, and analytically distinguished the Apostleship, The Rape of Europa, the possible divisions of words into bars The Family of Darius at the Feet of Alexander, Adoration of the Magi, Con. (See Rhythm.) The term is also apsecration of St. Nicholas and St. Helena, and The Vision of the Invention of the Cross. The last five mentioned are in the British National Gallery.

Veronica

St. The See Speed-woell.

Veronica

St. The See Speed-well and unaccented syllables. Certain number of metrical feet disposed according to the rules of the species of poetry which the author intends to compose. Verses are of various kinds, as hexameter positions.

This visit has been doubted by some writers and does not seem well authenticated. He finally became a privateer or possess a notochord (which see); which pirate, and was taken and executed at Pico, Spain, in 1527.

Versailles (ver-salz'; French pron. Yer-sal-ye'), a town of great nerve-centers contained within a France, capital of the department of Seine-et-Oise, in a plain, 11 miles s. w. spinal column. In all Vertebrata save of Paris. It is regarded as one of the lancelet a distinct heart is developed. handsomest towns in Europe, having been The Vertebrata include the classes The Vertebrata include the classes Pisces (fishes), Amphibia (frogs, etc.), Reptilia (reptiles), Aves (birds), and Mammalia (quadrupeds and man). Mammalia (quadrupeds and man).
They have also been classified into
Ichthyopsida, including Pisces and Amphibia; Sauropsida, comprising Reptilla
and Aves; and Mammalia. See these

Vertigo (ver'ti-gō), an attack of giddiness or swimming of the representing personages and events connected with the French monarchy from head in which objects appear to move in Clovis downwards. In October, 1870, various directions though stationary, and

sive or defective) supply of blood to the brain and of nervous and general debility; but it frequently arises from some disturbance of the digestive organs.

Vertue (ver'tt), George, a distinguished engraver, born in Westminster in 1684. He enjoyed the patronage of Sir Godfrey Kneller, and became engraver to the Society of Antiquaries in 1717. He died in 1756. His best-known works include twelve Portraits of Poets and ten Portraits of Charles I and His Friends. Charles I and His Friends.

Vertumnus (vertum'nus), a Roman deity who presided over crops and orchards. He is generally represented as a young man and holding in his crowned with flowers, and holding in his right hand fruit, and a horn of plenty in his left. He was the husband of

chief work, De Corporis Humani Fabrica, opened a new era in the science of medicine.

Vesoul (vé-söl), a town of France, capital of the department of Haute-Saône, on the Durgeon, 27 miles N. of Besancon. It is surrounded by vineyards, and is well built. Pop. 8702. Vespa.

Vespasian (ves-pā'zhi-an; Lat. VES-PASIANUS), TITUS FLA-VIUS, Emperor of Rome, was born near Reate, in the country of the Sabines, in A.D. 9. After serving with distinction in Germany and in Britain as commander of a legion, he was made consul. He afterwards became pro-consul of Africa, and on the rebellion of the Jews he was sent with an army of the Jews he was sent with an army by Numa. There were at first four, into Judga (A.D. 66). He reduced nearly and afterwards six of them. They were all Galilee, and was preparing to attack taken from six to ten years of age. They Jerusalem when he received news of were bound to virginity for thirty years, Nero's death (A.D. 68). Then followed the term of their service, after which the emperors Galba, Otho and Vitellius, they were allowed to marry. Their per-

the person affected finds it difficult to and in A.D. 69 Vespasian was himself maintain an erect posture. It is a comelected emperor by the army, and arrived mon symptom of an irregular (excessive or defective) supply of blood to the leaving the siege of Jerusalem to his son leaving the siege of Jerusalem to his son Titus. He immediately reformed the discipline of the army, purified the sena-torial and equestrian orders, and im-



Coin of Vespasian.

Vervain. See Verbena.

Verviers (ver-vi-ā), a town of Belgium, province of Liege, on the Vesdre, 14 miles E. S. of Liege. It is celebrated for its manufacture of broadcloth, which is the staple of the town. There are also cotton, leather, and other manufactures. Pop. 49,168.

Vesalius (ve-sā'li-us), Andreas, the father of modern anatomy, born at Brussels in 1514; died at Zante in 1564. He was physician to the Emperor Charles V and to Philip II. His chief work, De Corporis Humani Fabrica, opened a new province of instance in 1501 he was sent by Powtward and continuation. In 1501 he was sent by Portugal on an exploring voyage to Brazil. He appears to have made four voyages to the New World, probably serving as astronomer. Without any initiative on his part, his name was applied by a mapmaker to the lands visited by him, and in time came to designate the whole continent. He died in 1512.

(ves'ta), a Roman divinity, the goddess of the hearth. She was worshiped, along with the Penates, every family meal, when the household assembled round the hearth, which was in the center of the room. Her public sanctuary was in the Forum, and the sacred fire was kept constantly burning in it by the vestals, her priestesses. The vestals are said to have been established

See Vesta. Vestals.

of parochial affairs, and collectively the persons themselves to whom these affairs vided with inclosed and connected platare intrusted. In England the minister, forms. The expedient of inclosing, or as church-wardens, and chief men of a it has been termed, the vestibuling of, parish generally constitute a vestry, and car platforms for the comfort and conthe minister, whether rector, vicar, or venience of passengers having occasion perpetual curate, is ex-officio chairman. to pass from car to car while a train is The powers of the vestry include the in motion adds considerably to their expenditure of the parish funds, the safety.

Veszprim (ves'prim), a town of chapels, and the appointment of certain chapels, and the appointment of certain parish officers. In London the vestries of Lake Bal are highly important bodies. In the Pop. 14,144. Episcopal Church in the United States Vetch, th

Episcopal Church in the United States the vestry is a committee chosen annually by the parish, which, in conjunction with the church wardens, manages its temporal concerns.

Vesuvius (ve-sû'vi-us), a volcanic mountain of Southern mous plants of different genera; as, the mountain of Southern mous plants of different genera; as, the horseshoe vetch, of the genus Hipportees in the center of a plain 2300 feet above the sea, in a pyramidal cone of about 1806 feet; total height, over 4200 feet, liable to alteration at eruptions. The cone is truncated, and about 2000 feet of the disorders of domestic animals. The first veterinary school was instituted in 1762 at Lyons: in 1786 that a liable to alteration at eruption about 1838 the top was an uneven plane, but was then contains the in diameter. Previous to an eruption The first veterinary school was instituted about 1838 the top was an uneven plane, in 1762 at Lyons; in 1766 that at Alfort but was then converted into a hollow near Paris was opened. A similar insticup sloping to a depth of 500 feet. A tution was established at London in 1791, precipitous rocky ridge, 1400 feet high, and in the year following one in Berlin. called Monte Somma, lies to the north In Edinburgh instruction in veterinary of the cone, from which it is separated by a deep valley called the Atrio del in 1819, and in veterinary surgery in Cavallo. At the western extremity of 1823. In the United States veterinary this valley an observatory has been established. The lower belt of the sloping universities, but most of the schools are plain is about 2 miles broad; it is laid out in vineyards and well cultivated. Water (ve'to: Latin. 'I forbid'), the out in vineyards and well cultivated.

Veto (ve'to'; Latin, 'I forbid'), the Above this belt the plain is rugged and covered with scoriæ. Monte Somma is legislature of a country has to negative supposed to have formerly formed a comthe resolutions of another branch, or the plete come of larger dimensions than the right of the executive branch of govern-

sons were inviolable, and they were present one, being subsequently altered treated with great honor, and had important public privileges. The punishment of a vestal who was guilty of unchastity was burying alive.

Vesta, in astronomy. See Asteroids.

See Vests ashes the Roman cities of Herculaneum and Pompeii. The next recorded dis-charge of ashes and lava was in 1036. Vestments (vest'ments), Sacre, the official garments worn by ministers of religion. The term is also applied to the altar cloths. Among Catholics and High Churchmen, who believe that Christianity has retained a special priesthood and ritual, much importance is attached to vestments. See Ritualism, also Chasuble, Stole, etc.

Vestry (ves'tri), a room adjoining a up while another is coming down, was church where the vestments of the clergy are kept. Hence the place of meeting of those having the charge of parochial affairs, and collectively the persons themselves to whom these affairs vided with inclosed and connected plat-

Veszprim (ves'prim), a town of Western Hungary, north of Lake Balaton, with a fine cathedral.

The first veterinary school was instituted in 1762 at Lyons; in 1766 that at Alfort near Paris was opened. A similar institution was established at London in 1791,

Vianna mouth of the Lima, 40 miles N. of Oporto. Pop. 10,000.

Viareggio (vi-à-red'jō), a seaport of Vice-chancellor. See Chancellor. Lucca, on the Mediterranean, a favorite Vice-consul. See Consul.

Viatka (vyat'ka), Vyatka, a town of Russia, capital of the government of same name, on the Viatka, 500 miles E. N. E. of Moscow. It has a cathedral, some manufactures, and a large trade. Pop. 15,776.—The government has an area of 59,172 square miles, and a pop. of 3,082,788. The surface is much broken by low hills, and large tracts are under wood and natural large tracts are under wood and natural pasture.

of fungoid nature.

ment, such as king, president, or governor, to reject the bills, measures, or resolutions proposed by the legislature. In Britain the power of the crown is laurustine (which see), and V. Lanconfined to a veto, a right of rejecting and not resolving, and even this right and not resolving, and even this right america, Europe and Asia. The young is rarely exercised, the last occasion being in 1707. In the United States the president may veto all measures passed by Congress, but after that right has been exercised the rejected bill may become law by being passed by two-thirds of each of the houses of Congress.

Veyagy (ve-va'), a town of Switzerof each of the houses of Congress.

Vevey (ve-va'), a town of Switzerland, canton Vaud, beautifully
situated at the N. E. margin of Lake
Geneva, 11 miles E. S. E. of Lausanne, a only the smaller tithes or a salary. A
favorite place for visitors and foreign
residents. Pop. 11,781.

Viaduct

(vi'a-dukt). See Bridge and
Railways.

Times representative or vicegerent. The
pope calls himself vicar of Christ on
earth. In the Church of England a vicar
apostolic, in the Roman Catholic
Church, is a bishop who possesses no
diocese, but who exercises jurisdiction
over a certain district by direct authority
of the pope; picar agency. the official (ve-an'a), a seaport of Portu- of the pope; vicar general, the official gal, province of Minho, at the assistant of a bishop or archbishop.

Lima, 40 miles N. of Oporto. Vice-admiral See Admiral. Vice-admiral.

Vice-chancellor. See Chancellor.

Lucca, on the Mediterranean, a lavoure watering place. Pop. 14,863.

Viaticum vision for a journey; in the Roman Catholic Church, the eucharist administered to patients who are so ill as to be deemed beyond hope of recovery.

Vice-cuisus.

Vice-cuisus.

Vice-cuisus.

Vicenza (vi-chen'tså), a town of North Italy, capital of a province of the same name, 49 miles west of Venice, beautifully situated on the Bacchiglione, where joined by the Retrone at the foot of some wooded hills. It is well built, containing handsome It is well built, containing handsome streets and several elegant squares. The public buildings are almost all the work of Palladio, who was born here, or of scholars who rather slavishly imitated him. The most remarkable edifices are the Duomo or cathedral; the Palazzo della Ragione (town-hall), an ancient Gothic building, with fine connected buildings by Palladio; the Museum, one of Palladio's finest buildings; the pasture. The soil yields good crops of of Palladio's finest buildings; the corn, flax and hemp. The drainage belongs to the basin of the Volga.

Viborg (vē'borg), a town of Denmark, on the lake of Viborg, churches and hospitals. Pop. (1914)

36 miles N. w. of Aarhus. It is a bishop's 56,296.—The province has a area of 1050

36 miles N. w. of Aarhus. It is a bishop's see, and has a good cathedral; and manufactures of linen, tobacco, etc. Pop. 450,000.

Viceroy (vis'roi), the governor of a 8623.

Viborg, or Wiborg, a seaport of Finrules in the name of the monarch with regal authority as his substitute.

ment of the same name, on a deep inlet of the Gulf of Finland, 74 miles n. w. of St. Petersburg. It has an active export trade. Pop. estimated 31,000.

Vibrio (vibri-o), a name of certain infusoria or microscopic organisms, sometimes called microscopic cels, of the death of President in case of a tie vote in that body; but who succisms, sometimes called microscopic eels, of the death of disability of the elected and now often regarded as bacteria, or president. On several occasions the viceand now often regarded as bacteria, or president. On several occasions the vicepresident has succeeded to the presidency.

He is elected with and in the same way as the president, the person receiving the highest number of electoral votes for the vice-presidency obtaining the office, if this number be a majority of the whole body of electors. If not, then the Senate is empowered to choose a Vice-President from the two receiving the most votes. In this case a majority vote in the Senate, if a quorum of two-thirds is present, will suffice for the election.

Vichy (veshe), a town of France, in the department of the Allier, in a valley of the river of that name, 32 miles s. s. s. of Moulins. It was once a place of strength, and is celebrated for its thermal alkaline springs. The Vichy waters are in much request for disorders. waters are in much request for disorders of the stomach and bowels, and of the urinary organs, in gout, rheumatism, etc. Much of the water is sent out in bottles. Pop. (1906) 14,520.

Vicia (vis'i-a), the vetch genus of plants, which, besides the vetches, included the Vicinia of the vetches, and besides the vetches, the vetches of the vetches of the vetches of the vetches of the vetches.

includes also the V. Faba or common field bean. See Vetch.

Vicksburg (viks'burg), a city of Mississippi, county seat of Warren Co., situated on the Mississippi and Yazoo Rivers, 400 miles above New Orleans. It is a port of entry and the most important commercial city of the State. Vicksburg has an extensive trade in cotton and is the business center of a large district. Its industries em-brace railroad car works, iron foundries,

or a large district. Its industries embrace railroad car works, iron foundries, oil mills, saw-mills, wagon, broom, mattress, furniture and ice factories, etc. During the Civil War this place was strongly fortified by the Confederates. After a long siege it was surrendered to Grant, July 4, 1863. Pop. 20,814.

Vico (ve'ko), Giovanni Bartista, a jurist, critic, and historian, was born at Naples in 1668, was educated by the Jesuits, and studied law. In 1697 he was appointed professor of rhetoric at the University of Naples, and in 1735 historiographer-royal. His Principi d'una Scienza Nuova d'intorno alla Commune Natura delle Nazioni (1725) has caused him to be regarded as one of the founders of the philosophy of history. He also wrote De antiquissima Italorum Sapientia and other works. Vico died at Naples, January 20, 1744.

Victor Amadeus II. Duke of Sa-

Sardinia, and then took the title of King of Sardinia. He abdicated in favor of his son, Charles Emmanuel III, in 1730.

Victor Emmanuel II (VITTORIO E M MAN-UELE), the eldest son of Charles Albert, king of Sardinia, was born at Turin, March 14, 1820. His aptitude for a military career became evident when he commanded the Savoy brigades against Austria (1848-49), and distinguished himself in the battle of Goito by his reckless valor. After the battle of Novara (March 23, 1849) his father abdicated, and Victor Emmanuel ascended the theory of Sardinia He had cended the throne of Sardinia. He had then to negotiate with Austria under most unfavorable circumstances, but he



Victor Emmanuel.

steadily refused to give up the principle of representative government in the Sardinian constitution, and this gained for him the name of honest king (regalantuomo) and the good-will of the Italian people. This latter was only gained, however, after much calumny and misunderstanding, but the young king pursued from the first a policy which led to the national unity of Italy. Under to the national unity of Italy. Under the advice of his celebrated minister, Cavour, he regulated the finances, re-organized the army, and secularized the church property, for which he was ex-communicated by the pope. He took part in the Crimean war, and in 1859, assisted by France, renewed the contest Victor Amadeus II, Duke of Sa-assisted by France, renewed the contest with Austria, taking part in the battles king of Sardinia, was born in 1666; died in 1732. He joined the Austrians in (June 24). By the Treaty of Villathe war of the Spanish Succession, and franca and the Peace of Zürich which at the Peace of Utrecht (1713) he obtollowed these successes, Lombardy was tained the addition of Sicily to his added to his dominions, but he had to dominions. In 1720 he gave up that cede Savoy and Nice to France. Parma, island to the Austrians in exchange for Modena and Tuscany now became united

of which it was made the capital. The king entered Rome on July 2, 1871, and took up his residence in the Quirinal. He died January 9, 1878, and was succeeded by his son Humbert.

of Eastern Australia, running from east to west through the colony, with various off-shoots. Its highest peak is Mount Bogong, of 6500 feet elevation. It is diand composed of metamorphic rocks of granite, quartz, syenite, etc. This is the region of the goldfields. The rivers are numerous, but are generally small and dry up in summer, leaving the country parched. The chief is the Murray, which rises in the Australian Alps, forms the parthern beauty of the sollow for liable to sudden fluctuation; and hot winds blow at intervals from November to February, causing great discomfort. The hottest period is in January and

to Sardinia, and Garibaldi's successes in ful. Rabbits have become so numerous Sicily and Naples brought the whole of in some districts as to prove a serious Southern Italy over to Victor Emmanuel. nuisance and source of loss to the planters. On March 17, 1861, he assumed the title Victoria is the principal gold-producing of King of Italy, and early in 1865 colony of Australia, the yield amounting Florence became the royal residence. By in value to about \$15,000,000 annually. the Peace of Vienna (1866) Austria The total yield since the discovery of ceded Venetia, and on the withdrawal gold in 1851 has been about \$1,500,000, of the French garrison from Rome in 000. Tin, antimony, copper and coal are 1870 that city annexed itself to Italy, also among the minerals worked. Agricof which it was made the capital. The culture has much improved of late vegarain value to about \$15,000,000 annually. The total yield since the discovery of gold in 1851 has been about \$1,500,000,000. Tin, antimony, copper and coal are also among the minerals worked. Agriculture has much improved of late years, wheat and oats being the two cereals chiefly cultivated. The great staple of the colony, however, is wool, the annual wool clip yielding nearly \$20,000,000. The estimated number of sheep approaches 15,000,000 and of cattle nearly 2,000,000. The vine is extensively cultivated, and the wines are becoming well victoria (vik-to'ria), a British colThe estimated number of sheep approaches 15,000,000 and of cattle nearly
tralia, bounded N. by New South Wales, 2,000,000. The vine is extensively cultise. E. by the Pacific, s. by Bass Strait vated, and the wines are becoming well and the Southern Ocean, and w. by known in Europe. Many kinds of fruits South Australia; area, 87,884 square are grown, also tobacco, hops, etc. Vicmiles. It has about 600 geographical toria is divided into the four districts of miles of sea-coast, with considerable bays Gipps Land, the Murray, Wimmera and and indentations, emecially about the Loddow which was subdivided into the miles of sea-coast, with considerable bays and indentations, especially about the middle, where Port Phillip Bay, with an area of 875 square miles and an entrance barely 2 miles wide, affords shelter sufficient for the largest fleet. The interior, consisting of twelve members, and a though diversified by mountains, is chiefly distinguished by vast unwooded plains mostly occupied as pasture. There is one principal mountain range, a portion of the Great Dividing Range of Eastern Australia, running from east to west through the action. fourteen provinces, and a legislative assembly of ninety-five members for eighty-four districts. On January 1, 1901, it became one of the states of the commonwealth of Australia. Victoria was first colonized from Tasmania in 1834. It off-shoots, its nighest peak is Mount colonized from Tasmania in 1834. It Bogong, of 6500 feet elevation. It is dimade rapid progress, especially in sheep vided into separate ranges called the breeding, and the discovery of gold in Grampians and the Australian Alps, 1851 caused a rush of population from which are connected by such ranges as all parts. Hitherto it had been known the Pyrenees and Hume Range, containas Port Phillip, and formed part of New ing numerous cones and extinct craters, South Wales, but in this year (independand composed of metamorphic rocks of ently of the gold discovery) it was erected This is into a separate colony under the name the rivers of Victoria. In 1850 the population numbered 76,162; in 1854 it was 312, the counsult of the colony was conferred on the colony. The chief which rises in the Australian Alps, forms towns are Melbourne (the capital), Geethe northern boundary of the colony for long, Ballarat and Sandhurst. The 980 miles, is in all 1300 miles long, and is navigable for several hundred miles. 1,350,000, including nearly 10,000 Chinese, and several hundred aborigines. liable to sudden fluctuation: and bot

Victoria, capital of British Colum-couver Island, on the north side of the Strait of Juan de Fuca, in very beauti-The hottest period is in January and Strait of Juan de Fuca, in very beautifebruary, when the thermometer may ful scenery. The public buildings inrise to 108° in the shade. For the chief clude the Parliament house, government animal and vegetable products native to offices, provincial museum and library, the colony see Australia. Some of the city hall, etc., while in the environs are common English quadrupeds and birds many attractive villas, surrounded by have been introduced, such as hares, rabbeautiful gardens. The manufacturing bits, deer, pheasants, partridges, larks, interests include powder works, potteries, etc., and are now becoming quite plentically coaling, lumber and brewing industries, and large fish-canning establishments. It is also engaged in boat building. The harbor of Victoria for large vessels is at Esquimault, 3 miles distant, where there is a station of the British navy. Pop. 31,660.

Victoria. See Hong-Kong.

Victoria I (ALEXANDRINA), Queen of Great Britain and Ire-Queen victoria 1 of Great Britain and Ireland and Empress of India, only child of Edward, duke of Kent, and of his wife Princess Victoria Mary Louisa, was born at Kensington Palace, May 24, 1819. Her father died January 23, 1820, and she became heiress-presumptive to the crown on the accession of William IV in 1830. The latter dying without issue (June 20, 1837), she ascended the throne of Great Britain and Ireland, that of Hanover falling by the Salic law to her uncle, the Duke of Cumberland. She was crowned in Westminster Abbey, June 28, 1838, and on Feb. 10, 1840, married her cousin, Prince Albert of Saxe-Coburg-Gotha, who died December 14, 1861. In 1876 she assumed the title



Queen Victoria.

of Empress of India. Her children were nine in number, of whom the eldest, Vicnine in number, of whom the eldest, victoria, became empress of Germany, and the second, Albert Edward, succeeded her on the throne, as Edward VII. A striking feature of the Victorian era was the rapid development and extension of the British colonies. Of the warlike events of her reign the most important were those of the Crimea and South Africa crossed near its north end by the equator, and the rebellion in India. Her period about 3800 feet above the sea: stees, about

was so marked by literary progress and was so marked by herary progress and political and industrial development that it is spoken of appreciatively as the Victorian era, as a counterpart of the Elizabethan era. She died Jan. 22, 1901. Victoria Cross, a British military decoration in stituted at the close of the Crimean war in 1856. It is granted to soldiers and

sailors of any rank for a sin-gle act of valor in presence of the enemy. WAS instituted in imitation of the French cross of the Legion of Honor. It is a Maltese cross, with a royal crown in the center, sur-mounted by a lion, and the words 'For Valour 'indented on a scroll be-low the crown.



Victoria Cross.

The ribbon is red for the army, and blue for the navy. A pension of £10 a year accompanies the decoration. Since the foundation upwards of 400 officers and men have been recipients of this honor.

Victoria Falls, a cataract of the Zambesi (which see), in lat. 17° 55's., lon. 26° 32'E. The river here, nearly a mile broad, drops 330 feet into a narrow transverse fissure or crack crossing its course, the water then passing away in a narrow rocky gorge. They vie with Niagara Falls in grandeur and surpass them in height. These falls were discovered by Livingstone in 1855. The gorge above the falls is now crossed by a single-span railway bridge, the most elevated structure of its kind in the world, the rails standing 420 feet above the water.

Victoria Harbor. See Labuan.

Victoria Land, South Victoria.

the name given that portion of the supposed Antarctic continent which bounds Ross Sea on the west. It is mountain-

and the rebellion in India. Her period about 3800 feet above the sea; area, about

26,000 square miles, or nearly as large as Scotland. It communicates with the Albert Nyanza by means of the Victoria Nile, and is the principal feeder of the Nile, It contains many islands, some of them of considerable size. The Ripon rales, about 1200 feet across, mark the discharge of the Nile from the lake. It was discovered by Captain Speke in 1858. The area of the lake is almost equally divided between British and German East Africa. Its most important tributary is the Kagera, now looked upon as the head-stream of the Nile. upon as the head-stream of the Nile.

Victoria Regia, the name given to a magnificent wa-

tive, born at Arras in 1771. He began his career as a thief, and was suc-cessively soldier, deserter, gambler, and vagabond, being often imprisoned for his offenses. He entered the police service as a detective in 1810, his success in this vocation being so great as to give him a wide reputation. He died in 1850, leaving a history of his exploits, which is not considered truthful.

Vienna (vě-en'na; German, Wien), capital of the Austro-Hungarian Empire, is situated in a plain on the right bank of the Danube, and is intersected by a narrow arm of the river ter lily, first found in the river Berbice, streams. The city proper is surrounded in British Guiana, in 1837, by Sir with a rampart and ditch, called the Robert Schomburgk. It belongs to the Lines, and consists of the Innere Statt, nat. order of Nymphæaceæ, and was or old town, and the municipal districts



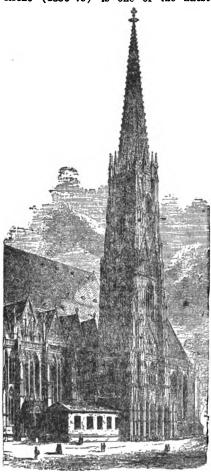
Street in Vienna.

across; they are of a bright green above and a deep violet on the lower surface, with a uniformly turned-up margin about 3 inches high. The flowers are more than 1 foot in diameter, are of all shades from white to pink, and exhale an agreeable odor. The plant is successfully culti-vated in the United States.

Vicuna (vi-kun'ya), a ruminant animal (Auchenia vicugna), closely allied to the llama. It is a native of South America, frequenting the lofty slopes of the Andes of Chile, etc., near the region of perpetual snow, and somewhat resembles the chamois in its

dedicated by the discoverer to Queen of Leopoldstadt, the chief commercial Victoria. The leaves measure 5 or 6 feet district; Landstrasse, the official district; district: Landstrasse, the official district; Mariahilf, Neubau, and Margarethen, manufacturing districts; Alsergrund, manufacturing containing large general and military hospitals; and the residential districts of Wieden, Josefstadt, and Favoriten, besides extensive suburbs. The old town is still the court and fashionable quarter of the city, and is encircled by the Ringstrasse, a handsome boulevard, 55 yards wide. Vienna is on the whole a handsome, wellbuilt town, with fine squares and straight and spacious streets. The Prater, a public park on the bank of the Danube, is about 4 miles long and 2 broad, and is considered the finest public habits. See Llama.

park in Europe. Of the churches the Vidocq (vē-dok), Eugene Francolor color, a famous French deteccathedral, of St. Stephen, a cruciform



Gothic structure, with a main tower 453 others of the nobility are, many of them, feet high. The interior is adorned with handsome buildings. Deserving of spenumerous statues and monuments, and cial mention are the houses of parliathe tower contains a bell of 18 tons weight. The Capuchin church contains (1872-83), the courts of justice, the the imperial burying vaults; the Votivander of art and of natural history, kirche (1856-79) is one of the finest founded in 1237, and reorganized by Maria Theresa. It has some 350 teachers, 6000 students, and a library of 340,000 vols. Other notable public buildings ors, occo students, and a norary of Say, occo occor, and a norary of Say, are the Josephinum (an academy for army surgeons), the Polytechnic Institute, and the Seminarium, a Roman Catholic institute for the training of priests. There are also Hungarian and Protestant theological institutes, an academy of Sararata and Protestant theological institutes, and a norary of Sararata and Protestant theological institutes, and a norary of Sararata and Protestant theological institutes, and a norary of Sararata and Protestant theological institutes, and the sararata and Protestant and Pro Protestant theological institutes, an academy of fine arts, a conservatoire of music, several public libraries and museums, and a number of gymnasia and schools. The imperial library contains 900,000 volumes and 25,000 MSS. The imperial museum of natural history is one of the finest in Europe. The Treasury, among other imperial treasures, contains the regalia of Charlemagne. There are many hospitals and other henevolent are many hospitals and other benevolent institutions, and the scientific and literary associations are too numerous to mention. The principal theaters are the Hofburg and the Stadt theaters, and the fine Opera house. Vienna is the first manufacturing town in the empire, and its manufactures include cotton and silk its manufactures include cotton and silk goods, leather, porcelain, arms, hardware, and many other articles. There is also a large inland trade. Vienna appears to have been a Roman station in the first century. It was afterwards included in Upper Pannonia, and called Vindobona. After being taken by Attila, about 450, and by Charlemagne, about 791, it became the capital of the margraviate of Austria in 1142, a free imperial city in 1237; it was besieged by Sultan Solyman in 1529, and by Kara Mustapha in 1683, was occupied by Napoleon, November 13, 1805, and May 12, 1809; the old walls were demolished in 1860. It is now the center of a great railway system, and the regulation and deepening of the Danube is expected to make it the center of the shipping trade between eastern and western Europe. Pop. (1911) 2,004,291.

Vienna, Congress of. This congress was assembled on November 1, 1814, to reorganize the political systems. goods, leather, porcelain, arms, hardware,

specimens of modern Gothic. The imperial palace (Kaiserliche Burg) is a poor though ancient structure; the imperial summer residence, Schönbrunn, is about 2 miles from the city. The modern palaces of the archdukes and session was assembled on November 1, 1814, to reorganize the political system of Europe after the first overthrow of Napoleon. The principal powers represented in it were Austria, Russia, Prussia, England, and France. Spain, portal summer residence, Schönbrunn, is modern palaces of the archdukes and more nearly concerning them. The

Austria recovered Lombardy and Ve- was the capital of the Burgundian kingnetia, while Tuscany and Modena were dom. Pop. 24,619. conferred on collateral branches of the Viersen (fer'sen), a town of Rhenish conferred on collateral branches of the imperial house. The King of Sardinia recovered Piedmont and Savoy, with the addition of Genoa. Murat retained Naples, but the Bourbons were soon reinstated. Holland and Belgium were important manufactures of satin, plush, stated. Holland and Belgium were silk, woolen, linen, and cotton fabrics; erected into a kingdom for William I, Prince of Orange. Hanover, with the title of king, was returned to the King of England, and Great Britain retained Vierwaldstättersee. of England, and Great Britain retained Malta, Heligoland, and several conquered colonies. A federative constitution, with a diet at Frankfort, was established for Germany. Prussia real technical school. Pop. 11,812. tablished for Germany. Prussia received the duchy of Posen, the Rhine
province, and a part of Saxony. Russia
received the greater part of the grandduchy at Warsaw, Cracow becoming a
lt is a bishop's see, and has manufactures
free state, protected by Russia, Austria, of silks, hats, soap and macaroni. Pop.
and Prussia. Sweden retained Norway,
and Denmark was indemnified with Launephury. The congress was suddenly

Vigfusson

Scanding vien scholer.

Vienne (ve-enn), a western department of France; area 2711 square miles. The surface is generally square miles. The surface is generally flat; it is well watered by the Vienne and the Creuse. Three-fifths of the surface is arable, and all kinds of cereals, maise, hemp, and indifferent wines are produced. Iron is abundant, and there are excellent quarries of marble, granite, millstones, whetstones, lithographic stones, and limestones, it manufactures consist of woolens, lace, cutlery, paper, pigiron, etc. The capital is Poitiers. Pop. 336,343.— HAUTE-VIENNE (ōt-vē-enn; 'Upper Vienne') is a hilly department adjoining Vienne on the southeast; area, 2130 sq. miles. Almost the whole department belongs to the basin of the Loire, and it is crossed by the upper course of the Vienne. The principal crops are buckwheat, rye, beans and peas; and horses, mules and swine of a superior bread are regred. superior breed are reared. Minerals include iron, copper, tin, lead, coal, antimony and kaolin. Porcelain, woolen and clude iron, copper, tin, lead, coal, antimony and kaolin. Porcelain, woolen and
other tissues, paper and leather are the
chief manufactures. Limoges is the capital. The Limoges chinnware ranks with
the finest made. Pop. (1906) 333.621.

Vienne, a town of France, department of Isère, on the Rhone,
19 miles N. N. w. of Grenoble. It is an
ancient place, with narrow dark streets.
It has a cathedral, a museum, public
library, college, etc. Vienne contains

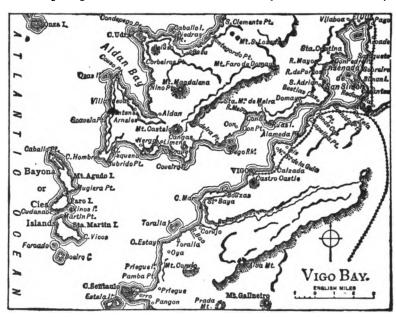
leading territorial adjustments effected numerous Roman remains, and figures by the congress were the following:— prominently in ecclesiastical history, and Austria recovered Lombardy and Ve- was the capital of the Burgundian king-

and Denmark was indemnified with Lau-enburg. The congress was suddenly broken up by Napoleon's escape from born in Iceland in 1827; died at Oxford Elba (February, 1815); but its acts were signed by the powers interested on June 9, 1815.

Copenhagen University. He lived in Copenhagen University. He lived in Copenhagen from 1849 till 1864, having devoted himself to the study of old Icelandic literature. His first work, Timatal, on the chronology of the Sagas, was published in 1855, and revealed the hand of a master. In 1858 he brought out the Biskupa Sögur, or 'Lives of the Icelandic Bishops,' and in 1864 the Eyroughig Saga. In the latter year he came to England to undertake the Icelandic-English Lexicon, begun by Cleasby, and in 1866 began at Oxford this work, which kept him engaged for seven years, the Copenhagen University. kept him engaged for seven years, the result being the excellent dictionary issued from the Clarendon Press. In 1878 the Clarendon Press published his Sturlunga Saga, to which he prefixed Prolegomena, containing a complete history of the classic literature of Iceland. This was followed by several minor works and essays, by the Orkneyinga Sags and Hakonar Saga, and by the Corpus Poeticum Boreale (in conjunction with F. York Powell), a complete collection of

ishing and discouraging crimes with Vigo (vego), a city and seaport of which the authorities had failed to deal Northwestern Spain, province of with sufficient vigor. An example of Pontevedra, on a spacious bay. It is this is the uprising of such a committee surrounded by walls with bastions, and

in prayers, to prepare themselves for the In 1835 appeared his celebrated drama coming celebration. Chatterton. He also wrote Stello Vigilance Committee, an organ-(1832); Servitude et Grandeur Müiscelles formed at times in parts of the philosophical poem published after his United States for the purpose of pundeath in 1864.



in early San Francisco to deal with criminals who defied the law. Lynch law is summary justice (or injustice) applied by such committees. Though usually arising under stress of great provocation, such organizations are apt to develop into an evil, which in its turn needs suppression.

Vigny (ven-ye), Alfred Victor, Count de, a French poet and novelist, born in 1799, entered the royal guard in 1816, but retired from military service in 1828, and devoted himself exclusively to literature. He died in Paris

Vigny (ven-ye), Alfred Victor, one who lurked in bays and issued thence country of the hands of Northmen to plunder), a rover or sea-robber belong novelist, born in 1799, entered the royal ing to one of the bands of Northmen guard in 1816, but retired from military who scoured the European seas during service in 1828, and devoted himself exclusively to literature. He died in Paris in 1863. His Poèmes (1822) and his with sea-king, a term which is applied allegory of Eloa, ou la Saur des Anges, to a man of royal race, who took by placed him among the leaders of the right the title of king when he assumed new romantic school of poets. In 1826 the command of men, although only of he published Poèmes Antiques et Modernes, and also an historical novel, Cinquis See Northmen.

has steep, narrow, and tortuous streets. The fishing of sardines and tunnies is

rine inshing or sardines and tunners is important, and there is an active foreign trade. Pop. 23,259.

Viking (vik'ing; from the Icelandic vik, a bay or fiord, and the termination ing, implying one who belongs to or is descended from: literally one who lurked in bays and issued thence to plundar).

wards prominent in the Democratic party, and was postmaster general 1885—89, and secretary of the interior in 1889. He was United States senator 1891–97.

Vilayet (vil-a-yet'), a name officially applied since 1865 to the large administrative districts of Turkey. Villa-alta (vil'ya-al'ta), a town of Mexico, state of Oajaca, in a fruitful region producing coffee, to-

villach (vil'ah), an old and picturesquely situated town of Aus-

tria, on the Drave, with warm sulphur baths in the neighborhood. It has important industries. Pop. 9690.

Villafranca (věl'lå-frän'kå), a town of Italy, province of Verona, on the Tartaro. It is celebrated to be bring been the control of the province of as having been the center of the wars of 1848 and 1866. The preliminaries of peace between Napoleon III and the Emperor of Austria were signed here, July 11, 1859. Pop. 5037.

Village Communities, a kind of political and industrial organization claimed to have widely prevailed in early times, and which has left its traces to the present time. Those organizations seem to have been common among the tribes of the Aryan family of mankind, and they still exist in the villages of Russia and India, while evidences of their former existence are found in other localities. existence are found in other localities. A clan of settlers took a tract of land, built their buts, and laid out fields which they cultivated in common as one great family. Every few years the land surrounding the village was divided into family lots, while beyond these lots was a larger area used in common for pasturage or other purposes. The Russian historian, born about 1160, died about Mir, or village, is a significant example 1213. He took an important part in the first transfer of the content of the cont of this interesting phase of civilization. The government is in the hands of an elected council of village elders and a headman acting as chief of the council.

Villarreal (vel-yar-ra-al'), a town of middle ages.
Spain, province Castillon, Villein (
4 miles from the Mediterranean, in an

Vilas, WILLIAM F., statesman, born and was born at Moulins in 1653. He at Chelsea, Massachusetts, in early distinguished himself under Tu-1840; died Aug. 27, 1908. He became renne, Condé, and Luxembourg, and was a colonel in the Civil war, was after-created maréchal de camp in 1690, and wards prominent in the Democratic letterant-general in 1693. In the wars of the Spanish succession he was sent to cooperate with the Elector of Bavaria. He defeated Prince Louis of Baden at Friedlingen, October 14, 1702, for which he received the marshal's baton; and having joined the elector, he defeated the Prince of Baden at Höchstadt, Sept. 21, 1703. His success in dealing with the insurrection of the Camisards (see Camisards and Cavalier, Jean) obtained for him the title of duke (1705). Having been sent to defend the frontier against Marlborough, he forced the formidable lines of Stollhofen, near Strasburg, and penetrated far into Germany (1705-1707). In 1709 he replaced Vendome in Flanders, and fought the battle of Malplaquet against Mariborough and Eugene, in which he was seriously wounded. In 1712 he defeated the allies at Denain, took Marchiennes, and relieved Landrecy. After the Peace of Utrecht he opposed Eugene with uninterrupted success, and negotiated with him the Peace of Rastadt, March 7, 1714. On the renewal of the war with Austria, in 1733, he was sent to Italy at the head of an army, with the title of Marshal-general of France. After a successful campaign, he died at Turin in 1734.

Villefranche (vel-fransh), a town of France, department Aveyron, at the junction of the Alzou with the Aveyron. Pop. 6297.

Villefranche-sur-Saône (-surtown of France, in the department of Rhone, on the Saone, 20 miles N. w. of Lyons. Pop. 14,794.

fourth crusade, was present at the siege and capture of Constantinople, and when the Greek emperor was overthrown and Baldwin established in his stead, he re-ceived an extensive territory for himself Villajoyosa (vil-y\u00e4-\u00e4-\u00e4-\u00f6-y\u00f6's\u00e4), a sea-ceived an extensive territory tot misses.

Villajoyosa (vil-y\u00e4-\u00e4-\u00e4-\u00f6-y\u00f6's\u00e4), a sea-ceived an extensive territory tot misses.

Alicante, in the Mediterranean. Pop. quete de Constantinople, is one of the most valuable historical works of the

4 miles from the Mediterranean, in an orange growing district. It is surrounded by old walls. Pop. 16,068.

Villars (vil-ar), Claude Louis Hectory Tor, Duc de, one of the greatest generals of the age of Louis XIV, was the son of the Marquis de Villars from father to son until at largeth the form of the marquis de Villars. was the son of the Marquis de Villars, from father to son, until at length the

prescription or custom, to hold their 112. The surface is generally flat, and lands so long as they performed the required services. And although the villeins themselves acquired freedom, or trade are limited. The town of Vilna their land came into the possession of dates back to the 10th century. It was freemen, the villein services were still the capital of Lithuania in 1320, and was the condition of the tenure, according to united with Poland in 1447. It is rethe custom of the manor. These customs were preserved and evidenced by the early as 1519. Armies have devastated it rolls of the several courts-baron, in which many times. It was almost obliterated in they were entered, or kept on foot by the constant immemorial usage of the several the Russians in 1655 and ceded to Russia they were entered, or kept on foot by the constant immemorial usage of the several manors in which the lands lay. And as such tenants had nothing to show for their estates but the entries into those rolls, or copies of them authenticated by the steward, they at last came to be called tenants by copy of court-roll, and their tenure a copyhold.

Villeneuve (věl-neuv), Pi PIERRE BAP-TISTE SILVESTRE DE, a French admiral, born in 1763, entered the navy in 1777. He led the rear division at the battle of the Nile, and escaped with his own of the Nile, and escaped with his own and four other ships to Malta. In 1804 he was made vice-admiral, and in 1805 Napoleon appointed him to the command of the Toulon squadron, with orders to divert the British fleet from the European coasts. He was eventually shut up in Cadiz by Nelson, but with the hope of repairing his ill success by a brilliant victory he sailed out of Cadiz. along with victory he sailed out of Cadiz, along with victory he sailed out of Cadiz, along with the Spanish fleet under Gravina, and offered the enemy battle off Cape Trafalgar (which see). Villeneuve's flagship, the Bucentaure, was captured, and the admiral taken as prisoner to England. In April, 1806, he was released and returned to France, but learning that his reception by the emperor would be unfavorable, he committed auicide. favorable, he committed suicide.

Villeneuve, the name of a number of small towns in France, the most important being Villeneuve sur Lot, in Lot-et-Garonne department, which has interesting mediaval remains. It is a busy industrial and commercial place. Pop. (1906) 6978.

Villiers. See Buckingham.

Villiers.

Vilna, or WILNA (vel'na), a town of Russia, capital of the government of the same name, on the Vilia. It is picturesquely situated, and contains numerous churches and convents. It has rches and convents. It has and driving off German airplanes.

palace, a town-house, Greek By the time fixed for the assault, at

Catholic cathedrals, and the end of the first week of April, hardly a governor's palace, a town-house, Greek Roman numerous educational establishments.

occupiers or villeins became entitled, by square miles and a population of 1,591,-prescription or custom, to hold their 112. The surface is generally flat, and the Russo-Polish wars. It was captured by the Russians in 1655 and ceded to Russia in 1656. The Swedes occupied it in 1702 and in 1706. The Russians again took possession in 1788 and it was finally annexed to Russia in 1705, after the partition of Poland. In the great European war the Teutonic forces fought their way to Vilna in 1915. The evacuation by the Russians occurred on September 19.

Vimeira (vi-mā'i-rā), a village of Portuguese Estremadura, 3 miles from Torres Vedras. It is remarkable for the battle between Wellington and Junot, fought on August 21, 1808, which was followed by the Convention of which was round 30).
Cintra (August 30).
BATTLE OF.

Vimy Ridge, the last elevation in the range of chalk hills which extend from the North Sea to Arras. It has two prolonged summits, the northern one named La Folic, from a former farm on its side; the southern one called Telegraph Hill, as the seat of an old semaphore post. It was laid open to attack as a result of the battle of the Somme (q. v.). As the Germans retired after the assault on the Somme this elevation offered them a post of great natural strength and they prepared to hold it at all costs, planting a strong force in the fortifications along its crest and sides. In the autumn of 1916 a force of Cana-dians under Sir Julian Byng was moved to this front and manifed these during to this front and remained there during the winter, with desultory fighting until early April. During this period prepara-tions for an attack on this stronghold were actively made, guns and shells in great number being brought to the lines in readiness for the spring campaign. The prelude to the battle was a bombardment of great vigor, guns thundering continu-ously against the height, while a fleet of aircraft moved to and fro above the trenches, directing the fire of the artillery

a foot of land remained on the ridge not There is a considerable trade in agricultorn by shellfire. The time fixed for the tural produce sent to Baltic ports. assault was the hour of 5.30 in the morn-Pop. 103,000.—The government, which ing. Rain was falling heavily and the lies in the Baltic, has an area of 16,406 ground was a bed of mud. The distance the protection of a barrage of shellfire, they were subjected to a fierce bombard-ment, chiefly of machine guns, on the extreme left. But they were not to be checked, and in a half hour they had reached and won the front line trenches in the center of La Folie ridge. Many of the Germans were ready and cager to surrender, as for a number of days their food supply had been cut off by the intense artillery fire. By nightfall the crest of Telegraph Hill had also been won, the Telegraph Hill had also been won, the only point still held by the Germans being Hill 145, where a strong resistance was kept up by machine guns. When the preceding day had changed to snow, which swept over the ridge in a driving storm. But the daring Canadians were not to be held back, and in a short time Hill 145 was in their hands. Still another hill here confronted them, an elevation which they had given the name of 'The Pimple.' This was held by a body of the Prussian Guard, and on the morning of the 12th, the time fixed for the assault, the courageous Canadians, who had defeated a strong German counter-attack on the previous day, made a vigorous dash Vincent (vin'sent), John Jervis, Incent (vin'sent), John Jervis, Vincent (vin'sent), John Jervis, Vincent (vin'sent), John Jervis, Incent (vin'sent), John Jervis, In

In their forward movement the cavalry, which had so little to do in this struggle, played its first active part, riding far in advance of the infantry, and capturing advance of the infantry, and capturing In 1799 he became admiral; in 1801 first villages and gun positions as it went. lord of the admiralty; and in 1821 ad-The retreat of the Germans from this miral of the fleet. He died in 1823, flerce assault was in no sense a matter of strategy. They were driven back with such impetuosity that they had no time to remove their guns, many of them being left behind uninjured, while a large supply of ammunition was abandoned. The final act in the battle of Vimy Ridge was

Vinci (vin'chē), Leonard de.

Vincent tellow reserved. Allies to that date, and, in the words of versal genius, was the natural son of Belloc, 'the greatest operation in the mili-Pietro da Vinci, a Florentine notary, and tary history of England.' However this was born at the village of Vinci, near estimate be regarded, the Canadians won Florence, in 1452. He excelled in all glory for their native land, the chief accomplishments, and acquired distinction

to the hilltop varied from 1200 yards to a among the British colonies. What had mile. As the Canadians advanced, under been called 'the hinge of the Hindenburg the protection of a barrage of shellfire, line' was in their hands, and a door had been opened to the plains surrounding Doust. From the Vimy Ridge the British dominated Lens, the important coal regions that surround it, and the valley of the Scarpe. In this week of battle the Canadians captured 4081 prisoners, 63 guns of all calibres, 124 machine guns and 104 trench mortars, while their casualties barely equalled the number of prisoners taken.

(van-senn), a town of France, department of the Vincennes

sault, the courageous Canadians, was defeated a strong German counter-attack on the previous day, made a vigorous dash upon this final stronghold. A driving snow-storm was raging, the slopes of the Pimple were deep in mud, but the Canadians hurled themselves forward and won their way to the trenches, where a hand-to-hand fight went on. The assault kept don't he navy at an early age, and commanded their way to the trenches, where a hand-to-hand fight went on. The assault kept don't he navy at an early age, and commanded the Pimple was won and its garrison dead or prisoners.

In 1794 he commanded a squadron in the West Indies, and reduced Martinique, Guadeloupe, and St. Lucia. On the 14th of February, 1797, in command of the Mediterranean squadtended till it reached beyond the Vimy- in command of the Mediterranean squad-Arras Railway, while Vimy, Petit Vimy ron of fifteen sail, he defeated twenty- and several other villages had been taken. seven Spanish ships of the line off Cape St. Vincent, and was created a peer with the title of Baron Jervis and Earl of St. Vincent, and a pension of £3000 a year. In 1799 he became admiral; in 1801 first

Vinci the dashing capture of Arleux by the Canadians. The victory, as a whole, is claimed as the most important won by the scientific inventor, and a man of uni-

in mathematics, physics, botany, anatomy, literature, and philosophy; but he especially excelled in the arts of design, and his father placed him in the studio of Andrea Verocchio, a celebrated painter and sculptor, who was soon surpassed by his pupil. Two of his earlier productions are still extant: The Adoration of the are still extant: The Adoration of the Magi, in the gallery of the Uffizi at Florence, and The Virgin of the Rocks in the British National Gallery. About 1482 he entered the service of Ludovico il Moro, duke of Milan, by whom he was employed in engineering as well as artistic work. His great painting of the Lord's Supper was finished in 1499. The original has been wholly defected but original has been wholly defaced, but judging from copies and engravings, this work is universally regarded as one of the greatest ever produced. One of the



Leonardo da Vinci.

best copies is that in the Royal Academy,

have availed themselves. In 1797 some fragments of Da Vinci's were published at Paris under the title of Essai sur les Ourrages Physico-Mathématiques de Léonard da Vinci, etc., which created a profound sensation by their scientific insight and anticipation of modern dissight and anticipation of modern dis-coveries. Da Vinci's paintings were the result of profound theoretical study of his art; he executed slowly, and was seldom satisfied with his finish of a picsection satisfies with his minsh of a pic-ture, so high was his ideal. His knowl-edge of anatomy was deep. He made a special study of the human countenance under all circumstances. His extant works are few, and some of those at-tributed to him are believed to have been executed by his pupils.

Vindhya Mountains (vind'hya), range in India, stretching east to west from the basin of the Ganges to Guzerat. It forms the N. boundary of the valley of the Nerbudda, and unites the north extremities of the Eastern and Western Ghauts. It is of granitic formation, overlaid with sandstone.

veriaid with sandstone.

Vine (vIn), a well-known climbing shrub, type of the order Vitacese, which consists of climbing plants with woody stems, simple or compound leaves, peduncles sometimes changed into tendrils, small green flowers, and round berries. The species are found in both the Old and New Worlds, especially in Asia. The best known and most useful of the order is the Vitis vinifera, the Asia. The best known and most useful of the order is the Vitis vinifèra, the grapevine, cultivated in the Old World from time immemorial, of which there are numerous varieties, distinguished by possessing lobed sinuately-toothed, naked or downy leaves. It is a native of Central Asia, and its cultivation extends from near 55° north latitude to the square, but in south latitude it only averaged. are numerous varieties, distinguished by possessing lobed sinuately-toothed, naked or downy leaves. It is a native of Cenono. After the occupation of Milan by tral Asia, and its cultivation extends Louis XII (1499) he retired to Florence, where he painted his celebrated portrait where he painted his celebrated portrait of Mona Lisa del Giocondo, known as La ta greater altitude to the discount of the Louvre (from which it has recently been stolen). In 1502 he France is probably the greatest vinewas appointed chief engineer and architect of the pope's army, and visited many cultivation is active in several other of the fortified posts in the papal dominions. In 1507 he returned to Milan, and painted a Madonna and Child in the palace of the Melzi at Vaprio. In 1512 he painted two portraits of Duke Maximilian, son of Ludovico, and in 1516 accompanied Francis I to France. He died at Cloux, near Amboise, May 2, 1519. Leonardo executed several important engineering works at Milan, and wrote numerous treatises, few of which have been published. His Trattato della Piture was printed in 1651, and contains a mass of information on the principles of the vine has also been introduced, both for table and wine of art, of which all subsequent writers

duced. The vine grows in every sort of soil, but that which is light and gravelly is best suited for the production of fine wines. It is a long-lived plant; indeed, in suitable climates the period of its duration is not known. It is propagated from seeds, layers, cuttings, graftings, and by inoculation, the first method being used by inoculation, the first method being used for obtaining new varieties. Some vines produce dark-colored berries (black or red so called), others white. The Burgundy may be considered the most general vineyard grape of France, and the best wines in Italy and Spain are also made from grapes of this description. The sweet wines are made from sweetberried grapes allowed to remain on the plants till overripe. Most varieties of the vine bear only once in the season, some oftener, especially in warm climates. In recent times the vine has been subject to a disease caused by the Grapes are extensively used in the dry state under the name of raisins, chiefly imported from Spain and the Levant, and now largely produced in California. The

acid (which see), obtained by the vinous fermentation. In wine countries it is obtained from the acetous fermentation of inferior wines, but elsewhere it is usually procured from an infusion of malt which has previously undergone the malt which has previously undergone the vinous fermentation. Vinegar may also be obtained from strong beer, by the fermentation of various fruits, or of a ican coast, probe solution of sugar mixed with yeast; in land, though its short, all liquids which are capable of about 1000 A.D. the vinous fermentation may be made to they found grow produce vinegar. The cider of apples, 'Wineland.' The for example, is largely converted into about ten years.

duced into Australia, where it thrives vinegar. Vinegars yield by distillation well, and quantities of wine are pro- a purer and somewhat weaker acetic acid, neous acid. Common and distilled vine-gar are used in pharmacy for preparing many remedies, and externally in medi-cine, in the form of lotions. The use of vinegar as a condiment is universal.

Vinegar-eel, an animal so called from its eel-like shape, but in fact a minute thread-worm or Nematode which is found in paste, vinegar, stagnant water, and in fermenting and decaying substances. Its body is almost transparent, though with thick cuticle, and it multiplies with great rapidity. Vinegar-plant, a peculiar state of the Penicillium glaucum, a fungus found on decaying substances, and in fluids in a state of acetification. It forms a flocculent mass. mates. In recent times the vine has acctification. It forms a floculent mass, been subject to a disease caused by the which is tough and crust-like or leathery. growth of a fungus known as Oidium. A small piece of this when immersed in It appeared about 1845, and gradually a mixture of sugar or treacle and water spread over Southern Europe. Its rav- produces a rather insipid kind of vinegar. ages abated about 1863, but the vine has since been attacked by a still more destructive disease produced by an insect s. by E. of Philadelphia. Glass, boots, called the Phylloxera (which see). shoes, clothing, grape juice and wine are Crange are extensively used in the dry produced and there is a large poultry. shoes, clothing, grape juice and wine are produced, and there is a large poultry industry. A Training School and State Home for Feeble-minded are located here. Pop. 5282.

now largely produced in California. The dried currants of commerce are the produce of the small seedless Corinthian grape which is cultivated in Greece and is mentioned in the most ancient historical records, and the grape has been in use for the making of wine for more than 4000 years. The Phenicians introduced the vine into Europe. Vineyards are mentioned in Domesday Book as existing in England, but in the reign of Henry II the cultivation of the vine began to be neglected. For the manufacture of wines see Wine.

Vinet (vi-nā), Alexander Rodolphe, a Swiss theologian and writer, born at Lausanne in 1797; died in 1847 in 1817 he was appointed professor of the French language and literature at the Basel Gymnasium, in 1835 at the Basel University, and in 1837 accepted the chair of theology in the academy at Lausanne. In 1840 he seceded from the national church, maintaining that there is and State. His views on this subject were enforced in his Essai sur la Manifestation des Convictions religiouses, et sur la Separation de l'Eglise de l'Etat (1842). In 1845 he gave up his chair, acid (which see), obtained by the vinous (1842). In 1845 he gave up his chair. He was an earnest and eloquent preacher, and wrote Histoire de la Littérature Française, au XVIII Siècle; Études sur Littérature Française du XIX. Siècle, etc.

Vinland (vin'land), the name given to the settlement made by the early Norsemen on the North American coast, probably that of New England, though its location is questioned, about 1000 A.D. So called from the vines they found growing, the name signifying 'Wineland.' The settlement existed for Viol (vi'ul), a class of ancient musical the back and belly; the tail-piece, to instruments which may be rewhich the strings are fastened; and the garded as the precursors of the modern bridge. The back, neck, and sides are violins. They were fretted instruments generally of sycamore, the belly of deal, with three to six strings, and were played on with a bow. There were three instruments differing in pitch in a set, the treble, tenor, and bass viols, and in concerts they were commenly played in pairs: two treble, two tenor, and two of the bass staff, D, A, E, reckoning upbass. The bass viol, or viol de gamba, wards. Every intermediate semitone in was the last to fall into disuse, which it is ordinary compass of 3½ octaves may did about the close of the eighteenth century. century.

See Violin and Violet. Viola.

See Violet. Violaceæ.

Violet (vr'u-let; Viöla), the popular name given to the species of the nat. order Violacese, which are favorite flowers in all northern and temperate climates, and many of them among the first to make their appearance in the spring. The corolla is composed of five unequal petals; the roots are mostly perennial; the leaves are alternate and stipulated; and the flowers are pedunculate. More than a hundred species are known. The greatest favorites are Viöla odorāta, or common sweet violet, and V. tricolor, or heart's-ease, the former being especially esteemed for its fragrance. The well-known pansies, so common sweet violet, and v. tricolor, or heart's-ease, the former being especially esteemed for its fragrance. mon as garden flowers, are but varieties of V. tricolor produced by cultivation.

Violet, one of the colors. See Color, Spectrum, etc.

Violet-wood. See King-wood.

Violin (vi'u-lin), a musical instrument, consisting of four cat-gut strings, the lowest of which is covered with silvered copper wire, stretched by means of a bridge over a lollow wooden body, and played with a bow. It is considered the most perfect of musical instruments, on account of its capabilities of fine tone and expresits capabilities of fine tone and expression, and of producing all the tones in any scale in perfect tune. It forms with its cognates, the viola, violoncello or bass violin, and double-bass, the main element of all orchestras. The principal parts of the violin are the scroll or head, in which are placed the pins for tuning the strings; the neck, which connects the scroll with the body, and to which is attached the finger-board, upon which the strings are stopped by the fingers of the left hand as it holds the neck in playing; the belly, over which the strings are stretched, and which has two f-shaped sound holes, one on each side; the back

the fingers and the compass may be almost indefinitely extended upwards by the harmonics produced by touching the strings lightly. The viola, or tenor violin, has four strings tuned C (in the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and the second space of the bass staff), D, A, G, and D, second space of the bass staff), D, A, G, reckoning upwards, and is an octave higher than the violoncello and a fifth lower than the violin. (See Violoncello and Contrabasso.) The violin can, to a limited extent, be made to produce harmony by sounding two or three strings together. The finest violins are by old makers, which cannot be imitated, and the precise cause of their superiority has makers, which cannot be immace, the precise cause of their superiority has never been satisfactorily explained. The Cremona violins stand in the first rank, the celebrated maker being the Stradivari (Straduarius), Amati, and Guarneri (Guarnerius); of German makers the most celebrated are Stainer or Steiner and Klotz; Vuillaume of the French, and Forrest of the English.

Violoncello (vi-u-lon-sel'o, or chel'o), a powerful and expressive bow instrument of the violin kind, held by the performer between the knees, and filling a place between the violin and double-bass. It has four strings, the two lowest covered with silver wire. It is tuned in fifths, C (on the second ledger-line below the bass staff), G, D, A, reckoning upwards, and is an octave lower than the viola or tenor violin. Its ordinary compass from C on the second ledger-line below extends to A on the second space of the treble, but soloists

frequently play an octave higher.

Viper (vi', a name applied to various venomous serpents belonging to the family Viperidæ, sub-order Viperina, and char-



Head and Tail of Common Viper (Pelias berus).

acterized, like other members of that section, by having or under side; the sides or ribs, uniting no teeth in the upper jaw save the two

local in its distribution. It is generally of a brownish-yellow color, with zigzag markings and black triangular spots. Its bite is, as a rule, not fatal, but may induce pain, sickness, and fever. The food consists of frogs, mice, birds, eggs, etc. The viper is viviparous—retaining its eggs within the body till the young are hatched. Among other serpents denominated vipers are the death



Rudolf Virchow.

ing to Berlin in the autumn of 1856 as professor in the university and director of the pathological institute attached to it. He rendered immense service to medical science by his discoveries in regard to inflammation, ulceration, tuber-

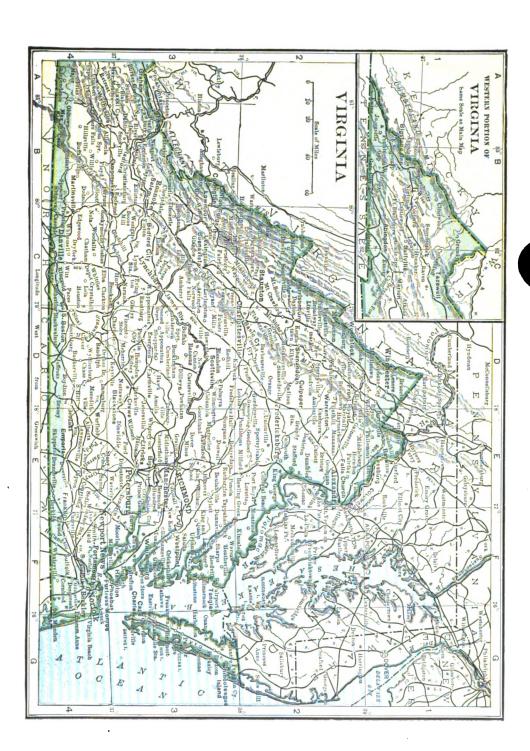
hollow poison-fangs. The common viper in the Prussian parliament and Reichor adder (Pelios berus or Vipera com-munia), the only venomous serpent which tant commissions, etc. In 1856 he was occurs in Britain, appears to be very elected an honorary member of the Royal Society of Medicine, London; in 1859 a corresponding member of the French Academy of Medicine; and in 1873 a member of the Berlin Academy of Sciences. He was one of the founders of the German Anthropological Society, induce pain, sickness, and fever. The Sciences. He was one of the founders food consists of frogs, mice, birds, eggs, of the German Anthropological Society, etc. The viper is viviparous—retaining its eggs within the body till the young are hatched. Among other serpents denominated vipers are the death viper or adder (Acanthophis antarctica) his important works are: Cellular Pathologist Hasselquistii) and plumed of Australia; the horned viper or asp (Cerastes Hasselquistii) and plumed ogie und Therapie, Uber den Hungerviper (Clotho cornuta) of North Africa.

No species of viper is found in America, schaften in dem neuen nationalen though Heterodan niger has been called the black viper.

Virchow (terbo), Rudolph, a German pathologist and anthropologist, born in 1821, studied medicine at Berlin, and early became famous as a lecturer on pathological anatomy at Berlin University. His advanced liberal opinions during the movement of 1848 induced the government to deprive him (temporarily) of his appointment. In a little village near Mantua, October 1849 he accepted a chair at Würzburg, farm there, which he cultivated himself, and wire in viving to the freibed of the order of the following the movement of 1848 he accepted a chair at Würzburg, farm there, which he cultivated himself, and wire in this field, and an enthusiastic worker in this field, in decument works are: Cellular Pathology, Handbuch der Speziellen Pathology, thendout works is important works are: Cellular Pathology,

where he remained seven years, return-farm there, which he cultivated himself, and Virgil received a good education.

He appears to have come to Rome about 41 or 40 B.C., when his estate was lost at the time of the agrarian division. It was restored to him, however, on application to Augustus, who henceforward became his patron. He also enjoyed the patronage of Mæcenas, and was intimate with Horace. His health was delicate, and his retiring nature led him to reside for the most part outside Rome, either at Tarentum or Naples. His Ecloques, a series of bucolic or pastoral poems, were written about 41-39 B.C. His Georgics, a poem on agriculture, was completed in B.C. 31. The *Eneid*, an epic in twelve books on the fortunes of *E*neas (which see), was probably begun about B.c. 29. It occupied the author many years, and never received his finishing touches. In r.c. 20 Virgil appears to have engaged on a tour in Greece. But Augustus, having arrived at Athens on his return from the East, Virgil determined to accompany him home. At Megara, however, he fell sick, and he died at Brundusium, B.C. 19. His poems exhibit a remarkable command culosis, and numerous other morbid of language, and great taste and skill processes of the human body, and had in the management of all the materials great influence on the whole of modern of poetry. He is unrivaled in beauty medicine, including hospital reform and of versification. He was amiable and sanitary science. After 1862 he was one modest, free from envy and jealousy, and of Bismarck's most powerful opponents of irreproachable character. Medisval



a state school established in 1889 at Lexington, Va. The instructors hold commissions in the state militia and the students are organized as a military corps of cadets. During the Civil War the cadets baron. It is the most recently established English title, having been first Virginia University (officially The conferred by letters patent on John, Virginia), near Charlottesville, Virginia, The title is frequently attached to an was chartered in 1819, and opened earldom as a second title, and is held in 1824 under the rectorship of Thomas by the eldest son during the lifetime of Jefferson. It enjoys state patronage, the father. See Peer. Nobility and Corp. Jefferson. It enjoys state patronage, the father. See *Peer. Nobility* and *Cororeceives* an annual grant of money, net.

and has a library containing 75,000 Vishni (vish'no), the second god of volumes.

volumes.

Virgin Islands (ver'jin), a group of small islands in special worshipers considered to be the the United States and Great Britain. St. Croix, St. Vedas he appears as a Thomas and St. John were purchased by manifestation of the the United States from Denmark in 1917. Culebra, Culebrita and Vieques also belong to the United States (formerly to Spain) and the rest of the group, Tortola, Anegada, Virgin and Gorda to Great Spain) and the rest of the group, Tortola, being accorded to him Anegada, Virgin and Gorda to Great Spain) and the rest of the group is about the Rāmāyana, the Mahābhārata, and more specially of the Purānas. The Brahmanic myths relating to Vishnu are characterized steamer Virginius Affair, the capture (October 31, 1876) of the United States steamer Virginius off Jamaica, by the steamer Virginius Affair, the capture (October 31, 1876) of the United States steamer Virginius Affair, the capture (October 31, 1876) of the United States at the most point of the Vishnu triad (the others being Brahma and Siva), and by his deal worshipers considered to be the deal

taken to Santiago, Cuba, and 52 of the passengers and crew were court-martialed and executed. The action of the local officials was disowned by the Spanish government.

Viscacha (vis-kā'cha; viscacna; Lagostômus trichodactylus), a rodent animal of South America, allied to the chinchilla, about 2 feet long and stoutly built, with a short tail, inhabiting the pampas of the Argentine Republic, and living in burrows like the prairie dog of North America. Lagostómus

of Duluth. It has iron mining interests. Vischer (fish'er), PETER, a German Pop. 10,473. Pop. 10,473.

Virginia City, Co., Nevada, is situated in a rocky region of the Sierra Nevada, at an elevation of 6205 feet. It owes its importance to its gold and silver German and foreign princes. His most mines, especially the famous Comstock Lode and the Big Bonanza, which were long the richest producers of silver in the United States. Pop. 2244.

Virginia Creeper, sus quinquefolia a climbing plant, native of the United States, used as an ornamental covering for walls, etc., and sometimes called American Ivy.

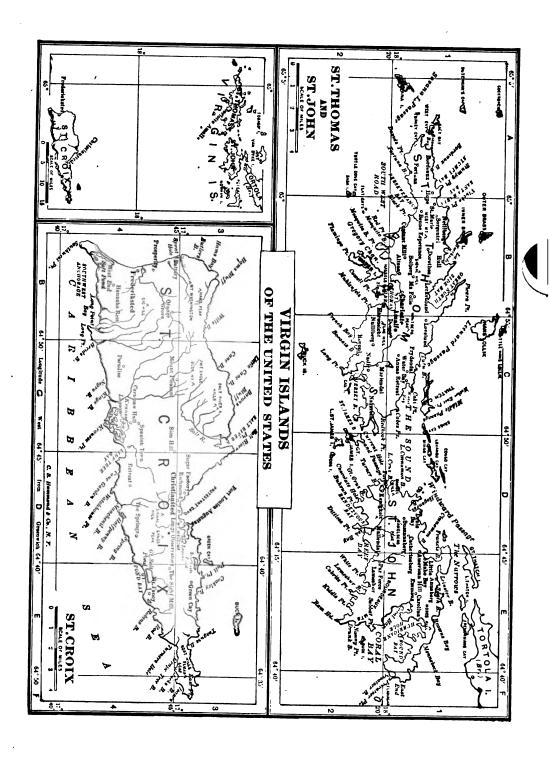
Military Institute, a state school established in 1889 at Lexitate Consequence and importance.

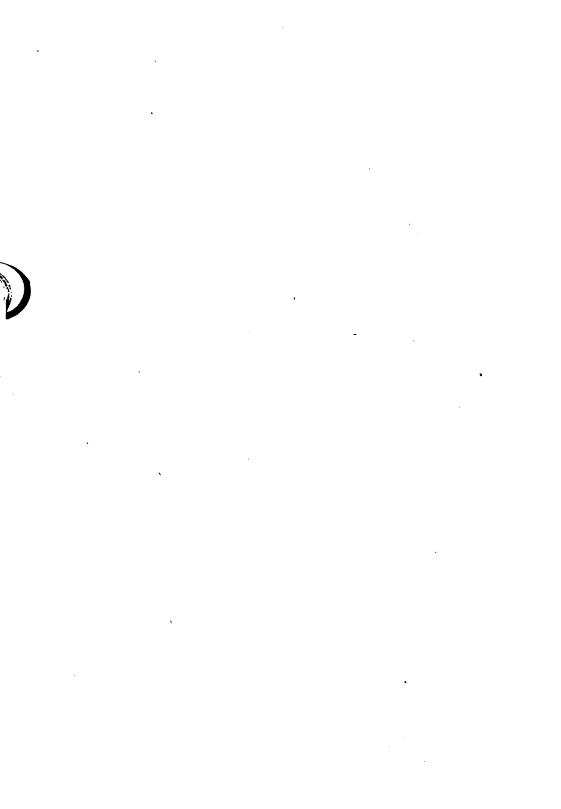
vishnu (vish'no), the second god of the Hindu triad (the others

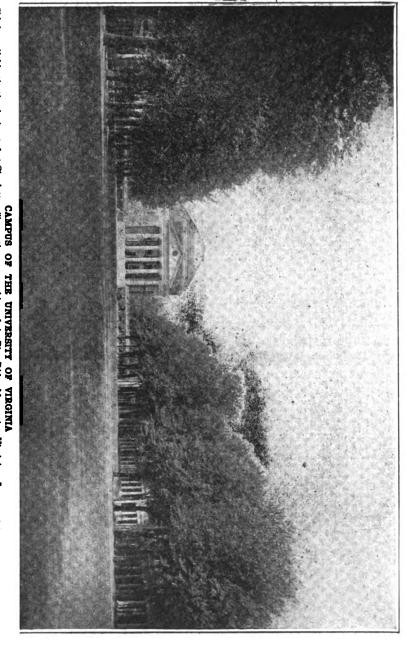
portion of his essence Vishnu on his to set it right. Such Man-bird Garuds.

to set it right. Such Man-bird Garuda. descents are called avatars, or incarnations, and are generally given as ten, nine of which are already past, the tenth being yet to come. He is generally represented as having four arms, each hand holding some particular object, and as riding on a being half man half bird.









This beautiful institution is situated at Charlottesville, on the eastern skirts of the Blue Ridge Mountains, Virginia. It was originated by Thomas Jefferson, whose home, Monticello, stands a few miles distant, and he was its first rector.

is of great utility in the teaching of the deaf and dumb to speak, and in enabling learners of foreign languages to acquire their pronunciation from books. Visigoth (vis'i-goth). See Goths.

Vision (vish'un). See Eye, Optics, Vistula (vis'tū-là; German, Weich-sel, vik'sėl), a river which rises in the Carpathians, traverses Galicia, Poland, and Prussia, and after a course of about 650 miles empties by several mouths into the Gulf of Danzig. th flows past the towns of Cracow, Warsaw, Bromberg, and Danzig, and is navigable from the first-mentioned place.

Vitaceæ (vi-ta'se-ē). See Vinc.

Vitaceæ (vi-ta'se-ē).

Vitalians (vi-tā'li-anz). See Apolli-narians.
Vitascope (vi'tā-skōp), an appavitascope ratus, under various names, by which instantaneous photographic pictures of moving objects are illuminated by the electric or calcium light and, while in rapid motion, projected upon a screen by an arrangement of powerful lenses. These magnify the objects represented on the 1½ 'films' to life-size on the screen and portray the objects in motion. See Moving Pictures. Vitebsk'. See Vitepsk.

Vitelline (vi-tel'lin) consists of casein and albumen, forming the yolk of birds' eggs. vitellius (vi-tel'il-us), AULUS, a Roman emperor, born about La A.D. He was a favorite with Caligula, Claudius and Nero, and was put by Galba in command of the German legions. His army soon proclaimed him emperor. Galba was slain by the partisans of Otho and a contest arose for the throne in which Otho was defeated and Vitellius recognized as emperor. Meanwhile Vespasian had been proclaimed at Alexandria, and one of his generals marched against Rome, degenerals marched against Rome, defeated the supporters of Vitellius, and put him to death (69 A.D.).

This tree

Vitepsk (ve'tyepsk), or VITEBSK', a of the
town in Russia, capital of chitects.

Visible Speech, a term applied the government of the same name, on Melville Bell, its inventor, to a system of alphabetical characters designed to represent every possible articulate utterance of the organs of speech. The cloth, leather, and mead. It has a consystem is based on an exhaustive classification of the possible actions of the speech organ, each organ and every miles. The surface is generally flat, and mode of action having its appropriate much occupied by woods and morasses, symbol. It is said that this invention is of great utility in the teaching of the Baltic. The soil suits we better than much occupied by woods and morasses. The whole drainage is carried to the Baltic. The soil suits rye better than any other grain. The only mineral of value is iron. Pop. 1,502,916.

Viterbo (vē-terbō), a town of Italy, in a fertile valley in the province of Rome 40 miles way at the city.

ince of Rome, 40 miles N. w. of the city of Rome. It has a Gothic cathedral containing the tombs of several popes, an ancient Episcopal palace, and a town-hall. Pop. 17,344.

Viti Levu (vē'tē lā'vō), the chief island of the Fiji group. See Fiji.

Vitis (vi'tis), the typical genus of the order Vitacese, comprising the

Vitoria (ve-to're-a), a town of Spain, in Biscay, capital of the province of Alava, 65 miles N. E. of Burgos. The chief buildings are four parish churches, a palace of deputies, an parisin courcies, a pance of deputies, and academy of music, theater, and prison. It has a Gothic cathedral built in the twelfth century, but with few features of interest. Leather, soap, etc., are manufactured. Pop. 33,617.

Vitrified Forts (vit'ri - fid), the name given to cerrain prehistoric hill fortresses principally found in Scotland, but also in France and Germany. The materials of which they are constructed are perfectly or partially vitrified or transformed into a kind of glass by the action of heat. It is now generally believed that the vitrifaction was intentional, being effected by means of piled-up fuel. fected by means of piled-up fuel. Vitriol (vit'ri-ul), BLUE. See Capper.

Vitriol, GREEN, the same as copperas or sulphate of iron. See Copperas.

Vitriol, OIL of, the common name for strong sulphuric acid (which

Vitruvius Pollio (vi-tro'vi-us pol'i-ō), MARCUS, a
celebrated Latin writer on architecture,
who flourished in the time of Julius Cæsar and Augustus, and wrote his work De Architectura probably about B.C. 13. This treatise is valuable as a compendium of the writings of numerous Greek ar-



Vitry-le-François fied town of France, dep. Marne, on the river Marne. Pop. 8561.

Vittoria. See Vitoria. Vittoria.

Vitus' Dance, Sr. (vi'tus), or Choconvulsive disease, allied to rheumatism,
and due to an irritable condition of the spinal cord, in which the muscles of the extremities and other parts are thrown into various involuntary motions, and perform in an irregular manner those motions usually controlled by the will. The disease attacks both sexes, but chiefly the female, and is specially a disease of childhood, occurring in those who are of a weak constitution or improperly nourished. It generally appears from the eighth to the fourteenth year. In serious cases the spasmodic movements are violent and incressent and speech and are violent and incessant, and speech and swallowing are interfered with.

Vivandiere (vi-van-di-er), a woman attached to French and other European continental regiments, who sells provisions and liquor. dress of the vivandieres is generally a modification of that of the regiment to which they are attached.

Viverridæ (vi-ver'i-dē), a family of mammals containing the civits and allied tribes.

Viviparous Animals (vī-viņ'a-rus), animals which bring forth their young alive. See Reproduction.

Vivisection (viv-e-sek'shun), the practice of operating with the knife upon living animals for the purpose of ascertaining some fact in physiology or pathology which cannot be otherwise investigated. It is also practiced in order to illustrate previously known facts, and to enable students to acquire operative dexterity. Vivisection acquire operative descently. Vivinection for the latter purpose solely is condemned in the United States, but is carried on into the schools instruction in agriculture, in the veterinary colleges in France. domestic science and the trades have been Though the term vivisection strictly is widespread in recent years; and experi-Though the term vivisection strictly is widespread in recent years; and experiapplicable to cutting operations only, it ments have given highly satisfactory resistance experiments performed on living animals, fourteen-year-old child who leaves school whether they consist of cutting operations, the compression of parts by ligations, the compression of poisons, the remove these conditions is the object of the subjection of disease the subjection to weathing the remove these conditions is the object of the subjection of disease the subjection to weathing the remove these conditions is the object of the subjection of disease the subjection to weathing the remove these conditions is the object of the subjection of disease the subjection to weathing the subjection of the subject of inoculation of disease, the subjection to vocational training, special conditions of food, temperature, Voice (vois), the or respiration, or to the action of drugs and medicines.

(vē-trē-le-frân-swā), a forti-Marne, on the Vizier (vi'zir; Arabic, wazīr, a bearer of burdens), a title given to high political officers in the Turkish Empire and other Mohammedan countries. The president of the divan or prime min-

visiter is known as grand vizier.

Vlaardingen (vlär'din-gin), a town of the Netherlands, province of S. Holland, on the New Maas, a seat of the Dutch herring fishery.

Pop. 17,000.

Vladikavkas (vla-dye-kaf-kas'), a town of Russia, capital of Terek district, at the northern base

but of the Caucasus. Pop. 49,924.

y a Vladimir (vla-dye'mer), one of the chose oldest towns in Russia, capital of a government of the same name, 105 miles N. E. of Moscow. It has considerable manufactures, and a trade in fruit. During the thirteenth century it rivaled Moscow in importance. Pop. 39,-170.—The government has an area of 18,815 square miles, and a population of 1,730,400. There are important manufactures of linens and woolens, and several blast-furnaces.

(vlá-dyē-vás-tok'), Vladivostok seaport town of Asiatic Russia, on the Siberian coast, Sea of Japan. It was founded in 1861, and since 1870 has been the chief station of the Russian Pacific fleet. Vast sums have been spent on wharves, shipyards, and arsenals, and it is the termination of one of the branches of the Trans-Siberian Railway. The trade is of growing importance and there are a number of manufactures. Pop (1911) 91,464.

Vliessingen (vlis'sin-gen). See Flushing.

Vocational Guidance, a new move-ment in education, having for its object the direction of young persons into vocations for which they are adapted.

re, Voice (vois), the name given to the result of the production of sound in nearly all higher vertebrate animals.

a 'Speech' (which see) is a modification of it, voice.' In man the voice is produced Vizagapatam (vē-sā-gu-pu-tām'), a 'Speech' (which see) is a modification of town of British India, 'voice.' In man the voice is produced Madras Presidency, at the entrance of by the inferior laryngeal ligaments (see the Veragatam into the Bay of Bengal. Larynæ). These 'vocal cords' consist of

so attached to the cartilages of the larynx and to muscles that they may be stretched or relaxed and otherwise altered so as to modify the sounds produced by their vibration. The higher the note produced the greater is the tension of the cords; and the range of voice thererore depends upon the amount of tension which the cords can undergo. Regarding the compass and application of the voice in speaking and singing physiologists have noted three kinds of sequence. In ordinary speaking a monotonous sequence is observed, the notes having cup-shaped hollow called the crater. A nearly all the same pitch, and the variety volcanic eruption generally commences of the sounds being due rather to articulation in the mouth than to definite fore depends upon the amount of tension lation in the mouth than to definite movements of the glottis and vocal cords. A passage from high to low notes, without intervals, forms the second kind of sequence; or the same sequence is observed in the passage from low to high passage from low to high notes. Such a sequence is exemplified in crying and howling both in man and in lower animals. The true musical sequence forms the third, in which the successive sounds have vibrations corresponding in relative proportions to the notes of the musical scale. The male voice admits of division into tenor and bass, and the female into soprano and contralto. The lowest female note is an octave or so higher than the lowest note of the male voice, and the female's highest note is about an octave above that of the male. The compass of both voices taken together is about four octaves, the chief difference residing in the pitch and also in the quality or timbre. The difference of pitch between the male and female voice is due to the length of the vocal cords, while the dif-ference in timbre appears to result from differences in the nature and extent of the walls and cavity of the larynx, throat, and mouth. Chest notes differ from falsetto notes in that the former are natural notes produced by the natural voice, while the latter are produced by a stopping action on the cords. Finally it may be noted that the actual strength of the voice depends on the degree of vibration of the vocal cords, and also in

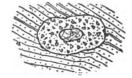
vented by Johann Martin Schleyer, of active volcanoes; those which are known Constance, after twenty years' labor. to have been active in historic times, but The name means 'world-speech,' being have long been quiescent, are called based on English world and speak, and a number of the vocables are modified which present all the phenomena of volengish words. In structure the language is simple and extremely regular, in historic times, are called extinot or

two elastic folds of mucous membrane, and the orthography is entirely phonetic, the words being pronounced as they are written, and vice versa. The study of Volapük made some progress, but has been superseded by a new artificial language called Esperanto (which see). Volatile Oils (vol'a-til). See Oile.

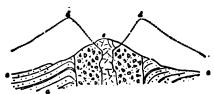
Volcano (vol-kā'nō), in a popular sense, a conical hill or moun-



Outline of Volcanic Neck.



Ground-plan of Volcanic Neck. Surrounding strate, b. Volcanic vent.



Section of Volcanic Neck. a, Surrounding strata. ss, Surface of ground. s, Crater. dd, Original cone, re-

stored.

with the discharge of immense quantities of gases. This is followed by the ejeca minor degree on the resonance of the larynx, lungs, and chest generally.

Volapük (vö'la-pük), the name given lava. Volcances which show such outto a universal language in-bursts more or less frequently are called the fumaroles (hasures from which steam issues); the solfataras (holes from which sulphurous fumes proceed) of Italy, etc.; the geysers and hot springs of the Yellowstone Park, Iceland, New Zealand, etc., are signs of weak or decreasing volcanic activity in the special districts in which they occur. Volcanoes may occur as isolated conical mountains, such as Vesuvius, Etna, or the Peak of Teneriffe. They also form various Tenerifie. They also form various groups or systems of mountains. One remarkable fact in the distribution of various volcanoes is their proximity to the sea, for out of 323 active volcanoes enumerated by Fuchs, all, excepting two or three in Central Asia and about the same number in America, are within a short distance at least of the ocean. There are tance at least of the ocean. There are certain regions over the whole of which active volcanic vents are distributed at intervals. Of these great regions that of the Andes is one of the best defined. An almost uninterrupted line of volcances stretches from the 46th degree of s. lat. in Chile to the north of Mexico, including Tunguragus Cotopayi Antieng ing Tunguragua, Cotopaxi, Antisana, Pichincha, Orizaba, Popocatepetl, Jorullo, etc. Another continuous line of volcanic action commences in the north of Alaska, passes through the Aleutian Isles over to Kamtchatka in N. E. Asia, then proceeds southward without interruption through a space of between 60° and 70° of latitude to the Moluccas. It includes the Kurile, Japanese, and Philippine Islands, traverses Java, Sumatra, Borneo, Celebes, New Guinea, and extends to various parts of the Polynesian Archipelago and New Zealand. A volcano in this series, on the island of Krakatoa, in the Straits of Sunda, burst into one of the most violent eruptions on record on the 26th of August, 1883. (See Krakatoa.) In the Old World the volcanic region extends from the Caspian Sea to the Azores, embracing the greater part of the Mediterranean and its most prominent prepringular. nent peninsulas. Here volcanic action is most prominently visible in Vesuvius, is most prominently visible in Vesuvius, Etna, and the Lipari Islands. Among disconnected volcanic groups may be mentioned Iceland (Mt. Hecla, in particular), the Sandwich Islands, and the island of Bourbon, Madagascar, and Mauritius. (See Vesuvius, Etna, Hecla, etc.) Also those of the West Indies, especially Mount Pelée in the island of Martinique an outbreak of which or Martinique, an outbreak of which on May 8, 1902, destroyed the city of St. Pierre and all its inhabitants, about 30,-000 in number. (See Polée, Mount.) It flows generally southeast past Tver,

dead volcances. The mud volcances or Submarine volcances show a frequent ex-salses of the Crimea and elsewhere istence, but such phenomena are for the (conical hills of slowly-flowing mud); most part inaccessible. In the present the fumaroles (fissures from which steam century several instances of the rise and disappearance of islands owing to volcanic action have been observed. Various theories have been proposed to account for the immediate cause of volcanic action. It is now generally accepted that it is produced by internal heat at a certain depth beneath the surface of the earth, and the evolution of a great the earth, and the evolution of a great body of elastic vapor, apparently in many cases due to the sudden vaporization of water which has made its way down-ward, expanding and seeking to escape where the least amount of resistance is presented, and manifesting itself in the explosions that accompany an eruption, or in the upheaval of rocks and the pro-duction of earthquakes. See also Earth.

duction of earthquakes. See also Earth, Geysers, Earthquakes, etc.

Vole (völ; Arvicola), a genus of rodents closely allied to the rats and mice, and included in that family. Some are terrestrial, others aquatic. The common vole of Europe (A. agrestis), the meadow-mouse, or short-tailed field-mouse, is injurious to young plantations, devouring the bark and destroying



Common Vole (Arvicola agrestis).

the roots. It is reddish brown above and gray below. The water-vole (A. amphibius) or water-rat is much larger, amphiotus) or water-rat is much larger, and swims well though its feet are not webbed. It is of a pale or chestnut brown, tinted with gray. There are many other species in the Old and New World.

Volga (vol'gà), a river in Russia, the longest in Europe; rising in a small lake in the east of the Valdai Hills, and falling into the Caspian Sea by about seventy mouths, near Astra-khan, after a total estimated course of 2400 miles. Its basin is estimated at from 500,000 to 700,000 square miles. Yaroslav, Kostroma, and Nijni-Novgorod to Kasan, thence south past Simbirsk and Saratov, and proceeds southeast from Sarepta to the Caspian. Its chief tributaries are the Kama on the left bank and the Oka on the right. It is a southeast from the control of the navigable by barges from its source, and



communicates with the Caspian, Baltic, and Polar Seas by a system of canals. Its banks are fertile and well wooded, and its waters abound in fish, particularly sturgeon, carp, and pike of extraordinary size.

Volhynia (vol-in'i-a), a government in Southwest Russia; area, 27,690 square miles. The soil is fertile, producing all kinds of grain, particularly wheat; and fine breeds of cattle and horses are reared. The hills in the south are rich in iron. There are also considerable manufactures. The capital is Jitomir. Pop. 3,547,500. Volition (vo-lish'un). See Will.

Volney (vol'ne), Constantine Francois, a distinguished French author and traveler, born at Craon in 1757; died in 1820. He published in 1787 his Travels in Egypt and Syria, a work of high reputation, and in 1791 his Ruins, or Meditations on the Revolutions of Empires, a philosophical work which attracted great attention. Among his other works was one on the Climate and Soil of the United States.

Vologda (vo-log'dà). a government

Vologda (vo-log'da), a government in Northeast Russia; area, 155,033 square miles. The surface is for the most part covered with woods, lakes, and morasses. Its forests furnish considerable quantities of timber and charcoal. Pop. 1,365,587.— The capital is Vologda, on a river of the same name,

in a beautiful district, 85 miles E.S.E. of St. Petersburg. Pop. 27,822.

Volsci (vol'si), an ancient Italian tribe who dwelt in Latium, on both sides of the river Liris (Garigliano). Their principal city was Corioli, from which Coriolanus derived his surname. which Coriolanus derived his surname. After having several times endangered the Roman State they were conquered, and disappeared from history (388 B.C.).

Volta (vol'tà), Allessandro, an Italian natural philosopher, born at Como in 1745; died there in 1827.

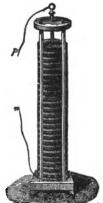
Two treatises, published in 1769 and 1771, in which he gave a description of a new electrical machine, laid the founa new electrical machine, laid the foundation of his fame. He was successively dation of his tame. He was successively professor of physics at the gymnasium in Como and in the University of Pavia, where he invented the electrophorus and electroscope. He also devised several other electrical appliances, and in 1800 the voltaic pile (which see). In 1728 he made a tour through France, Germany, England and Holland. In 1801 Napoleon invited him to France, where a medal was struck in his honor. In 1810 he was created a senator of Italy. with he was created a senator of Italy, with the title of count; and in 1815 was made director of the philosophical faculty of Padua.

Voltaic Electricity (vol-ta'ik). galvanic electricity, galvanism. See Galvanic Battery and Galvanism.

Voltaic Pile, Volta's arrangement for producing a cur-

rent of electricity, consisting of a pile of alternate disks of two dissimilar met-als, as copper and zinc, zinc and silver, zinc and platinum, separated by pieces of fiannel or pasteboard moistened with salt water or with water acidulated with sulphuric acid.

Voltaire (vol-tār), MARIE AROUET DE. a celebrated French writer, born at Paris, November 21, 1694; died there May 30, 1778. His father was François Arouet, a no-



Voltaic Pile. p, positive, n, nega-tive end.

tary, and he was destined for the legal profession, but abandoned the law for letters. In 1718 a tragedy named Œdipe

Volunteers Voltaire

resided mainly at Paris, leading a life of Mahomet, had great success in their day, gayety and pleasure in the society of the great. It was about the beginning of this period that he adopted the name of Voltaire. In 1726 he was again imprisoned in the Bastille for sending a challenge to the Chevalier Rohan, by whom he had been grossly insulted. He was liberated within a month, and went to England on the invitation of Lord Bolingbroke. Here he resided till 1729 abounds in obscene passages, and treats in friendship with the leading deists, and acquired some knowledge of English men hold most sacred, but is viewed by literature. His Henriade was completed and published by subscription in England. After his return to France he lived chiefly at Paris till 1734. During this period he raised himself from very moderate circumstances to a condition noderate circumstances to a condition through slightly acidulated water, and of affluence by successful monetary specuast the water is thus decomposed, oxygen lations. From 1734 to 1749 he resided and hydrogen being liberated, the quantith the Marchioness de Châtelet at tity of electric current passing through of affluence by successful monetary speculations. From 1734 to 1749 he resided and hydrogen being liberated, the quantity of electric current passing through Cirey, in Lorraine. She died in 1749, in a given time may be ascertained in and Voltaire then accepted the oft-repeated invitations of Frederick the Great to come and live at his court at Potsdam. Here he was received with great here he was received with great honor, but a series of disagreements with from the Prussian court in 1753. He twelve principal cities of Etruria, is surthen resided for a short time at Strasburg, Colmar, and Lyons, removing at museum rich in Etruscan antiquities. Pop. 5522.

Togget Agriculture is thus decomposed, oxygen and hydrogen being liberated, the quantity of electric current passing through Cirey, in Lorraine 1749, in a given time may be ascertained in a given time may be ascertained in terms of the quantity of water decomposed.

Volterra, 33 miles southwest of the twelve principal cities of Etruria, is surthen resided for a short time at Strasburg, Colmar, and Lyons, removing at a museum rich in Etruscan antiquities. Pop. 5522.

Volterra, Daniele Da. See Ricciahe lived in Switzerland, or close to its the end of 1704 to Geneva. To ambite the whole of the remainder of his life he lived in Switzerland, or close to tist borders. In 1760 or 1761 he fixed his residence with his niece, Madame Denis, at Ferney, where he received a constant succession of distinguished visitors, and maintained a correspondence which included in its range most of the crowned heads of Europe. In Feb., 1778, he went leaf electroscope may be considered a to Paris, where he was received with enthusiasm by all classes. But the excitement of the occasion hastened his death. His works embrace almost every branch of literature; poetry, the drama, romance, history, philosophy, and even science. Hatred of fanaticism and superstition was his chief characteristic, and

was brought out by him, and was a Zadig, Candide, L'Ingénu, etc.; his hisgreat success. It is said that this play tories: Siècle de Louis XIV, and Hiswas finished, and that two cantos of toire de Charles XII; his correspondence; his epic the Henriade were written in and more than all, perhaps, on his perhaps, the procession of the Bastille, where he was confined from poetical epistles, satires, and occasional May, 1717, to April, 1718, for writing light poems, which all exhibit wit, gayety, certain satirical verses on the regent. Vivacity, and grace. Several of his He now became the fashlonable poet and tragedies, such as Zaïre, Alzire, Merope, resided mainly at Paris, leading a life of Mahomet, had great success in their day, gayety and pleasure in the society of but are not assigned a high place in

science. Hatred of fanaticism and superstition was his chief characteristic, and nearly all his works are strongly aninated by a spirit of hostility to the priests and the religion they represented. Substantial reward. The oldest volunteended the statement of the company of the city of priesthood. Voltaire's literary fame London, which received its charter of chiefly rests on his philosophical novels:

case of a war of magnitude the United born at Fellin, Livonia, in 1841. He States has always relied on its volun-was professor of history at Strassburg teer soldiery. During the Civil War, in- and Freiburg, and at the University of cluding reënlistments, there were 2.656,- Chicago after 1892. He wrote Constitutions men in the field—the great body of tional History of the United States, Constitution, were volunteers.

whom were volunteers.

Volunteers of America, a religious and philanthropic organization, founded in 1896 by Commander and Mrs. Balling-ton Booth, formerly of the Salvation by the negroes of the United States and Army, in part as a protest against the Army, in part as a protest against the rigid militarism of that body. Over 100



in man part of the septum or division between the cavities of the nostrils. In

cibly from the stomach through the esophagus. At times it is sympathetic, as in affections of the kidneys, uterus, brain, etc. At others it is symptomatic,

brain, etc. At others it is symptomatic, as in gastritis, peritonitis, etc.

Vondel (von'del), JOOST VAN DEN, one of the most celebrated poets of Holland, born in 1587; died in 1659. His works display so much genius and elevated imagination that he has been called the Dutch Shakespeare, They include metrical versions of the Psalms, of Ovid together with of Virgil, and of Ovid, together with satires and tragedies. Of the latter Palamedes, the Conquest of Amsterdam, and Lucifer are considered the masterpieces of Dutch tragedy.

Von Holst, HERMANN EDWARD, a distinguished historian,

the West Indies to certain superstitious rites and beliefs brought from Africa, also to the sorcerer who practiced these rites. If the negro wished to destroy an enemy he sought the aid of the voo-dou 'doctor,' who would often undertake to remove the designated party. This, it is thought, was usually done by the aid of poison, though apparently by incentrations. At one time no slave could incantations. At one time no slave could be induced to expose himself to the wrath of one of these conjurers, and in stations for philanthropic work are in operation in the United States, and activities are being extended to other lands. of the far South, where the negroes were Volute (volut), in architecture, a kind of spiral scroll used in the Ionic, Corinthian, and Composite capitals, of which it is a description of a voodou is thought to have died from sheer fright, all hope being given up when he believed he was under the fatal spell. Voodous flourished most in this country in the rice, cotton, and sugar plantations of the far South, where the negroes were less immediately under the influence of the Ionic, Corinthian, and Composite capitals, of which it is a decrease of the results of the results

the Ionic, Corinthian, and Composite capitals, of which it is a principal ornament. The number of volutes in the Ionic order is four. In the Corinthian Hungary, officially included in the Tyrol. and Composite orders they are more numerous, in the former being accompanied with small ones, called helices.

Vomer (vo'mer), in anatomy, one of the bones of the skull, forming the bones of the skull, forming the man part of the septum or division is an important entrepot on the railway. is an important entrepôt on the railway between Moscow and the Sea of Azov. fishes it is a feature of importance for It has manufactures of woolen and linen classification purposes.

Vomit (vom'it) to expel matters for cloth, soap and vitriol, tanneries, and a cloth, soap and vitriol, tanneries, and a cloth from the stomach through cloth, soap and vitriol, tanneries, and a considerable trade. Pop. 84,146.— The government has an area of 25,440 square miles, and a pop. of 3,097,700. It is intersected by the Don, which receives the whole of the drainage, partly through its

waterspouts, whirlwinds, and on a larger scale in cyclones and storms generally. Descartes supposed certain vortices to exist in the fluid or ether of space endowed with a rapid rotatory motion about an axis, and filling all space, and by these he accounted for the motions of the universe.



Vortex Ring, column returning into itself so as to form a ring composed of a number of small rotating circles placed side by side, like beads on a string, as the singular smokerings which are sometimes produced when a cannon is fired, or when a smoker skill-fully emits a puff of tobacco smoke. Recent investigations of the motion of vortices suggested to Lord Kelvin the possi-bility of founding on them a new form of the atomic theory, and the vortex atom was for a time widely accepted by scien-tists, but was finally abandoned by its author as mathematically incapable of demonstration.

scopic.

Vosges (vozh), a chain of mountains about 100 miles long, extending N. N. E. to S. S. W. along the frontiers of France and Alsace, nearly parallel with the Rhine. The breadth varies from 20 to 45 miles, and the highest peak is Ballon-de-Guebwiller, 4685 feet. A great part of the Vosges is densely wooded, and the eastern and southern slopes are often

Vosges, an eastern frontier department of France; area, 2279 square miles. It is bounded on the east by the Vosges Mountains, which send out ramifications over the greater part of its surface, while in the south it is traversed by the chain of the Faucilles. Grain, hemp, flax and potatoes are extensively grown, and the department is famous for its kirsch-wasser. It was in this mountainous region that France struck its first tainous region that France struck its first lasac, also distinguished themselves as blows in the European war. While Germany was invading Belgium, France drove strongly into the Vosges uplands, penetrating Alsace as far as Mulhausen. But its forces were eventually driven back an arch. The under sides of the vousits form the intrados or soffit of the nearly to the frontier. They held the arch, and the upper sides the extrados. Steep escapement facing the valley of the Rhine against all the efforts of the German army to displace them until the tide. Rhine against all the efforts of the German army to displace them until the tide of war drew their forces to the more westerly region, when the Vosges campaign ended. The principal rivers are the Meuse, Mouzon, Madon, Moselle, Saône traction of the tongue, and contraction

in physics, a vortical and Meurthe, all unnavigable within the molecular filament or department. The minerals are valuable, ato itself so as to form. The manufactures are various. Epinal is the capital. Pop. 429,812.

(fos), JOHANN HEINRICH, a Ger-Voss man poet and translator, born in 1751. He received a scanty school education, served for a time as private tutor in a family, and in 1772 went to Göttingen, where he studied the classical and modern languages, and was one of the founders of the Göttingen Dichterbund, or poets' union. In 1775 he retired to Wandsbeck in order to edit the Musenalmanach, which he published till 1800. In 1778 he became rector of a school at Otterndorf, in Hanover, and in 1782 went as rector to Eutin. In 1805 he became Vorticella, or 'BELL-ANIMALCULE,' a genus of stalked infusoria, having a fixed stem capable of being professor at Heidelberg, where he recoiled into a spiral form, and vibratile organs called cilia fringing the bell-shaped disc or head, which are constantly umes of original poems, the best of which in rapid motion and attract particles of food. The species are very numerous in exhibited great skill in the handling of meters, and a wonderful command of language. Among his translations that of guage. Among his translations that of Homer's works is undoubtedly the greatest, being the classical German version of these great epics. A translation of these great epics. A translation of Shakespeare, which he undertook with his sons, was published in nine volumes in 1829.

Ballon-de-Guebwiller, 4685 feet. A great part of the Voeges is densely wooded, and the eastern and southern slopes are often covered with vineyards. There is also excellent pasturage. The Ill, Lauter, Moselle, Meurthe, Saar and Saône rise in this chain.

Vosges, an eastern frontier depart.

Favoring the Remonstrants, he became obnoxious to the prevailing party in the obnoxious to the prevailing party in the church, and was deprived of his office. Archbishop Laud then conferred on him a prebendary stall at Canterbury, with permission to continue his residence in the Netherlands. In 1633 he was invited to Amsterdam, to occupy the chair of history, and continued there till his death in 1649. Several of his sons, especially Isaac, also distinguished themselves as

or expansion of the lips. The vowel range of temperature; finally, it acquires sounds of the English alphabet are imperfectly represented by five letters, a, pression, with a great increase of a, i, o, w (and sometimes w and y). strength and elasticity. See Vulcanite Vowels are distinguished from consonants and India-rubber. in that they result from an open position of the vocal organs, while consonants are the result of an opening or shutting action of the organs; thus the former can be pronounced by themselves, while has, in the Roman Catholic Church, ofconsonants re-

quire to be sounded with the aid of a vowel. Vulcan (vul'-Vulca-Latin mus), in Roman mythology, the god who presided over the fire and working of the metals, and pat-ronized handicraftsmen of every kind. By some writers he is said to have been born lame, but by others his lameness is at-tributed to his



Vulcan, from an antique.

having been thrown from Olympus. He was completely identified with the Greek Hephæstus (which see).

Vulcanite (vul'ka-nIt), a kind of caoutchouc. differing from ordinary vulcanized caoutchouc in containing a larger proportion of sulphur—from 30 to 60 per cent.—and in being made at a higher temperature. It is of a brownish-black color, is hard and tough, cuts easily, and takes a good nolish or which account takes a good polish, on which account it is largely used for making into combs. brooches, bracelets, and many other ornaments. As it is especially distinguished by the large quantity of electricity which it evolves when rubbed, it is much used in the construction of electric machines. See Vulcanization.

Vulcanization (vul-kan-i-zā'shun), a method of treating caoutchouc or india-rubber with sulphur to effect certain changes in its properties, and yield a soft (vulcanized india-rubber) or a hard (vulcanized india-rubber) or a h

Vulgar Fractions. See Fractions.

ficial authority, and which the Council of Trent, in their fourth session, on May 27, 1546, declared 'shall be held as authentic in all public lectures, disputathentic in all public lectures, disputa-tions, sermons, and expositions; and that no one shall presume to reject it, under any pretense whatsoever.' Even in the early period of the church a Latin trans-lation of the Old Testament existed, called *Itala*, made after the Septuagint. St. Jerome found that this translation was not always accurate, and between 285-405 A. D. made a new Latin trans-385-405 A.D. made a new Latin translation from the Hebrew, which, however, was only partially adopted by the church. In the sequel the translations were combined, and formed the Vulgate (versio vulgāta, common or usual version). grew up between the eighth and sixteenth centuries. The version now in use is the edition published by Clement VIII in 1592 (improved edition 1593).

Vulture (vul'tūr), the common name for the raptorial birds belonging to the family Vulturidæ, characterized by having the head and part of the neck destitute of feathers, and a



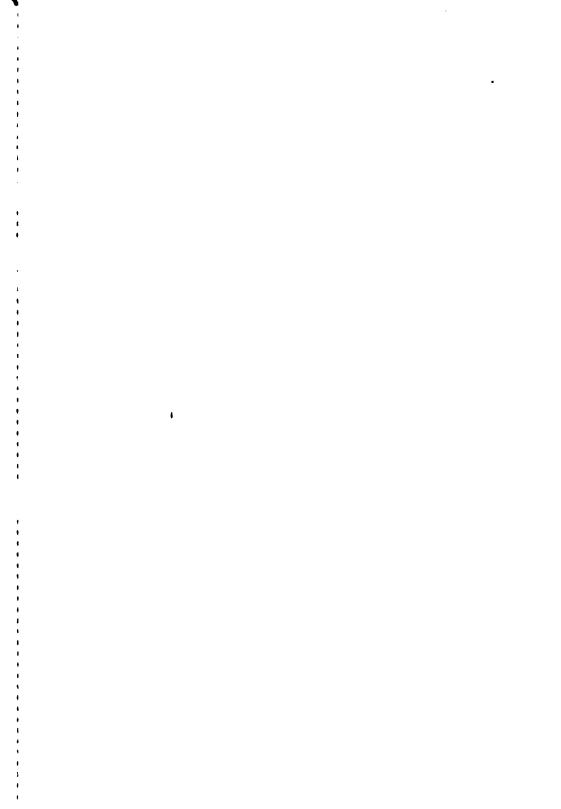
sulpring to give color, softness, etc. The rather clongated beak, of which the upper substance thus formed possesses the following properties: it remains elastic at strength of their talons does not correlated temperatures, it cannot be dissolved spond with their size, and they make by the ordinary solvents, neither is it more use of their beak than of their affected by heat within a considerable claws and are unable to carry off their

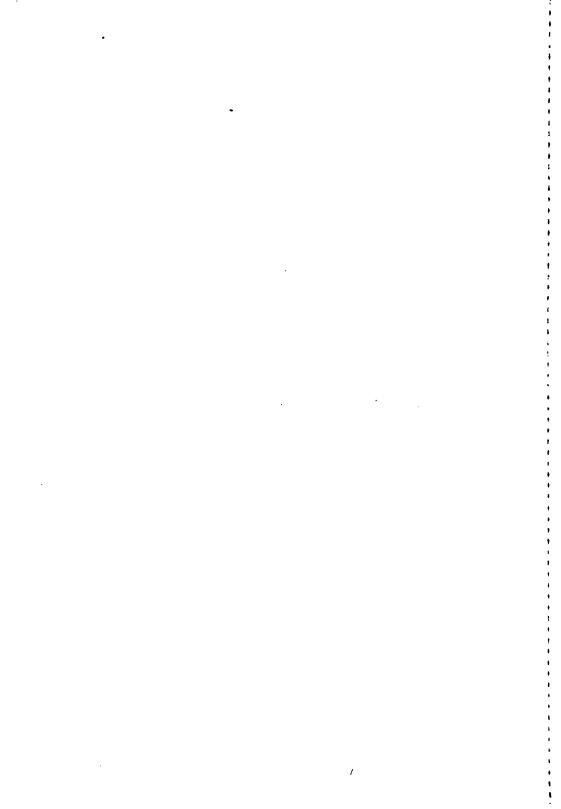
prey, like the eagles and hawks. In general they are of a cowardly nature, living chiefly on dead carcasses and offal. Their wings are very strong and give them remarkable powers of swift and long sustained flight. Unlike other birds of prey the female is smaller than the male. Their geographical distribution is confined chiefly to warm countries, where they act as scavengers to purify the earth from the putrid carcasses with which it would otherwise be encumbered. which it would otherwise be encumbered. The griffon vulture (Vultar fulous) inhabits the mountainous parts of the south of Europe, as does also the cinereous or brown vulture (V. cinereus). The former measures nearly 4 feet from tip of beak to end of tail. The bearded vulture, or lämmergeier (Gypaëtos barture, or lämmergeier, and Turkey-buzzard.

Vyatka (vyatka), a city of Russia, capital of a government of the same name, is situated on Vyatka Phron percnoptērus) is often called It is largely engaged in the corn trade and the manufacture of wax and tallow occurrence in ancient hieroglyphics, where it is used as an emblem of paternal love. This bird is very common in Northern

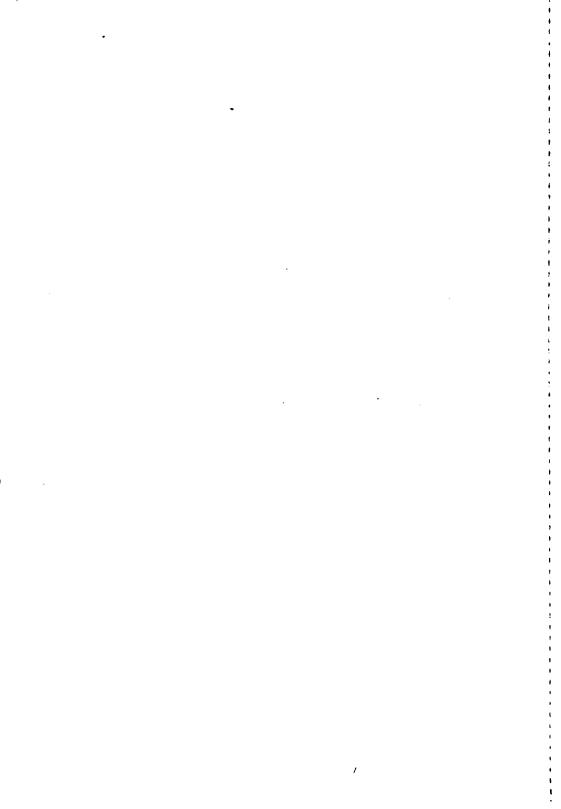
Africa and Persia and is frequently seen arrica and rersia and is rrequently seen in the south of Europe. It is about 2 feet long, has pointed wings, and is raven-like in form. Greatest among the vultures are the lämmergeier, 4 feet in length, the king vulture (Sarcorhamphus papa) of South America, and the giant condor (Sarcorhamphus condor or properties) gryphus) of the Andes, the largest of the family, and the most powerful flyer among birds. The turkey-buzzard (Cathartes aura), about 21 feet long, is common in the eastern United States and is



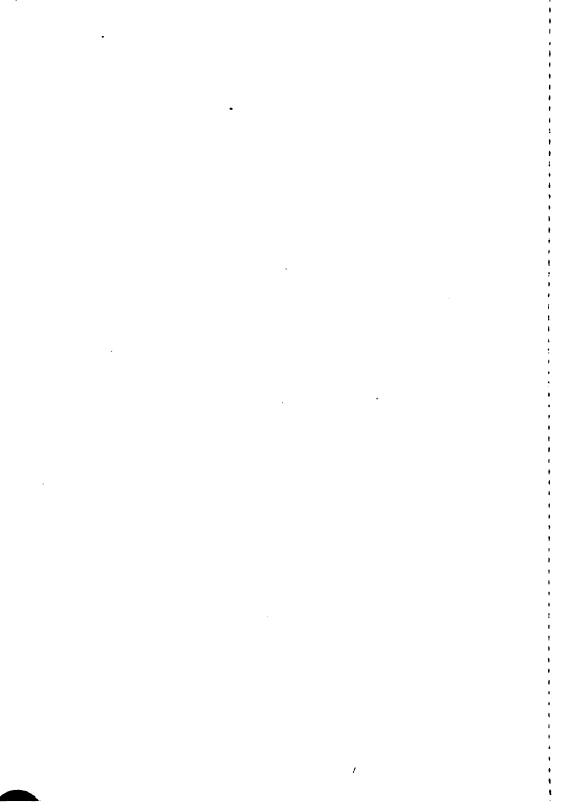




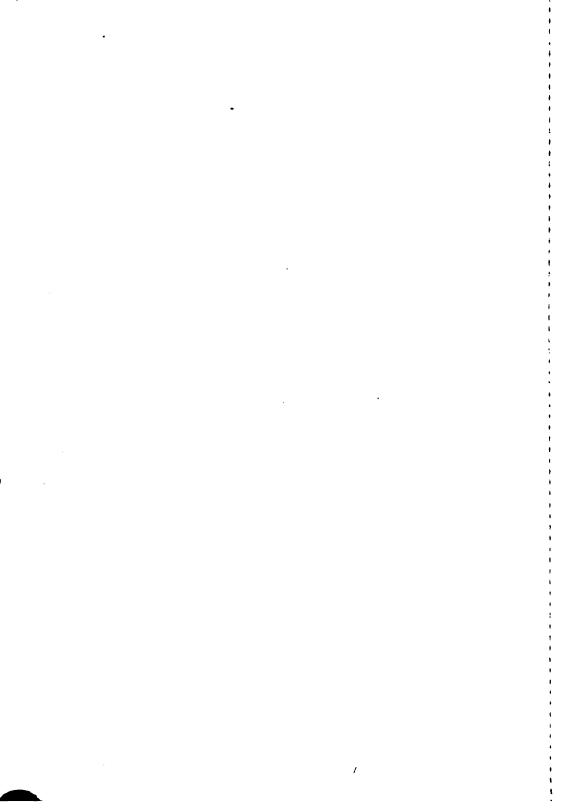




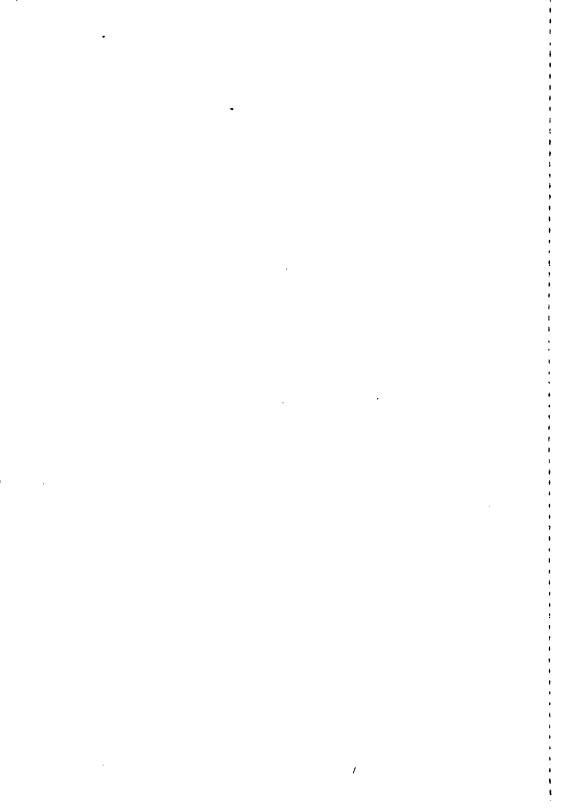
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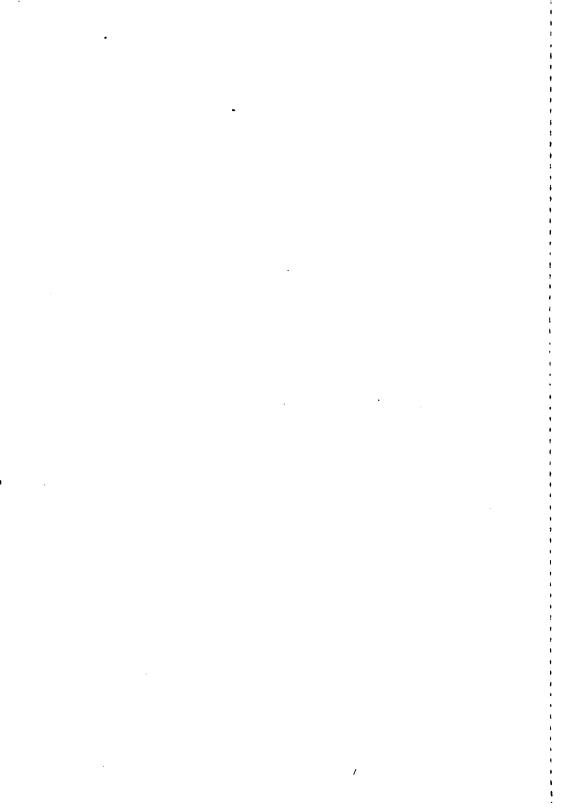




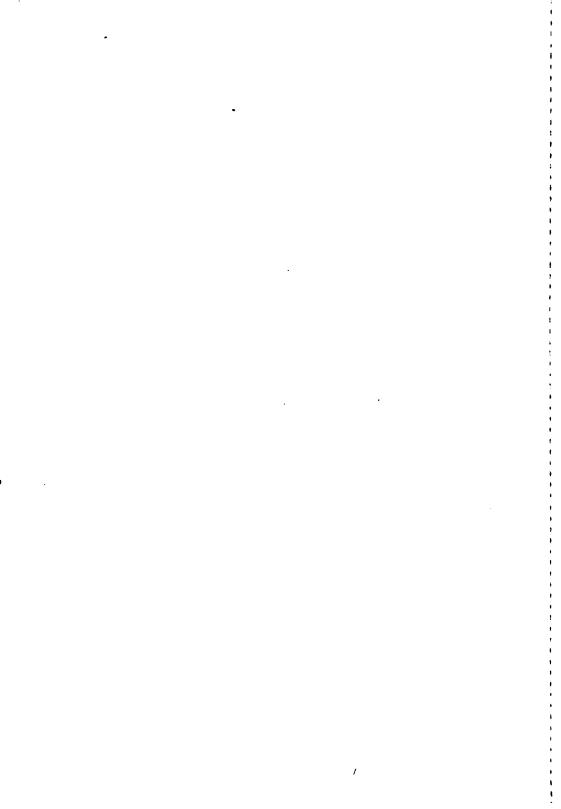




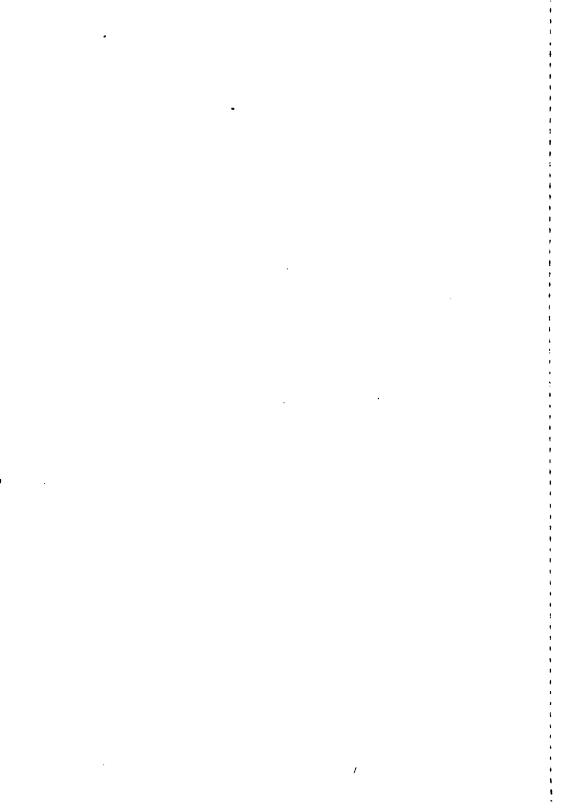




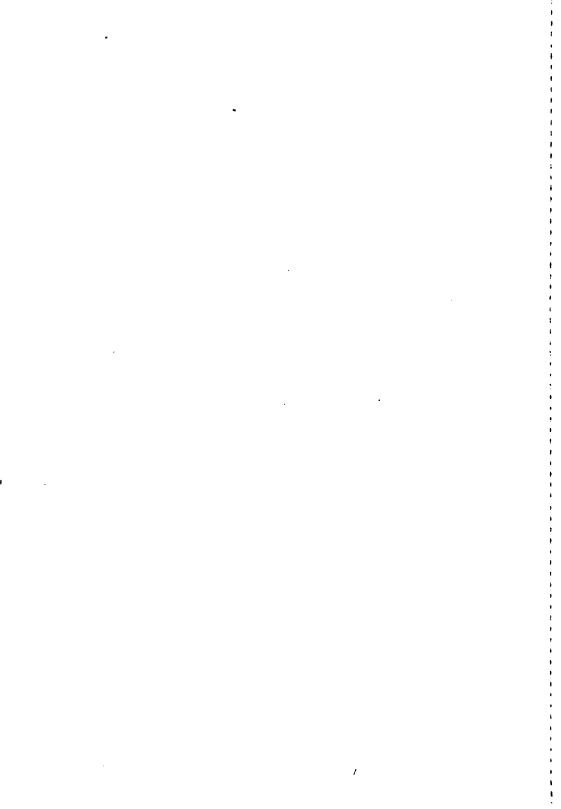
















W, the twenty-third letter of the Eng-central Soudan, between Kanem and lish alphabet, representing a con-Bagirmi in the w. and Darfur in the E., sonantal sound formed by opening the with a pop. estimated at about 2,000, mouth with a contraction of the lips, 000. It consists principally of an elesuch as is performed in the rapid passage from the vowel sound ** (00) to that of i (ee). The character is formed, as its name indicates, by doubling the ** or v. At the end of words or syllables it is either silent, as in low, or it modifies the preceding vowel, as in new, how, havwaal (väl), a branch of the Rhine.

(wa'bash), a river, the most important northern tribu-Wabash tary of the Ohio. It rises in the N. W. of Ohio, winds across Indiana, forms the boundary between Indiana and Illi-nois, and falls into the Ohio after a course of 550 miles. It is navigable for steamboats to La Fayette, and connects Lake Erie with the Ohio by the Wabash and Erie Canal.

Wabash, a city, capital of Wabash Co., Indiana, on the Wa-bash River, 47 miles 8, w. of Fort Wayne. It has active manufactures of furniture, paper, machinery, hats, large railroad shops, etc.; in the vicinity is excellent

building stone. Pop. 8687.

Wace (was), an Anglo-Roman poet, native of Jersey, born in 1115; died in 1184. Two important works by him remain, the Brut d'Angleterre (see Layamon), and the Roman de Ros, a history of Rollo and the dukes of Nor-mandy, including the conquest of England.

N. E. of Austin, and as the center of a large and fertile cotton and wheat growing district, commands a large trade in Wadelai agricultural products. Its industries in

19-10

000. It consists principally of an elevated plateau, very fertile in some parts, but extending into the Sahara and largely arid. Its fertile districts produce abundantly maize, millet, indigo, cotton, etc. The prevailing religion is Mohammedan. Formerly very powerful and warlike, it is now a protectorate of France, constituting part of the Lake Chad territory or Hinterland of French Congo. Capital Abeshr.

i

(wād), Benjamin Franklin, Wade statesman, born at Spring-field, Massachusetts, in 1800; died in neid, Massachusetts, in 1800; cled in 1878. He studied law, was admitted to the bar in Ohio in 1825, and elected state senator 1837 and 1841, made judge in 1847, and elected United States senator by the Whigs in 1851, remaining in the senate till 1869. He advocated the Homestead bill, voted for the repeal of the Fugitive Slave Law, opposed the Kansas-Nebraska bill of 1854, and during the Civil was prominent in public the Civil war was prominent in public affairs. He was elected president of the senate in 1867, and was a prominent candidate for the vice-presidency in 1868.

Wade, JAMES FRANKLIN, military officer, born in Ohio in 1843. He entered the army as lieutenant in 1861, served with distinction throughout the war, was brevetted brigadier-general of volunteers in 1865, entered the regular army, and rose in rank from major in 1866 to brigadier-general in 1897. He took an active part in the war with Waco (wa'kō), a city, county seat of Spain and was made military governor of McLennan county, Texas. It is Cuba in 1899. He subsequently served situated on the Brazos River, 100 miles in the Philippines as major-general, commanded the Atlantic division 1904-07, and retired in 1907.

(wä-dē-lī'), a military post in the Equatorial Province agricultural products. Its industries include flour and cotton-seed oil mills, brick, of what was formerly the Egyptian Southelm and bottle works, etc. It has warm dan, on the Albert Nyanza, now in the and medicinal artesian waters. Pop. Congo Free State, about 35 miles n. of the Albert Nyanza. It is famous as the Wadai, or Waday (wā-di'), an exchief station of Emin Pasha. See the Shnitzer.

See Grallatores. Wading Birds.

Wadi (wa'di), a watercourse; chiefly one that is dry part of the time.

Wafer (wa'fer), a thin circular cake Wafer of unleavened bread, generally stamped with the Christian monogram, the cross, or other sacred symbol, used in the Roman Catholic Church in the administration of the Eucharist.— Also a small disc of dried paste usually made of flour and water, gum and color-ing matter, used for sealing letters, etc.

Wager (wa'jer), a bet or something staked on the event of a con-test or some unsettled question. The party whose opinion proves to be correct receives what has been staked by both. By statutes of England, Scotland, and the United States all contracts or agreements, whether by parole or in writing, depending on wagers, are null and void, and money due thereon cannot be recovered in any court of law. A wager is therefore merely a debt of honor.

Wages (wa'jes), generally speaking, the payment given for personal services; but the term is now usually restricted to the money paid at short intervals for mechanical or muscular labor, other than that performed by the

labor, other than that performed by the more educated classes, to which the word salary bears reference. In some States wages can be legally attached for debt.

Wagner, Charles, a French writer, born in Alsace in 1852.

He became an evangelist, inculcating simple Christianity divested of dogmatism, and attracted great attention by The Simple Life, in which this principle was maintained. Other works were Youth, Courage, etc. He lectured in the United States in 1904.

Wagner (väh'ner), Wilhelm Rich-

(väh'ner), WILHELM RICH-ARD, one of the most cele-Wagner brated of modern composers, born at Leipzig in 1813; died at Venice, Feb 13, 1883. He received his education at Leipzig and Dresden. From 1834 he filled various musical engagements at Madgeburg, Riga and Königsberg. In 1839-41 he went to Paris and London, and composed his operas of Rienzi and the Flying Dutchman. The brilliant success of these operas secured him the the Flying Dutchman. The brilliant success of these operas secured him the and the Austrians under the Archduke conductorship at the Royal Opera of Charles, each about 150,000 strong. The Dresden in 1843. He joined the insurrectionary movement of 1848-49, and gave Napoleon a decisive victory, which was compelled to exile himself. Until was followed up by an armistice and the his return to Germany in 1864 he spent most of his time in Switzerland, Italy, Paris and London. His Tannhäuser and Lohengrin appeared in 1845 and Lohengrin appeared in 1845 and the warblers, and so termed from their 1850, respectively. The late King of Barbalt of jerking their long tails when varia, Louis II, became an enthusiastic

and liberal patron of Wagner, and the theater at Baireuth, especially built for Wagner, was chiefly supported from the king's purse. Here his famous tetralogy Der Ring des Nibelungen, consisting of Das Rheingold, Die Walkure, Siegfried and Götterdümmerung, was first performed in 1876 before an unusually brilliant and appreciative audience. About a year before his death he produced his last creation, Parsifal. In 1870 he had married, as second wife, Cosima von Bülow, a daughter of the Abbé Liszt. Wagner labored to reform dramatic



Wilhelm Richard Wagner.

music according to the ideas of Gluck and Weber, and gave his creations a national character by selecting his sub-jects from old German heroic legends. His theory (not in itself specially original) was that in a perfect musical drama the three arts, poetry, music, and dra-matic representation, should be welded together into one well-balanced whole. This theory he demonstrated with consummate ability and unsurpassed magnificence. His particular views on music are embodied in a well-known work entitled Oper and Drama.

Wagram (vä'gram). a village or Lower Austria, on the left bank of the Rossbach, 12 miles N. E. of Vienna, famous for the great battle in 1809 between the French under Napoleon

meadow lands and pastures, frequent water pools and streams, are agile runners, and have a rapid flight. Their food consists of insects. Their nests, built on the ground, contain from four to six eggs. These birds belong to both Old and New Worlds, and migrate southwards in winter. Representative varieties, distributed principally over the European continent and the East, are the white wagtail (Motacilla alba); the gray wagtail (M. campestris or Boarula); and the yellow or Ray's wagtail (M. sulphurea or Budytes Rayi). (M. sulphurea or Budytes Rayi). Wah. See Panda.

Wahabees (wa-ha'bēs), Waha'bis, or Waha'bites, a Mohammedan sect, founded in Arabia about 1760 by Abd-el-Wahâb, an oriental scholar of high attainments. He deemed it his mission to restore Islamism to strict harmony with the teachings of the Koran and the Sunna. Thousands flocked to the Wahabee standard, and enabled the reformer to secure the whole enabled the reformer to secure the whole of his native province Nejd, and to carry his victorious arms into Yemen. Under his victorious arms into Yemen. Under his successors the greater part of Arabia fell under the Wahabee power. Mecca and Hejaz were captured in 1803, and borders of the lake, are favorite tourist the loss of the sacred city roused the Turks to action. Several expeditions were sent from Egypt, and in 1818 was at last successful in dispersing the Wahabee forces, in capturing their capital, Derayeh, and their capital, and applied to a festival held on the anniversary of the day on which the parish church was consecrated and dedicated to a saint. A lyke or lich wake (Anglo-Saxon, lic, a corpse) is the watching of a dead corpse is the watching of a dead corpse is the watching of the deceased. The practice, once general is now confined to the lower Irish of Islamdor of the lake, are favorite tourist resorts, on account of the lake, are favorite tourist resorts, on account of the lake, are favorite tourist resorts, on account of the lake in the South beaver favorite tourist resorts, on account of the lake, are favorite tourist res millions.

Waikato (wā-kā'tō), one of the principal rivers of New Zea-land, in the North Island; length, about 200 miles. It traverses a district of great fertility.

Wainscot (wan'skot), the name given to paneled boards (usually oak or chestnut) employed to line the internal walls of an apartment.

meadow lands and pastures, frequent Spanish torpedo-boat destroyers. He is

spanish torpedo-boat destroyers. He is now a rear-admiral in the navy.

Waite (wat), Morrison Remick, jurist, born at Lyme, Connecticut in 1816; died in 1888. He was graduated from Yale College in 1837, became a prominent lawyer in Ohio, and in 1874 became Chief Justice of the Supreme Court of the United States.

Works (wats), the name given at one

Waits (wats), the name given at one time to the king's minstrels, whose duty it was to guard the streets at night and proclaim the hour; to the musicians of a town; and to private bands when employed as serenaders. The term is now applied in England to those who sing or play carols on Christ-mas and New Year's Eve with a view to donations.

Waitzen (vit'sen), or Vácz (väts), a market town and bishopric of Hungary, on the left bank of the Danube, 20 miles N. of Budapest. It has a splendid cathedral and several monastic and scholastic establishments.
Pop. 16,808.

Wakatipu (wä-kā-tē'pō), a picturesque lake in the South Island of New Zealand; area, 112 acres. Queenstown and Glenorchy, on the borders of the lake, are favorite tourist resorts, on account of the magnificent mountain scenery in the vicinity.

Wake (wāk), a term corresponding originally to vigil, and applied to a festival held on the anniversary of

scenes much out of keeping with the sad occasion.

Wakefield (wāk'fēld), a municipal and parliamentary borough of England, in the West Riding of Yorkshire, on the Calder, 9 miles s. of Leeds. It is well built, with wide and Wainscot (wan'skot), the name Leeds. It is well built, with wide and given to paneled boards regular streets, and several fine public buildings. Leeds, Bradford, and Haline the internal walls of an apartment. Wainscoting of oak was commonly used in England for interior lining in Elizabethan and Stuart times.

Wainwright (wan'rit), Richard, have to a great extent absorbed field, but there are still several important establishments, and the trade was created in wool, corn, flour, and malt is naval officer, born at very extensive. Wakefield was created a bishopric in 1888. Pop. 51,516.

Wakefield, a town (township) of tenant commander, and was executive officer in the Maine when the ship was officer in the Maine when the ship was belown up in Havana harbor in 1898. Pop. 51,516.

Wakefield, a town (township) of wakefield, a town (township) of tenant commanded the Gloucester in the goods, boots and shoes, stoyes, pianos, etc. naval fight at Santiago and sunk two

Walcheren Wales

Walcheren (val'ke-ren), an island origin the Waldenses have been distin-of Holland, province of guished by their pure morals and their Zeeland, at the mouth of the Scheldt. It industry. is level, below high-water mark, very fertile. populous, and prosperous. It

is level, below high-water mark, very fertile, populous, and prosperous. It contains the thriving towns of Flushing, Middelburg (capital) and Veere. Popabout 40,000.

Wolcott (wol'kot), CHARLES DOOLLITTLE, geologist, born at New York Mills, New York, in 1850. He studied geology, became assistant on the New York and afterwards on the United States Geological Survey, and director of the latter in 1894. He wrote The Trilobite, The Cambrian Fauna of North America, etc. North America, etc.

Waldeck (väl'dek), a small principality of Western Germany, under Prussian administration, consisting of the two separate territories of Waldeck and Pyrmont; total area, 433 aquare miles; pop. 59,127. It is chiefly agricultural. The reigning house is one of the most ancient in Germany.

Waldenses (walden'sēz), a Christian sect which owes its origin to Peter Waldus (Waldo), a rich citizen of Lyons. About 1170 Waldo by his preaching collected numerous followers, who were often confounded with the Albigenses and others, whose fate they shared. Their chief strongholds were, and still are, in the mountain tract of the Cottian Alps, southwest of Turin, where, since 1848, they (about 10,000) enjoy the same religious rights, and now also the same political rights, as the Roman Catholics of Italy. The design of the founder was to reform the clergy, and to preach the word of God freely to everyone in his native language; but his followers went far beyond the original plan. They made the Bible alone the rule of their faith, renounced entirely the doctrines, usages, and traditions of the existing church, and formed a separate existing characteristics and formed a separate religious society. They were, therefore, excommunicated as heretics, and for centuries suffered occasional persecution. Separate congregations found their way to various parts of Europe, and some of these became attached or amalgamated with other reformed sects. The spiritual teachers of the modern Waldenses are supplied from the academies of the Calvinistic churches. The Waldensian rites are limited to baptism and the Lord's supper, respecting which they adopt the notions of Calvin. Each congregation is superintended by a consistory composed refuge of the vanquished Britons who of elders and deacons, under the presidency of the pastor, which maintains the this period till the final conquest of the strictest moral discipline, and adjusts country by Edward I there was little but small differences. From the time of their a succession of petty wars between the

Waldersee (val'derse), ALFRED, COUNT VON, a German general, born in 1832; died in 1904. He served in the Austrian and French wars served in the Austrian and French wars of 1806 and 1870, became Moltke's chief assistant in 1881, and chief of staff of the German army on the resignation of Von Moltke. In 1900 he was made com-mander-in-chief of the allied forces in China.

Wales (wāls), a principality in the southwest of the island of Great Britain, which since Edward I gives the title of Prince of Wales to the heir-apparent of the British crown; area, 7446 square miles; pop. 2,032,193. As a whole it is very mountainous particular whole it is very mountainous, particularly in the north, where Snowdon, the culminating point of South Britain, rises to the height of 3571 feet; and it is intersected by beautiful valleys, traversed by numerous streams, including among others the large river Severn. It is rich in minerals, particularly coal, iron, copper, lead, and zinc, and to these Wales owes its chief wealth. The coal trade is most extensive, and Cardiff (which see) is one of the largest coal ports in the world. Iron, steel, and copper works are also on a large scale. Besides the mineral industries, there are considerable woolen manufactures, especially of fiannel, coarse cloth and hosiery. (See England and Britain.) The inhabitants are almost purely Celtic in race, being the descendants of the early Britons, who were able to maintain themselves here when the rest of the country was overrun by the Germanic invaders. Most of the upper class belong to the Church of England (disestablished in 1914), but the vast majority are Protestant Nonconformists, the most numerous bodies being the Congregationalists, the Calvinistic Methodists, and the Baptists.

and the Baptists.

Previous to the Roman occupation
Wales appears to have been chiefly inhabited by three British tribes, called
the Silures, Dimetæ, and Ordovices.
During the later period of the Roman
occupation the subject part of the inland was divided into four provinces, of which one, including the country from the Dee to the Severn, was called Britannia Secunda. It was after the invasion of the Saxons that the country acquired a distinctive national character, as the

systematic efforts of the larger monarchy to absorb the smaller. Among the great- and reasonable doubts have been thrown est of the Welsh heroes of the early on the authenticity of these early properiod was Cadwallon. After being deductions, which, in their present form at feated by Edwin of Deira, or North-least, are not believed to be earlier than umbria, and compelled to flee to Ireland, the eleventh century. Subsequent to ne returned and defeated the Saxons in this time there were numerous poems numerous battles, but was at last defeated and slain by Oswald of Northumbria in 635. The last of the Welsh princes, Llewellyn, who revolted against Edward I, was defeated and slain by the Earl of Mortimer in 1284, and since that A welcome guest at every mansion in time the principality has been incorporumbriant A welcome guest at every mansion in time the principality has been incorporated with England. There were, however, for a number of years, occasional insurfor a number of years, occasional insurhe returned and defeated the Saxons in ated with England. There were, however, land. As a poet of nature, few, if any, for a number of years, occasional insurprections, some with French assistance. In 1400 owen Glendower, incensed by an encroachment by Lord Grey de Ruthyn, his descriptions of natural objects are rose in arms and held his own for a not the conventional ones of Chaucer, but considerable period, Henry IV taking the severe rescriptive laws against the Welsh earlier poets of Wales we must ascribe were passed and Sir Henry Percy (Hotsever, was put henry IV, who invaded the country in Henry IV, who invaded the country in 1402, being driven back by extraordinary of Males in 1402, and allied himself with Hotspur and others for a partition of the Hotspur and others for a partition of the Britain were household names kingdom, but King Henry intercepted throughout Europe. Among the Welsh kingdom, but King Henry intercepted Hotspur in his march, defeating him near kingdom, but King Henry intercepted throughout Europe. Among the Welsh Hotspur in his march, defeating him near bards of later date may be named Huw Shrewsbury. Owen continued to hold out Morris (1622-1709) and Goronwy Owen until his death in 1415. Wales was incorporated with England, with English wydd y Farn ('Day of Judgment'), laws and liberties, in 1536; the lords which is regarded as the finest poem in marchers' surviving jurisdiction was abolished in 1689; and the Welsh judiciary a number of prose tales or romances, the was incorporated in the judicial system of chief of which are contained in a collection known as the Maksaccian which

contains thirteen simple and seven double literary essays and novels. Much has consonants, and seven vowels, with nubeen done in the recent period in reëdit-merous diphthongs and triphthongs. It ing the old Welsh literature. The My-is still spoken exclusively by about a vyrian Archaiology, containing poems, his-quarter of a million of the inhabitants of torical and other medieval works, was the principality. The necessities of published early in the maintenant commerce are, however, gradually doing the Madinogion, with translations in for the Welsh language what they have 1838, and the Four Ancient Books of done for the Irish and Gaelic, and Eng-lish is becoming more and more the lan-the Book of Talliesin, the Black Book of guage of everyday life in Wales. The Carmarthen, and the Red Book of Herentiest remains of Welsh literature are gest, in 1868, and other Welsh texts at supposed to belong to the ninth century, different dates.

rival chiefs or kings into which both There are a number of poetic pieces at-countries during a great part of the tributed to Taliessin, Aneurin, Merlin, Saxon period were divided, or the more and Llywarch Hen, bards supposed to have lived in the fifth century; but great this time there were numerous poems written, many in praise of warriors, others dealing with love, or descriptive

A welcome guest at every mansion in Wales, he traveled much throughout the land. As a poet of nature, few, if any, of Monmouth made these legends known to British writers, and within twenty years afterwards the legendary heroes of early Britain were household names throughout Europe. Among the Welsh was incorporated in the judicial system of chief of which are contained in a collection known as the Mabinogion, which The native name of the Welsh landard is Cymraeg, the speech of the mances. All their literature existed in Cymri (which see). The names Wales manuscript until 1546, when appeared the first Welsh are of Anglo-Saxon origin, first Welsh book ever printed. Modern from weales, strangers, foreigners (plural works in Welsh are largely confined to of wealh). The Welsh language is, with theology, history and biography, though the other Celtic languages, included in there were many song writers in the nine-the Indo-European group. The alphabet teenth century, with some writers of contains thirteen simple and seven double literary essays and novels. Much has consonants, and seven vowels, with nu-

lish sovereign since the period of the contact of the Loch. She wrote The Baby's Grand-quest of Wales by Edward I. After the mother, A Stiffnecked Generation. The fall of the last native Welsh princes, Lie-Matchmaker, The Intruder, and other wellyn and David, in 1284, Edward is books.

The Moore and Local Contact of the Local Contact of the Local Contact of the Local Contact of a prince in his intant son Edward, born to carrier of wales until 1301. The coast of Damaraland; area, with Edward III made his son, the Black Penguin Island, about 450 sq. miles; pop. Prince, Prince of Wales in 1343, and 1000. It was acquired by Great Britain from that time till the present the title in 1878, annexed to Cape Colony in 1884, has been continuously borne by the eld-and is governed by a resident magistrate set son of the British monarch. Until from that colony est son of the British monarch. Until the reign of Charles II the connection walhalla (wal-halla), a magnificent with Wales was maintained by the odd arrangement of providing a Welsh wetnurse for the infant Prince of Wales. Danube, near Ratisbon; built between The title has usually been bestowed by 1830-42, as a national pantheon, conwith Wales was maintained by the odd arrangement of providing a Welsh wetnurse for the infant Prince of Wales. The title has usually been bestowed by patent and investiture, though in a few secrated to celebrated Germans of all instances a simple declaration has sufficed to make the heir to the throne Prince of Wales. The eldest son of the sovereign inherits the title of Duke of Cornwall, which title was first bestowed in 1337, on Edward, the Black Prince. Edward III bore the title, before his accession to the throne, of Earl of Chester, and this title has since accompanied that of Prince of Wales. When a Prince of Wales also bears the Socton of the case of Charles I until four and 1880, commissioner of In lian affairs years after the death of Prince Henry. The Prince of Wales also bears the Soctot titles of Great Steward of Scotland, Duke charles, Earl of Carrick, Baron of Rothasy, Earl of Carrick, Baron of Rothasy, Earl of Carrick, Baron of Scotland, Duke of Rothasy, Earl of Carrick, Baron of Wales, with the motto 'Ich Dien' ('I Serve').

Walker, 'Frederick, and provident in 1870, and the larger part of the revenues of the Barle of Dublin was created the learn of Dublin was created the learn of Dublin was created the learn of the Garter. The arms of the Duchy of Cornwall, amounting approximately to \$600,000. By a statute of the Carrick by an ancient paradise of Color, in which medium he receives his title, becomes a Knight of the Garter. The arms of the Prince with the motto 'Ich Dien' ('I Serve').

Walker, Frederick, an English paintweet of the Garter. The arms of the Carrick by an ancient coronet of a Prince of Wales, with the motto 'Ich Dien' ('I Serve').

Walker, Frederick, an English paintweet of the Garter. The arms of the Carrick of the Garter. The arms of the Prince are those of the sovereign, and he bears besides a badge composed of a chuston Bay in 1768, and accompanied of the Carrick of the Garter. The arms of the Carrick of the Garter. The arms of the Carrick of the Garter of the Carrick of the

Wales, PRINCE OF, the title applied burgh, Scotland, in 1845, daughter of to the eldest son of the Eng- John Colquboun, author of The Moor and

from that colony.

Wallace Walker

Walker, George, was born of Eng-to notify the workmen to stop work at the place or places indicated. rone, Ireland, in the early part of the Walking-Leaves and Walkingrone, Ireland, in the early part of the seventeenth century, and was killed at the battle of the Boyne in 1690. He studied theology at Glasgow University, and after taking orders obtained the living of the parish of Donoughmore. He was rescued from obscurity by the arrival of James II in Ulster (1689), which caused Walker to seek refuge in London-derry; and in the memorable siege of that city he took the most prominent that city he took the most prominent part both in word and deed. (See London-derry.) After the siege Walker went to London, was presented with the bishopric of Derry and £5000 and parliament ing, especially in South America and

government caused him to resign his governorship in 1858.

Walker, born at Nashville, Tennessee, in 1824, and emigrated to California about 1850. In 1855 he led a party of adventurers to Nicaragua, took the side of one of the factions engaged in civil war, captured Granada, assumed the title of President of Nicaragua, and reëstablished slavery, which had been abolished. lished slavery, which had been abolished. He was driven from power in 1857 and retired to New Orleans. In 1860 he led an expedition against Honduras and was captured and shot at Truxillo in Septem-

Walking Delegate, the name an official of a trade union, whose duty is to visit places where members of the union are employed and ascertain if they are keeping the laws of the craft. When 1905.—His wife, SUSA an unexpected strike has been ordered wrote The Storied Sea, by the union directors it is his duty porus, and other works.

opic of Derry and £5000 and parliament ing, especially in South America and voted him its thanks. Instead of taking the Asiatic Islands, and the valuable quiet possession of his bishopric he accompanied William III in his Irish campaign, and fell a victim to his courage.

Walker John, an English levicement paign, and fell a victim to his courage.

Walker, John, an English lexicographyer, born in Middlesex in graphical Distribution of Animals, etc.

Rhyming Dictionary and Critical Dictionary and Expositor of the English lexicomery and Expositor of the English Language, which became very popular.

Walker, Robert J., statesman, was lations on the Origin of Species. His share in establishing the theory was pennsylvania, in 1801; died in 1869. He acknowledged by Darwin. But while removed to Natchez in 1826, practiced Darwin, in his later editions of the law there, and was elected United States Senator by the Democratic party in 1835.

He strongly supported the annexation of recent work Description. Senator by the Democratic party in 1835. original conclusions, Wallace, in his He strongly supported the annexation of recent work, Darwinism, an Exposition Texas to the United States, was ap- of the Theory of Natural Selection pointed Secretary of the Treasury by (1889), strongly insists upon the compresident Polk in 1845, and made a plete controlling power of these primary report in favor of free trade which at- laws and conditions. Wallace, however, treated much extention He was an differs from Darwin on the subject of the tracted much attention. He was ap-differs from Darwin on the subject of the pointed Governor of Kansas in 1857, intellectual, moral, and spiritual nature but dissatisfaction with the policy of the government caused him to resign his gov-faculties have been developed not under the law of natural selection, but under a higher law, which has come in imperceptibly; and that the Darwinian theory supports this view. Among his later works are Miracles and Modern Spiritualism (in which he declares a full be-lief), Island Life, Land Nationalization, etc. He died November 7, 1913.

Wallace, Lewis, soldier and author, born at Brookville, Indiana, April 10, 1827. He served with distinction in the Mexican and Civil distinction in the Mexican and Civil wars; was appointed Governor of New Mexico, 1880; and Minister to Turkey, 1881-85. He practiced law and wrote very extensively. Among his works are The Fair God; Ben Hur, A Tale of the Christ, etc. The latter has had a greater circulation than any work since Uncle Tom's Cabin. He died February 15, 1905.—His wife, Susan E. Wallace, wrote The Storied Sea, Along the Bosporus, and other works.

Wallenstein Wallace

Auchinbothie, by Margaret, daughter of Sir Reynold Crawford, sheriff of Ayr. He was probably born about 1270. For the most detailed particulars we possess about this famous Scottish character we are almost entirely dependent on Blind Harry (see Harry the Minstrel); but the narratives cannot bear the scrutiny of the critical historian. Contemporary Scottish records do not exist, while the English chroniclers of the period were but imperfectly informed and prejudiced. Wallace is described as a man of herculean proportions and strength, and it is certain that he possessed in a high de-gree the qualifications of a commander. He is represented as having been for some years engaged in a partisan war against the English before what is repreagainst the English before what is represented by Blind Harry as the turning-point in his career took place, the slaughter of Haselrig in revenge for the murder of his wife, and in pursuance of his vow of eternal vengeance against the invaders of his country. Henceforth he continued in open resistance to the English and having collected a considerable lish, and having collected a considerable force was besieging the castle of Dundee when he heard that Surrey and Cress-ingham were advancing upon Stirling with a large army. He met them in the vicinity of that town, and, thanks to his ingenious military tactics, gained a com-plete victory (1297). After this Wal-lace appears with the title of Guardian of the Kingdom, which was temporarily or the Kingdom, which was temporarily cleared of the English, and is found conducting a series of organized raids into England. In 1298 Edward I entered species of kangaroos, the Macropus anscelland with an army estimated at tipolinus, the red wallaroo, and M. nearly 90,000 men. Wallace retired be-robustus, the black wallaroo, found in force him, wasting the country, but was at length overtaken at Falkirk, compalled to fight and offer a gallent result of the state of the second results of the second r at length overtaken at Falkirk, compelled to fight, and after a gallant resistance his army was routed. He succeeded in escaping, and little is known of his movements henceforth. He was excluded from the peace granted by Edward to the Scottish council of regency in 1304, and every effort was made to known decrupe his apprehension. It was effected through Alexander de Monteith, governor of Dumbarton Castle. Wallace was conveyed to London, and after a mock trial found guilty of treason and sive trade. It has a large foundry, agrirebellion, and executed on August cultural machine works, flour mills, etc. 23, 1305. A memorial to Wallace has been placed on the summit of Abbey a state penitentiary, and a military post. been placed on the summit of Abbey a state peniteriary, and a military post. Craig, near Stirling, in the form of a Pop. 20,963.

Scotch baronial tower, surmounted by an architectural crown, and having a Wallenstein (vál'en-stīn), Albert Wenzel Eussen

Wallace, Sir William, the hero of height of 220 feet. It serves the pur-Scottish independence, is pose of a Scottish Walhalla, and busts said to have been the younger son of Sir of eminent Scotchmen are from time to Malcolm Wallace of Elderslie and time added.

Wallace, WILLIAM VINCENT, musical composer, was born of Scotch parents, at Waterford, England, in 1814; died in France in 1865. His father, a bandmaster in the army, taught him to play on the usual military instruments, and procured him teachers of the violin, nignoforte and suiter. violin, pianoforte, and guitar. He spent some years in Australia, and made an extensive concert tour in the Australian colonies, in India, and in America. In 1845 he went to London, and devoted himself to composition. His first opera, Maritana, was produced at Drury Lane, in 1846, and secured him at once a reputation. Lurline and the Amber Witch are his other chief operatic compositions. For the pianoforte he wrote numerous airs of great sweetness, which are very popular.

Wallachia. See Roumania.

Wallack (wal'lak), James William, an American actor, born in London in 1795; died in 1864. He made London in 1350; died in 1854. He made his first appearance in the United States at the Park Theater, New York, in 1818, opened the National Theater in 1825, Wallack's Theater in 1861.—His son, LESTER JOHN, born in New York in 1820, conducted Wallack's Theater with much success for many years. cess for many years. He wrote the plays of The Veteran and Rosedale, also Memoirs of Fifty Years. He died September 6, 1888.

Wallaroo, a seaport town in South Australia, on the Spencer Gulf, 91 miles north of Adelaide. The

Wallenstein Wallis

BIUS, von, Duke of Friedland, a famous leader in the Thirty Years' war, was born on the paternal estate of Hermanic, born on the paternal estate of Hermanic, Bohemia, in 1583; assassinated at Eger in 1634. Both his father and mother belonged to the Bohemian evangelical church, but shortly after their early death Wallenstein went over to the Roman Catholic faith. He finished his studies at the Universities of Bologna and Padua, and traveled in Italy, Germany, France, Spain, England and the Netherlands. He took military service in Hungary, and returned to Bohemia at the peace of 1606 with the rank of captain. When the Thirty Years' war broke out in Bohemia (1618) he joined the imperial forces against his native country. His estates, valued at 30 million imperial forces against his native country. His estates, valued at 30 million florins, he was allowed to form into the territory of Friedland, and in 1624 he was created Duke of Friedland. He raised a large army to assist the emperor against the Lower Saxon League; defeated Count Mansfeld at Dessau (April, 1626), and compelled Bethlen Gabor to conclude a truce; conquered Silesia, and bought from the emperor, partly with military services, partly with partly with military services, partly with plunder, the duchy of Sangan and other extensive estates. In September, 1630, owing to the jealousy of the nobles and the license of his followers, he was deprived of his command, and retired to his duchy of Friedland until the emperor was compelled to seek his aid against Gustavus Adolphus, Wallenstein now obtained almost absolute power, and did not fail to abuse it. His behavior hence-forth leaves no doubt that the emperor's interests were second to his own, and that he would not have hesitated to join the emperor's enemies to secure his own independence and the crown of Bohemia. After some partial successes he encountered the King of Sweden at Lützen, November 16, 1632, in which battle Wallenstein was defeated and Gustavus killed. Wallenstein had unsuccessfully treated on his own account with the Swedish king, and he now secretly reopened negotia-tions with France and the German princes, occasionally taking the field to display his military power. The court at Vienna was well aware of his crafty diplomacy, but the emperor was not strong enough to remove him, and had recourse to assassination. This was done at Eger, where Wallenstein had retreated for safety, and where he was killed by Colonel Gordon, commandant of the for-tress, and his fellow officers Butler, Leslie, and Devereux. Wallenstein is the subject of and gives the title to one of Schiller's best dramatic poems.

Waller (wol'er), EDMUND, an English poet, born at Coleshill, Hertfordshire, in 1605; died in 1687. He was early left an orphan with a considerable estate, and was educated at Eton and King's College, Cambridge. His mother was a sister of John Hampden, and a royalist, but all the rest of his relatives were against the court. It his relatives were against the court. It is stated that Waller wrote poetry at eighteen, but his first collection of poems did not appear until 1645. As an elegant amatory and panegyrical poet, a brilliant talker and wit, he was a great favorite at court, in parliament, and in society. But his political conduct is not honorable. At heart he probably remained true to royalty, but he sang the praises of the Lord Protector as well as those of the Charleses. He was sent as those of the Charleses. He was sent as the commissioner from parliament to the king after Edgebill. Shortly after he plotted in favor of the king, and when detected turned informer. His brotherin-law, Tomkins, and the latter's friend, Chaloner, suffered death, while Waller by his judicious bribery got off with banishment and a fine of £10,000. After pages of exile in Paris. Cromnearly ten years of exile in Paris, Cromwell allowed Waller to return in 1653, and he took his usual place in society and parliament, and was afterwards wel-come at the courts of Charles II and James II.

Wallflower (wal'flou-er), the com-mon name of the species of plants belonging to the genus *Cheiranthus*, nat. order Cruciferæ. They are biennial or perennial herbs or undershrubs. Many of them exhale a delicious shrubs. Many of them exhale a delicious odor, and are great favorites in gardens. The best known is the *C. Cheiri*, or common wallflower, which, in its wild state, grows on old walls and stony places. In the cultivated plant the flowers are of more varied and brilliant colors, and attain a much larger size than in the wild plant, the flowers of which are always vellow. ways yellow.

ways yellow.

Wallingford (wol'ing-ferd), a borough of New Haven
Co., Connecticut, on the Quinepiac River
and two railroads, 12 miles N. N. E. of
New Haven. It has manufactures of
silver and plated ware, insulated wire
and fireworks. Pop. 11,155.

Wallis (wol'is), JOHN, an English
mathematician, born in 1616;
died in 1703. Educated for the church
at Emanuel College, Cambridge, he took
orders in 1640, and in 1663 obtained a
living in London. He was one of the
secretaries to the assembly of divines at secretaries to the assembly of divines at Westminster; became Savilian professor of geometry at Oxford in 1649, and D.D.

in 1654. Charles II, for services ren- and is a beautiful furniture wood. It dered to the royal cause, made him one is also employed for turning and fancy of the royal chaplains, and in 1661 he articles, and especially for gun-stocks, was one of the divines appointed to re- being light and at the same time hard vise the Book of Common Prayer. He and fine grained. The ripe fruit is one

and Western Luxembourg. They are and Western Luxembourg. They are superior in physique to their Flemish compatriots, and a large proportion of them have black hair and eyes. In 1905 there were resident in Belgium 3,600,000 Flemish, and 3,300,000 Walloons. Their language, also called Walloon, is a French patois retaining numerous Gallic words, but it somewhat varies in the different provinces. different provinces.

Wall Paper, paper used to cover the walls of dwellings, ornamented with a pattern printed in colors. It has come into very general use, and many of the more costly wall papers are highly artistic and ornamental.

Wallsend (walz'end), a town of Northumberland, on the Tyne, 4 miles N. E. of Newcastle. It is named from being situated at the eastern extremity of the Roman Wall, and was formerly famous for its coal. Metal and chemical works form the chief industries. the roots, a substantial dark-brown color

fruit of the genus Juglans, nat. order Juglandacea. The best known are the common European species of walnut tree common European species of walnut tree (J. regia), a native of several Eastern countries and the black walnut (J. nigra), found in most parts of the United States. The latter often grows to large size, the trunk in favorable situations attaining a diameter of 6 to 7 feet. The European species is a large, handsome tree with strong spreading branches. The timber of the walnut is of great of Commons, and he sat for various convalue, is very durable, takes a fine polish,

vise the Book of Common Prayer. He and fine grained. The ripe fruit is one was one of the earliest and most useful of the best of nuts, and forms a favorite item of dessert. It yields by expression in 1663. He was the author of many a bland fixed oil, which, under the mathematical, theological, and controversial works and papers, the most important of which are his Arithmetic of the Infinities and his Mechanics.

Walloons (wa-lonz), or Wallons, the produced is a common article of diet. In copper-plate printing it is employed to produce a fine impression, either in black or colors. By boiling the husks of Brabant and Western Luxembourg. They are



Pop. 41,464.

Street, the financial center of woolens, and also by cabinet-makers to which the various exchanges and the largest banking institutions are situated, and stocks and bonds are dealt in to a for pickling. The American species vast extent. Its control over finance has spread until now it affects the whole walnut for furniture and carpeter nor process. which the various exchanges and the of walnut. The truit, in a green state, largest banking institutions are situated, before the shell hardens, is much used and stocks and bonds are dealt in to a for pickling. The American species vast extent. Its control over finance has spread until now it affects the whole walnut for furniture and carpentry purcountry and is a rival of the great financial centers of Europe.

Walnut (wal'nut), the common name lumber. Its nuts are inferior, the shell being much harder, though the kernel is fruit of the group Junians. nat. order very oily. The butternut (J. cathartica) being much harder, though the kernel is very oily. The butternut (J. cathartica) is another noteworthy variety. See Butternut.

Walrus

a lively but superficial interest in politics, inclining sentimentally to extreme opinions. In 1747 he purchased Strawberry Hill, near London, where he erected a Gothic villa, laid out the grounds with minute ingenuity, and made it a principal business of his life to adorn and furnish it with objects of curiosity and antiquarian interest. His maintenance was provided for by some sinecure appointments, obtained through his father's infunce. To his antiquarian tests had fluence. To his antiquarian taste he fluence. To his antiquarian taste he added authorship, first in verse and afterwards more extensively in prose, and in 1757 he established a private printing press at Strawberry Hill, at which he printed not only his own works but those of others. In 1791 he succeeded his nephew in the peerage. He never took his seat in the House of Lords, and took his seat in the House of Lords, and appears to have avoided using his title. Walpole's works are numerous; but his fame as a writer rests on his Letters and Memoirs. The former are held to be unsurpassed in the English language, and both are highly interesting and valuable as a storehouse of the more varieties of contemporary. evanescent traits of contemporary history. His romance, The Castle of Otranto, is also well known. Walpole's manners were affected; he was fastidiously aristocratic, sensitive to criticism, and eager for applause; but under his vanity and frivolity there existed a sub-

rered parliament as member for Castle Rising. In 1702 he was elected for King's Lynn, became an active member of the Whig party, and soon distinguished himself by his business capacity, and by his easy, plausible, and dispassionate debates. He was secretary of war and leader in the Commons in 1708, war and leader in the Commons in 1708, paymaster of the forces in 1714 and 1720, and first lord of the treasury and chancellor of the exchequer in 1715, and again in 1721. From the latter date until 1742 he held without interruption chancellor of the exchequer in 1715, and again in 1721. From the latter date until 1742 he held without interruption the highest office in the state, that of prime minister. During his long administration the Hanoverian succession, to which he was zealously attached, became firmly established, a result to which his prudence and political sagnetty largely contributed. He promoted by an enlightened policy the commercial prosperity of the nation, and per canine teeth being enormously derelieved the weight of taxation by veloped in the adults, constituting two

many improvements in the tariff. In 1724 he was made a Knight of the Bath, in 1726 a Knight of the Garter, and on February 9, 1742, two days before his resignation, he was created Earl of Orford. In an age famous for venality



Sir Robert Walpole.

and lax morals he was the least corrupted, the soberest, and the hardest working of the leaders of both factions. An able monograph on Walpole has been published by John Morley.

and eager for applause; but under his published by John Morley. vanity and frivolity there existed a substratum of good sense and sound judgment.

Walpole, Sir Robert, Earl of Organity or Walpurga or Walpurgia, a female saint, born in England early in the eighth century; died in 779. She was thoughton, England, in 1676; and died in 1745. He was educated at Eton, and at King's College, Cambridge; succeeded to the paternal estate in 1700, and entered parliament as member for Castle Rising. In 1702 he was elected for abbess of Heidenheim, a convent within king's Lynn, became an active member of the Whig party, and soon distinner prother's dishopric. She died at the latter place, but was buried at Eichstädt, where her shrine was visited by many pilgrims and was the scene of many miracles. The eve of May 1, associated with some of the most popular witch superstitions of Germany, is called Walpurgis-night, but her feast falls properly on the 25th of February.

Wolves (wol'rus). a marine carniv-

Walsall Waltham

large pointed tusks directed downwards and slightly outwards, and measuring usually 12 to 15 inches in length, sometimes even 2 feet and more. There are no external ears. The animal exceeds the largest ox in size, attaining a length of 20 feet. It is monogamous, and seldom produces more than one young at



Pacific Walrus (Odobænus obesus).

a birth; gregarious but shy, and very fierce when attacked. It inhabits the high northern latitudes, where it is hunted by whalers for its blubber, which yields excellent oil; for its skin, which is made into a durable leather; and for its tusks. Its favorite food consists of crustaceans.

N. N. w. of Birmingham. The present town is almost entirely modern. Extensive coal, iron, and limestone deposits in the immediate vicinity, and ample canal and railway communication with leading trade centers, have made an important manufacturing town of Walsall. in 1887. He was the architect of Girard Brass and iron foundries are numerous College, in Philadelphia, a magnificent and on a large scale; and for saddlers' Grecian structure, and in 1851 was made and carriage-builders' ironmongery, tools, architect of the United States Capitol books and keys at Walsall her large architect of the United States Capitol locks, and keys, etc., Walsall has long been famous. Pop. 92,130.

Walsh, ROBERT, author, born at Baltimore, Maryland, in 1784; died in 1859. In 1837 he removed to Paris, and was U. S. consul there 1845– 52. He edited the American Review of History and Politics, the first American quarterly, and was the author of various works of literature, political in character. He conducted the American watch-tools, and cottons. The Waltham

Register, the National Gazette, and the Museum of Foreign Literature and Science, and edited Didactics: Social, Literary and Political.

Walsh, WILLIAM SHEPARD, journalist, born at Paris in 1854, son

of the preceding. He wrote much for periodicals, became editor in 1886 of Lippincott's Magazine, and published Faust: The Legend and the Poem, Paradoxes of a Philistine, Handy Book of Literary Curiosities, historical and existing hooks for the young etc. His scientific books for the young, etc.— His brother, Henry Collins Walsh (born 1863), also a journalist, wrote By the Potomac and other Poems, The Last Cruise of the Miranda (a record of an Arctic voyage), etc.

Arctic voyage), etc.

Walsingham (wol'sing-am), SIR FRANCIS, an English statesman of the reign of Elizabeth, born of good family about 1536; died in 1590. After studying at King's College, Cambridge, he traveled on the continent for some time, and acquired a good knowledge of foreign languages and politics. He was introduced by Cecil, Lord Burleigh, to public service, and was employed in embassies to France. the Lord Burleigh, to public service, and was employed in embassies to France, the Netherlands, and Scotland. He also sat in the House of Commons for various constituencies, and occupied important public offices. His sagacity and discretion caused him to be much employed, often against his own desire, in the intrigues of Elizabeth, especially against Mary Queen of Scots. The unraveling of the Babington plot was intrusted to Walsingham, and he was also one of the commissioners who tried Queen Mary.

Mary. Walsall (wol'sal), a parliamentary Walter (wal'ter), JOHN, an English journalist, born in 1739; died England, in the county of Stafford, 8 miles in 1812. the greatest of British journals, in 1788. He was succeeded by two others of the same name. The last died in 1894 and was succeeded by his nephew, Arthur.

Walter, Thomas U., architect, born at Philadelphia in 1804; died

extension. In addition to this work he built several of the department buildings at Washington. He was for many years professor of architecture in the Franklin Institute, Philadelphia.

machine-made watches are known throughout the world. There are variknown ous other industries, including knit goods, automobiles, bleachery and dye works. Pop. 27,834.

Waltham Abbey, a market town the county of Essex, 12 miles north by



Waltham Cross.

Lea. It derives its name from an old to prevent monotony. The valse & deux abbey founded by King Harold in 1060; temps is a form of waltz in which two and is now chiefly known for its governsteps are made to each bar of three ment gunpowder and guncotton factories. beats. Classical waltzes are composi-

In the hamlet of West Waltham, or Waltham Cross, about a mile from Waltham Abbey, is a famous cross erected 1291-94 by Edward I. Pop. of district 6796.

Walther von der Vogelweide

(fö'gl-vi-dė), one of the most eminent old German lyric poets of the class of Minnesingers, was born about 1170; died at Würzburg about 1230. His earliest patrons were Duke Leopold VI of Austria and his son Frederick. Subsequently he visited, for shorter and longer periods, the courts of most German princes, who were in favor of an imperial as against a papal policy and who perial as against a papal policy and who perial as against a papar policy and who could appreciate his distinguished muse. The emperor Frederick II provided him with a small estate near Würzburg, where he seems to have always retired when disgusted with traveling, the courts, and intrigues, and there he died. He was a politician and reformer as well he was a politician by the courts. as a poet, and his exquisite and manly verses breathe a liberalism far in advance of his times; while the subjects of his favorite love songs are women true and noble.

Walton (wal'tun), IZAAK, the auther of the famous Compleat Angler, was born at Stafford in 1593; died at Winchester in 1683. For a number of years he carried on successfully in London some branches of the drapery trade, but retired at the age of fifty, and devoted his remaining forty years to a life of cultured ease and pleasure. In 1626 he married a relative of Arch-bishop Cranmer, and about 1646 a half-sister of Bishop Ken. Through these matrimonial alliances he became friendly and intimate with many of the distinguished ecclesiastics of his time, and wrote the biographical memoirs of some of them. His first edition of the Compleat Angler appeared in 1653. It is to his exquisite delineations of rural scenary, his genuine love for the Content of the and His works, the ease and unaffected humor of the dialogue, and the delightful simplicity and purity of the style, that this notable work owes its charm.

Waltz (waltz), a dance of Bohemian origin, executed with a rapid wheeling motion, the gentleman having wheeling motion, the gentleman having wheeling motion, the gentleman having his arm round his partner's waist. The music is written in triple time in crotchets or quavers, and consists of eight or sixteen bar phrases. Several east of London, on the left bank of the of these phrases are now usually raited

literature of the early middle ages, and every country, was never seen to laugh, its popularity has been chiefly confined and rebuked with the greatest severity all to a few countries, as Germany, France, blasphemies against the name of Christ. Scandinavia and the Netherlands. The This story became widely current during legend takes several forms, and has its the succeeding period, and from this time analogues in the story of Cain, whose forward we meet with many precise very several to the story and the story and variations. analogues in the story of Cain, whose forward we meet with many precise vercurse presents some similarity, and the Arab story of Samiri, the maker of the Golden Calf, who became a similar home-folden Calf, who became a similar home-less wanderer. The Wandering Jew appears to make his first appearance in an with by two reputable citizens. His Italian legend, which may be of great name now becomes Isaac Laquedom, antiquity. This tells how a Jew named which Böttcher thinks is possibly a cor-Malchus struck Jesus with an iron glove. ruption, by a man of small learning, from Since then he has lived underground, the Hebrew la-kèdem ('the former doomed to turn endlessly around a pillar world'). These versions made their way until the day of judgment. We first read into other countries, and their substance of the historic Wandering Jew in the appears in a poem in Percy's Reliques. Historia Major of Matthew Paris (completed in 1259). His version is that an the substance of the wonders of his country Jew, that of Buttadeus, and various told of a Jew named Cartaphilus, then other appearances are on record at alive and well known to him, yet who Beauvais, Leipzig, Lübeck, Moscow, had been a doorkeeper in the palace of Madrid and Hull. The latter record is Pilate in the time of Christ and had

tions in walts form not intended for struck him while being led to the crucidance tunes.

Wampum (wam'pum), the Indian en faster.' Jesus replied, 'I go, but name for shell beads, used thou shalt wait till I return.' The story Wampum name for shell beads, used thou shalt wait till I return.' The story by the United States tribes for ornament and as money, or a medium of commerce. They were often fastened together into a broad belt, called by deften eaten at the bishop's table. He them Wampumpaque, or Wampeaque. They were shaped by them out of seashells, cut into round pieces, but the of one hundred he fell into a faint and colonists soon entered into this enterprise and quickly reduced the value of wampum by producing an oversupply.

Wanamaker (wa-na-ma'ker), John, the monks with him confirmed the story. The monks with him confirmed the story. Wanamaker (wa-na-ma'ker), John, the monks with him confirmed the story. It has been suggested that the name afterwards visited England, and some of the monks with him confirmed the story. It has been suggested that the name husted the place of crucificion. This legend, bardening Jew, the hero of a sanywhere in the East.

Coming down to a date, three hundred of such a story in Armenia or anywhere in the East.

Coming down to a date, three hundred of hudgenet in punishment for an insult of fered to Christ, when on his way to his sermon. He was a tall, ragged, of judgment in punishment for an insult offered to Christ, when on his way to his sermon. He was a tall, ragged, of judgment in punishment for an insult offered to Christ, when on his way to his sermon. He was a tall, ragged, barefoot, gaunt wanderer, with long hair offered to Christ, when on his way to his sermon. He was a tall, ragged, barefoot, gaunt wanderer, with long hair offered to Christ, when on his way to his sermon. He was a tall, ragged, barefoot, gaunt wanderer, with long hair offered to Christ, when on his way to his sermon. He was a tall, ragged, barefoot, gaunt wanderer, with long hair offered to Christ, when on his way to his sermon. He was a tall, ragged, barefoot, gaunt wanderer, with long hair offered to Christ, when on his way to has sermon. He was a tall, ragged, barefoot, gaunt wanderer, with long hair offered to Chris

offered to Christ, when on his way to falling over his shoulders. His name had the piace of crucifixion. This legend is now become Ahasuerus, and his occupanot of ancient origin, nor is it wide-tion at the time of Christ that of a shoe-spread. No trace of it is found in the maker. He could talk in the language of

isters of Hull, Yorkshire, tell how 'some time since,' the Jew visited Hull and was locked up, but the prison doors flew of the United States from the locked up, but the prison doors flew of the Pacific. Its flesh is not open before one condemned to have no resting place. The Turkish Spy, writing its hide is made into an excellent kind of from Paris in 1644, gravely tells of a conversation with him, now as Michob Ader, in several languages, including a five or six hour talk in Arabic.

In this talk the Jew 'the Younger Brother of Time,' told his listener that there was scarcely a true history in extistence. When asked about what had become of the lost Ten Tribes of Israel, he was unable to give any satisfactory account of them. Such are the various notions which have arisen concerning this curious story. The conception involved is one that has been connected with ether characters and incidents, like that of Calin fleeing with the brand of murder on him, the Wild Huntsman of German legend, and the famous story of the Flying Dutchman, so weirdly treated by Coleridge. The Wandering Jew has found a place more than once in literative, as in Eugene Sue's novel under that title, and the theme presented itself favorably to Goethe, but was abandoned for that of Faust.

Wandero, Wanderu (wan'der-ö; or supreme power in the state, or for the establishment of some important point connected with civil or religious liberty. In all cases the sim of each contend of the United States from the United States fro

Wanderoo, Wanderu (wan'der-ö: wanteroo, wanter Macacus liberty. In all cases the aim of each silenus), a monkey of southern Hindustan, especially near the Malabar weaken the enemy by the defeat or discoast. They are long, slender, black animals, notable for the large mane or pation of important parts of his country, ruff, and beard, which stand out like such as the capital or principal admina gray or white frame to the black istrative and commercial centers, or the face, and give it a very peculiar aspect. ruin of his commerce, thus cutting off Wandsworth (wons'worth), a London suburban parliamoney, and material. International or mentary borough, created in 1885. public war is always understood to be Pop. 311,402. Wandsworth proper is authorized by the monarch or sovereign situated at the confluence of the Wandle power of the nation; when it is carried with the Thames, immediately to the s. w. of Battersea, and is an important center of industry.

Wantage (won'tāj), a market town of England, Berkshire, on a small tributary of the Thames, situated in the fertile vale of the White Horse. Pop. 3628.

isters of Hull, Yorkshire, tell how some is found in Canada and the northern time since, the Jew visited Hull and was parts of the United States from the

point connected with civil or religious liberty. In all cases the aim of each contending party is to overthrow or weaken the enemy by the defeat or disauthorized by the monarch or sovereign power of the nation; when it is carried into the territories of a hitherto friendly power it is called an oppressive or offensive war, and when carried on to resist such aggression it is called defensive. Previous to the outbreak of hostilities between countries, the power taking the initiatory step issues a design. taking the initiatory step issues a declaration of war, which now usually takes Wapentake (wa'pen-tak, wop'n-tak), the form of an explanatory manifesto the name formerly given addressed to neutral governments. During some of the northern shires of Enging the progress of the struggle certain land, and still given in Yorkshire, to laws, weages, or rights of war have come a territorial division of the county, corto be generally recognized; such laws responding to the hundreds of the south-permitting the destruction or capture of Wapiti (wop'i-ti), a species of deer, erty likely to be serviceable to them, the North American stag the stoppage of all their channels of (Cervus Canadensis), bears considerable traffic, and the appropriation of everythough it is larger and of a stronger for the support and subsistence of the make, its antiers also being larger. It invading army. On the other hand

though an enemy may be starved into the Alliance Between Church and State, surrender, wounding, except in battle, etc., but his great work is the Divine Lemutilation, and all cruel and wanton gation of Moses. It was assailed in devastation, are contrary to the usages many quarters, and Warburton carried of war, as are also bombarding an unon the controversy with ability and inprotected town, the use of poison in any temperate vigor. A defense of l'ope's way, and torture to extort information Essay on Man secured him the friendship from an enemy; and generally the ten-of the poet. By the death of Ralph dency in all laws and usages of war is Allen (which see), Warburton succeeded becoming gradually more favorable to to the splendid seat of Prior Park in becoming gradually more favorable to to the splendid seat of Prior Park, in the cause of humanity at large. These Gloucestershire. He was appointed, in principles of warfare, it should be stated, 1746, preacher to the society of Lincoln's refer to warlike conflicts as now conducted. As conducted in former, less civ-

Warbeck (war'bek), or Osbec, Per-Kin, the son of a Flemish Jew, was set up by Margaret of York, dowager-duchess of Burgundy, as a pre-tender to the crown of England against Henry VII. For this purpose she claimed to recognize him as her nephew, Richard Plantagenet, duke of York, the younger of the two princes who were murdered in the Tower by Richard III. land, married a kinswoman of the Scottish king, James IV, made several fruitless invasions of England and Ire-

Warburton (war'ber-tun), WILLIAM, an English prelate, was born at Newark-upon-the-trent in 1698; died at Gloucester in 1911. She took an active interest in 1779. He was brought up to the law, temperance and other reform movements. But not finding this profession to his Her works include Gates Ajar, A Singutaste he relinquished it, and in 1723 took lar Life, The Man in the Case, Story deacon's orders in the church In 1727 of Jesus Christ. deacon's orders in the church in 1721 of seven Carts.

Ward, Herbert Dickinson, author, born at Waltham, MassachuProdigies and Miracles. This led to his being presented to the rectory of Brand Stuart Phelps (which see) in 1888. He
Broughton, in Lincolnshire, where he become an editorial writer for daily and
remained many years, composing here monthly publications, and wrote The
most of those works which contributed to the establishment of his fame. In the Magicians, The Captain of the Kit1736 appeared his first important work, tiwink. The Burglar Who Moved Para-

though an enemy may be starved into the Alliance Between Church and State, Inn, and from at time his advancement

refer to warlike conflicts as now conducted. As conducted in former, less civilized times, no such rules existed and war was carried on with little regard to mercy or morality. See also International Law.

War, Peasants' soar.

Warbeck (war'bek), or Osbec, Perather of a Flemish Camp such was carried on the first of a ry general, born at Shrewsbury, Massachusetts, in 1727; died in 1800. He served in the French and Indian war under Abercrombie. At the siege of Boston, in 1775, he became second in command under Washington. He resigned in April, 1776, and ington. He resigned in April, 1776, and was a member of Congress from 1791 to 1795.

Ward. ARTEMUS. See Browne, C. F.

Ward, Edward Mathew, an English painter, born at London in 1816; died at Windsor in 1879. In 1835 He was patronized by France and Scot- he joined the classes at the Royal Academy. The following year he went to Italy, where he studied fresco painting under Cornelius. He took part in the competition, opened in 1843, for decoratland, was taken prisoner after an attempt on Cornwall (Oct., 1497), and competition, opened in 1843, for decorating the House of Parliament, his design confined to the Tower, where, his plotting being continued, he was executed tory of Boadicea. Eight of his designs (November, 1499).

Were finally accepted, and executed by ting being continued, he was executed tory of Boadicea. Eight of his designs (November, 1499).

Warblers (war'blerz; Sylviadæ), the name applied to a family mons in 1853. For his subjects he genor dentirostral insessorial birds, generally small, sprightly, very shy, and remarkable for the clearness, sweetness, markable for the clearness, sweetness, many of his paintings have been largely and flexibility of their song. Insects reproduced by the engraver. Dr. Johnform their food, and most of them are son in Lord Chesterfield's Ante-room, migratory. The typical warblers belong and the Royal Family of France in the Works.

Worthwardon (war'ber-tun), WILWord Mes. Herbert D., ELIZABETH

dise, The Light of the World, Love Letters of an American Cirl, etc.

Ward, Mrs. Humphry (Mary Augusta Arnold), was born at Hobart, Tasmania, June 11, 1851, a relian and Probus, classical romances, granddaughter of Dr. Arnold of Rugby. Which brought him a high reputation. Her father, Thomas Arnold, was an author of some reputation. She married T. Humphry Ward, editor of Men Sketches on European Capitals.

of the Time, The English Poets, etc. As a novelist she is known under her husband's name. She gained a wide popularity in 1888 by her novel of Robert Elsmere, which had a phenomenal success. Other works from her pen are David Grieve, Marcella, Sir George the spoils of war of former history, and ralsuccess, Lady Rose's Daughter, The Case of Richard Meynell, and a number to Germany after the war of 1870-71. of others, all of considerable popularity. A similar indemnity has been demanded of others, all of considerable popularity.

Ward, JAMES, a British painter, born in London in 1769; died at Cheshunt in 1859. He early became eminent as an engraver, and only took to painting when arrived at middle age. His exquisite delineation of animals speedily secured him fame, and he was extensively patronized by George III.

Ward, John Quincy Adams, sculptor, born at Urbana, Ohio, in 1830; died May 2, 1910. After studying medicine for a time he became a sculptor and won the reputation of being one of the ablest that this country had produced. Among his works are the statues of Shakespeare, Central Park, New York; of General Thomas, at Washington, D. C., and of General Washington at Newburyport. He also produced The Escaped

River, 27 miles E. N. E. of Springfield, It Warming and Ventilation.

tury, the highest indemnity ever exacted being the \$1,000,000,000 paid by France to Germany after the war of 1870-71. A similar indemnity has been demanded a similar indemnity has been demanded a similar indemnity has been demanded. a similar indemnity has been demanded in all recent wars, on the principle of repayment to the conqueror of the costs of making war. It is aside from land exactions, since Germany took from France also the province of Alsace-Lorraine. The conduct of the United States has been generous in this respect. After the war with Mexico it paid that country for the territory occupied and retained, and after the war with Spain, in 1898, paid Spain \$20,000,000 for its property in the Philippines. It was the same with the Boxer indemnity exacted from China in 1900, the United States remitting its share of this indemnity, a generosity not displayed by any of the European nations concerned.

Waring (war'ing), GEORGE F., engineer and author, born in Westchester Co., New York, in 1833. buryport. He also produced The Escapea Slave, The Indian Hunter, The Good Samaritan, etc. He became a member of the National Academy of Design in 1863, and its president in 1872.

The Frank, geologist and afterwards attained distinction as a first and agricultural engineer. He the National Academy of Design in 1863, and its president in 1872.

Ward, Lester Frank, geologist and sociologist, born at Joliet, Illinois, in 1841. He was graduated at executed the new sewerage works of Columbian College, Washington, D. C., in 1869, served as assistant geologist in was appointed street commissioner of the United States Geological Survey 1881. New York, and surprised the people of 88, and afterwards as geologist and paleontologist. Among his many works and in 1898 went to Havana and enare: Dynamic Sociology, Geological Distribution of Fossil Plants, Principles of Nociology, Pure Sociology, Applied Sociology, Pure Sociology, Pure

River, 27 miles E. N. E. of Springfield, It warming and Ventilation. has manufactures of cottons and woolens, boots and shoes, hosiery, paper, etc. Pop. 8774.

Ware (war), WILLIAM, author, born at Hingham, Massachusetts, in 1797; died in 1852. He became a closely allied subjects, are receiving church pastor at New York and elsewhere, and for a time edited the Chrissic control of the atmosphere of our bouses and apartments is of such importance to health and vigor of mind that warming and ventilation, two 1797; died in 1852. He became a closely allied subjects, are receiving church pastor at New York and elsewhere, and for a time edited the Chrissic control of the atmosphere of our bouses and apartments is of such importance to health and vigor of mind that warming and ventilation.

been the cause of, and is still responsible, perature of the water, the greater is the been the cause of, and is still responsible, perature of the water, the greater is the for an incalculable amount of human disease and suffering. The body, to realiso several systems of heating by main in health, requires a certain degree of heat; so that, if the surrounding atmosphere is too low in temperature, the atmosphere, and of maintaining its artificial means must be employed to purity by expelling foul air and adraise it. The temperature which is mitting fresh, without drafts. Of the found the most agreeable for the air of products which vitiate the air pulmonary apartments in which the occurants are exhalations are the most important. Air customary ancient method of warming an also with a varying amount of watery apartment. The Greeks and other nations commonly used it, and they sought to correct the deleterious nature of the splices, and woods; but the carbonic acid given off by the combustion of charcoal is very injurious to bear are exhalations are the most important. Air which has been utilized by living beings is always charged with carbonic acid, and also with a varying amount of watery or which is increased as the air is warmed; and to correct the deleterious nature of the smaller quantities of ammonia, and organic matter, especially bacteria. spices, and woods; but the carbonic acid given off by the combustion of charcoal is very injurious to health. The ordinary open coal-fire is, if not the most economical, at least the most agreeable means of heating apartments, but the waste of heat is very considerable. This waste early led to the introduction of closed stoves, first in earthenware and then in metal. These closed stoves, of which there are innumerable varieties in form and construction, are particularly form and construction, are particularly favored in America and on the European favored in America and on the European but this process probably would be atcontinent, and certainly effect a great tended with danger to the health of the saving in fuel; but they do not form inmates from the violence with which natural ventilators, like the open fireplaces, and are liable to overheat the room. The most common form of rooms and to render the air in them too dry. For public buildings, warehouses, conservatories, etc., the most extensively under ordinary conditions to be sufficient. The difference in the weight of steam and hot-water pipes. The hot-water apparatus, in its simple and practical form, was introduced by Atkinson in 1822. The circulation of water is former. Mechanical ventilation is generally effected by means of gratings in pansion of water by heat, and its query between the height of the water above, and a variety of arrangements have the water when heated in the lower part of a boiler will rise to the surface, making room for other and cooler particles commonly ventilated in the roof, though of a boiler will rise to the surface, making room for other and cooler particles to be heated, in their turn; hence if a pipe full of water rise from the top of a boiler to any required height, and then return by gentle bends to the boiler at the lower part, heated water will rise and occupy the upright pipe, and the colder water will descend into the boiler to take its place. Thus a continuous circulation may be maintained a uniform renewal of air is required, through pipes in a building, the heated water rising up, passing on, and returning cooled, to the lower part of the boiler, causing a satisfactory temperature to be everywhere felt. The greater shafts, or pipes are usually the medium the elevation to which the heated water through which air passes in and out, ascends, and the higher the initial tem-

phere not only unfit but dangerous for respiration. Authorities on hygiene vary somewhat as to the amount of air necessary for healthy living rooms, but it is generally admitted that not less than it is generally admitted that not less than 1000 cubic feet of fresh air per healthy person should be supplied every hour, and from 3000 to 4000 cubic feet to rooms occupied by invalids. We may renew the air in a room in an instant by throwing open doors and windows, but this process probably would be attended with danger to the health of the inmates from the violence with which by pumps or fans moved by steam or officers, to search private premises. gas engines. The proper ventilation of Commercial warrants usually authorize mines forms one of the most difficult and important functions of a mining engineer. See Mining, and also Sanita
etc. tion.

field, Massachusetts, in 1829, and was a bargainer for himself and his heirs, graduated from Hamilton College in 1851, In 1853 he was connected with a surveying party on the Missouri frontier; he then studied law and practiced in Chicago; became connected with the newspaper press; traveled in Europe; and in 1884 became joint-editor of Harner's Magazine. His works include: electric lamps and appliances, etc. It is My Summer in a Garden, Saunterings, country seat of Warren Country. Pop. 11,081.

Warren, Susan, an American writer, on three railroads. It is in an agricultural and dirying Country, born at New York in 1819; tural and oil region, but the chief industries are connected with oil products and under the pseudonym of Elizabeth, warren, a town in Bristol Co., Rhode World, which soon attained experiences. Wetherell, a novel entitled The Wide, Asylum. Pop. 13,050.

Wide World, which soon attained extraordinary popularity on both sides of the Atlantic. Queechy, which appeared Providence. Cotton goods and yarn are in 1852, was almost equally popular manufactured. A trading post was esshe wrote also various other works, but tablished here in 1632. Pop. of town none that had any special favor with the

illegal. Warrants may be divided into executive, judicial, and commercial warrants. The first include Death, Extradition, and Treasury Warrants (authority to receive payments at the treasury). Common forms of judicial warrants are: the Warrant of Arrest, usually issued by a justice of the peace for the appreby a justice of those accused or suspected of crimes; the Warrant of Commitment, a written authority committing a person to prison; the Distress Warrant, a warrant issued for raising a sum of money upon the goods of a party specified in Hill in 1857. the warrant; the Search Warrant, an War Revenue. authority, generally granted to police-

Warranty (wor'an-ti), in law, a guarantee or security; a Warner (war'ner), Charles Dubley, author, was born at Plainfield, Massachusetts, in 1829, and was a bargainer for himself and his heirs,

none that had any special favor with the public.

Warp. See Weaving.

Warping a mode of fertilizing poor (warp'ing), in agriculture, of varied inundation from rivers which hold large general in 1862. In 1863, and became a colonel quantities of earthy matter, or warp, the consists in inclosing a body or sheet of was promoted major general in May, water till the warp has deposited, can only be carried out on flat low-lying command of the 5th corps of the army. water the warp has deposited, that low-lying command of the 5th corps of the army, tracts which may be readily submerged. General Sheridan was displeased with Warrant (wor'ant), an instrument his conduct at the battle of Five Forks, or document authorizing April 1, 1865, and removed him from certain acts which without it would be his command. He was mustered out in May, 1865, as major of engineers, and in 1876 was made lieutenant-colonel in the United States army. A statue of him was placed on Little Round Top, Gettysburg, in 1888.

Warren, Joseph, a Revolutionary at Roxbury, Massachusetts, in 1741. On June 14, 1775, he was made major-general in the army before Boston; took part in fortifying Bunker Hill, and was killed in the Bunker Hill battle of June 17, 1775. A statue of him was erected at Bunker

The taxation act of 1917, designed

to supply the United States government with funds, in addition to those raised by loan, for the expenses arising from the participation of this country in the European war, covered a wide scope, including taxes on ordinary incomes, upon excess profits in business operations, and on a large number of articles used in daily life operations. The taxes on incomes provided by the existing law covered a tax of 1 per cent on the net income of all single persons over \$3000 and married persons over \$4000, with a surtax on incomes over \$20,000, this gradually increasing in percentage as the income grew larger. Under the new law the exemption is reduced and applies in the case of single persons to incomes over \$1000 and of married persons to incomes over \$2000. Under the 1917 enactment an additional supertax is imposed in the following rates: 1 per cent on amounts between \$5000 and 1 per cent on amounts between \$5000 and \$7000, 2 per cent between \$7000 and \$10,000, 3 per cent between \$10,000 and \$12,000, 4 per cent between \$12,000 and \$15,000, 5 per cent between \$15,000 and \$20,000, 7 per cent between \$20,000 and \$40,000, 10 per cent between \$40,000 and \$60,000, 14 per cent between \$60,000 and \$60,000, 18 per cent between \$80,000 and \$100,000, 22 per cent between \$100,000 and \$100,000, 25 per cent between \$150,000 and \$100,000, 25 per cent between \$200,000 and \$200,000, 25 per cent between \$200,000 and \$200,000, 25 per cent between \$200,000 and \$200,000,000 and \$200,000 and and\$150,000, 25 per cent between \$150,000 and \$200,000, 30 per cent between \$200,000 and \$250,000, 34 per cent between \$250,000 and \$300,000, 37 per cent between \$300,000 and \$500,000, 40 per cent between \$500,000 and \$750,000, 45 per cent between \$750,000 and \$1,000,000, and 50 per cent over \$1,000,000. Under these laws the total tax on incomes of \$100,000 amounts to \$116,180; on incomes of \$500,000 to \$192,680; on those of \$1,000,000 to \$475,180. In addition to these taxes on individuals there is imposed these taxes on individuals there is imposed a corporation tax of 40 per cent on the also perfumes, essences, toilet soaps and annual income of the corporation, joint powders. In addition taxes are levied on stock company, etc.

Taxes on excess profits are also imposed, in addition to those above enumerated, upon the income of every corporaated, upon the income of every corpora-tion, partnership, or individual, these be-ing equal to the following percentages of the net income: 20 per cent of the amount of the net income (in excess of certain deductions provided for), if not in excess of 15 per cent of the invested capital for the taxable year, 25 per cent of the net income if in excess of 15 but not of 20 per cent of the invested capital; and so on in increasing percentages up to 60 per surety bonds a tax of 50 cents; on parcel cent of the amount of the net income in post packages, when the postage amounts excess of 33 per cent of the invested capto 25 cents, of 1 per cent on each dollar ital. The amount of deduction is varied or fractional part thereof; on postal cents and later and appropriate thereof. ferent cases involved.

In addition to these income taxes, there is a considerable variety of war taxes, an important one being that on beverages. On distilled spirits now in bond or that may hereafter be produced in or imported into the United States, if intended to be used as beverages, a tax of \$2.10 on every proof gallon, or wine gallon when below proof. If not to be used as beverages the tax is \$1.10 per gallon. On beers, ales, porters and other fermented liquors, the tax will be \$1.00 on every barrel containing not more than 31 gallons. The tax on cigars and other tobacco products varies in regard to the several forms which tobacco takes in manufacture and use and the prices at which these are sold. Thus 25 cents per 1000 are laid on cigars weighing not more than 3 pounds the 1000, if made to retail at from 4 to 7 cents each, and so on in an intricate

variety of charges. A war tax is laid on facilities furnished by public utilities and insurance. Under this head are taxes of 3 per cent on the charge for freight or express carriage by rail or water; and 8 per cent on the cost of tickets of travelers by rail or water; also 5 per cent on the cost of seats or berths in parlor or sleeping cars or on vessels. These taxes and various others came into effect on Nov. 1, 1917. Among the others were taxes on the various kinds of insurance, and on war excises on automobile trucks, wagons and motor cycles, the latter being 3 per cent of the selling price. In addition may be named player pianos, graphophones, moving picture films, jewelry, yachts, motor or pleasure boats, and a large variety of other articles used for pleasure purposes, including playing cards, toys and games; also perfumes, essences, toilet soaps and pills, tablets, powders, chewing gums and

other substances in great variety.

After December 1, 1917, a tax became imposed on tickets of admission to places of amusement of 1 cent on each 10 cents or fraction thereof, including admission by or fraction thereof, including admission by season ticket or subscription. Also all dues for membership in any club or association are taxed 10 per cent if amounting to over \$12 per year. Stamp taxes are imposed on bonds, debentures or certificates of indebtedness of 5 cents for every \$100 of face value; on indemnity and surety bonds a tax of 50 cents; on parcel cent perhaps a mounts are the postage amounts. and intricate in its application to the dif- cards and letters, and on numerous other articles to which a stamp tax is applicable.

Warrington land, with a small portion in Cheshire. River, canal, and railway communica-tions secure it exceptional carrying fa-cilities. Tanneries, iron, glass, and soap works, cotton mills, and breweries are numerous. The Munchester Ship Canal passes here. Pop. 72,178.

War Risk Insurance.

toria, 170 miles southwest of Melbourne. It lies in a fertile agricultural district, and has an extensive trade in wool, flour, and dairy produce with Melbourne. Pop. 6410.

Warsaw (war'sa), a city of Russia, capital of Russian Poland, or the Vistula Province, as that country is now officially designated. It lies on the left bank of the Vistula, and extends for over 5 miles along that river. Its water communications have long made it one of the most important commercial centers of Eastern Europe, and it is now connected by rail with Moscow, l'etrograd, S. W. Russia, Dantzic, and Berlin. Two bridges connect it with Praga, a suburb on the right bank of the river. Warsaw is famous for its huge churches, numerous and magnificent palaces and monuments, remnants of former Polish grandeur; for its educational institutions; and for its many and extensive gardens, parks, and suburban drives. It was formerly also exceptionally rich in literature and art treasures; most of these Interature and art treasures; most of these have been confiscated and transferred to Petrograd. Leather, boots and shoes, woolen and linen stuffs, plated ware, machinery, chemicals, spirits and beer, are some of the most important industrial products. It became an important place in the middle ages, and early in the seventeenth century supplanted Cracow as the capital of Poland. As such it was several times stormed and captured, coming under Russian rule in 1813. Although ing under Russian rule in 1813. Although ing under Russian rule in 1813. Although strongly protected by the fortresses on the Narev and Novo-Georgievsk on the Vistula, it was taken by the German armies on August 5, 1915, one year after the opening of the European war (q. v.). The population in 1913 was 872,000.

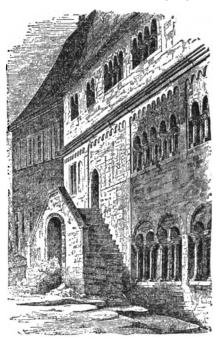
Warship. See Navy and Ironclad.

(wart), a small dry hard tumor Wart making its appearance most frequently on the hands, sometimes on the face, and rarely on other parts of the N. and W., then through Prussia W. N. W., body, and occurring usually on children. and after watering Posen joins the Oder Warts may be described as collections of at Küstrin. Total length, 483 miles, of abnormally lengthened pupillæ of the which 220 are navigable.

(wor'ing-tun), a town skin, and closely adherent and ensheathed of Lancashire, Eng- in a thick covering of hard dry cuticle. Il portion in Cheshire. In most cases they disappear of them- railway communicaselves, or they may be removed by applicational carrying factures of nitric or glacialacetic acid, etc.

War Tax. See War Revenue.

Wartburg (vart'burh), an ancient mountain castle in Ger-See Insur-ance, of Saxe-Weimar. It was built in 1067 as -böl), a a residence for the landgraves of Thur-Warrnambool (war'nam - böl), a a residence for the landgraves of Thur-seaport town of Vic- ingia. Here, according to the legend, took



The Wartburg.

place the poetic contest known as the War of the Wartburg, between Walther von der Vogelweide and six other eminent poets of Germany, in 1206. It was the residence of Luther in 1521-22, and the room in which he worked at the translation of the Bible is still shown.

(varté), or WARTA, a river Warthe Poland, 35 miles N. W. of Cracow, flows

Wart-hog, a name common to certain the two great manufacturing towns of members of the hog fam-Birmingham and Coventry (which see). ily, genus Phacocharus, distinguished Pop. (1911) 1,040,628. from the true swine by their dentition, Warwick (war'wik), a town (town-phode).



with Edward on account of the latter's marriage, he went over to Henry's side, and was able to place him again on the throne, but his army was defeated and himself by his poetical compositions and criticisms. He was chosen professor of poetry at Oxford, and early distinguished himself by his poetical compositions and criticisms. He was chosen professor of poetry at Oxford in 1757, a chair he filled with great ability for a chair he filled with great ability for ten years; appointed Camden professor of history in 1785; and succeeded Whitehead as poet-laureate in the same year. Several church livings were also held by him. He rendered great service to literature by his History of English Poetry (1774-81), in three volumes, a work never completed.— His brother, Joseph (1722-1800), also deserves mention as a literary critic, and as headmaster of Winchester School (1766-96). To him we owe an essay on the Writings and Genius of Pope.

Wowrich (2007ik), a parliamentary

warwick (wo'rik), a parliamentary borough of England, on a rocky hill on the right bank of the Avon, the county town of Warwickshire. The principal object of interest is Warwick Cault the prest magnificant of the arms. Castle, the most magnificent of the ancient feudal mansions of the English nobility. Pop. 12,414.—The county has an area of 902 sq. miles. The surface is gently indulating well material. is gently undulating, well watered, chiefly by the Avon and the Tame; the soil generally fertile, suitable for grain, root, and pulse crops, and there is a

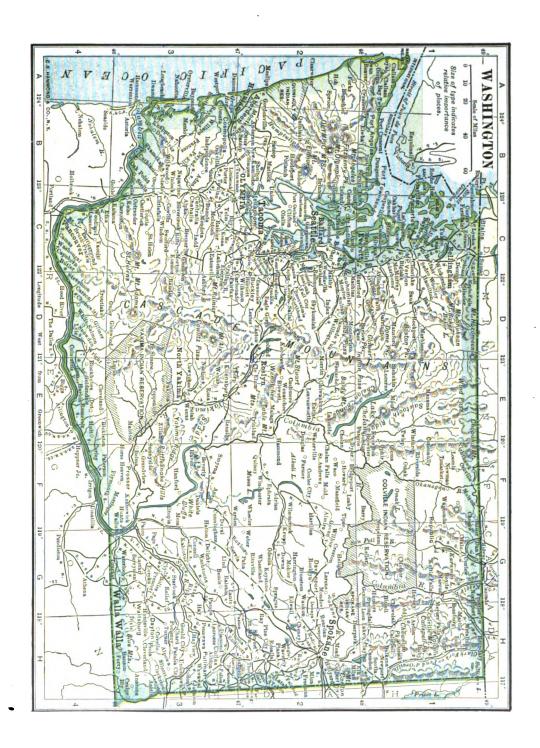
wine by their dentition, Warwick (war'wik), a town (town-which in some respects resembles that of the Island. It contains several villages and elephants. The head is has important cotton manufactories. Pop.

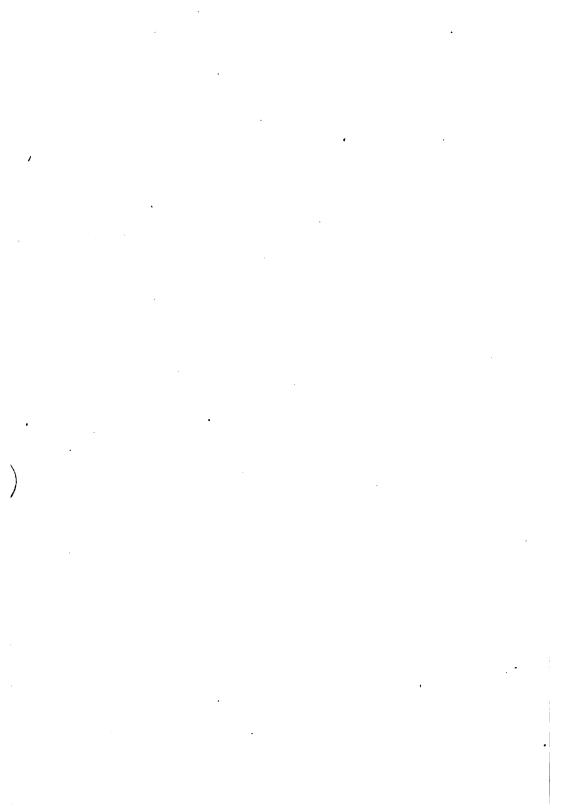
elephants. The head is very large; immense tusks project from the mouth outwards and up wards, and the cheeks are furnished with flesh-like excrescences resembling warts. They feed on the roots of plants, which they dig up with their tusks. They freed on the roots of plants, which they dig up with their tusks. The African wart-hog or haruja (P. Eliani) of Abyssinia, and the vlackevark of the Dutch settlers of the Cape (P. Ethiopicus or Pallasii) are familiar species. marriage, he went over to Henry's side,

witudes. Died March 18, 1877.

Washburne, CADWALLADER COLDEN, American soldier, brother of Elihu Benjamin Washburne, born at Livermore, Me., April 22, 1818; settled at LaCrosse, Wis., in 1859. He was in Congress 1856-62; delegate to the peace conference in 1861. After the attack on Fort Sumter he raised the 2d Wisconsin Cavalry, of which he became colonel. Was active during the war and was made major-general in 1862. He was a member of Congress 1867-71. when he a member of Congress 1867-71, when he was chosen governor of Wisconsin. Died May 14, 1882.

Washburne, ELIHU BENJAMIN, ermore, Maine, in 1816. He practiced law at Galena, Illinois, was elected to Congress in 1852, and remained there until 1869, when President Grant appointed him Secretary of State, and soon after Minister to France. During the Franco-German war he made the American legation a place of refuse for the Germans. root, and pulse crops, and there is a German war he made the American legalarge amount of pasture for dairying tion a place of refuge for the Germans and grazing purposes. Coal (output and other foreigners who would not leave over a million tons per annum) and Paris. For this he received honors from several kinds of building stone are abundant. Warwickshire is also fandant. Warwickshire is also fandant.



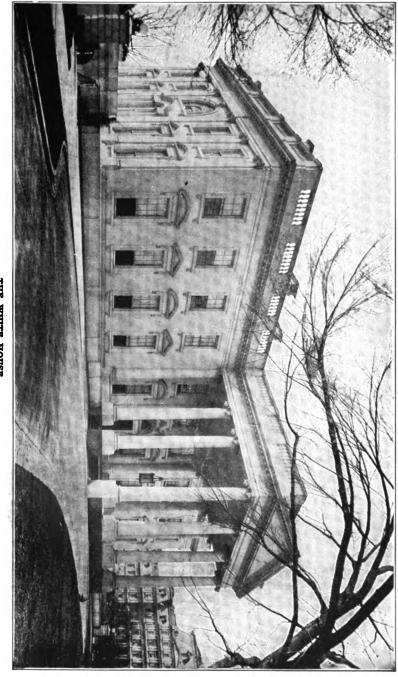


Washing-machine, a machine a climate similar to that of Britain clothes. A great number of machines have been contrived, the most general and rich deposits of the precious metals feature of them being that the clothes are agitated by artificial means in a worked or four projecting arms placed horizon-tic washing-machines, one of the simplest being the dolly, a wooden disk with three or four projecting arms placed horizon-tatlly on an upright shaft in a tub. The shaft is fixed in a slip at the bottom and passes through a cross-piece at the top, and is turned either by a cross handle or by simple spur gear. The arms are moved in clustry, and other manufactures are growned backward and forward among the clothes. Nearly all domestic washing-machines consist of a tub or cistern of a form suited to the character of the moving parts of the apparatus. Some operate by squeezing the clothes between grooved rollers, others by rubbing them thousing parts of the apparatus. Some operate or other shape a combined squeezing and rubbing or up and down movement, others have a combined squeezing and rubbing on the principle of the old dash wheel on the principle of the old dash wheel on the principle of the old dash wheel into the end of the drum. The clothes are placed inside the cage, which is kept revolving in opposite ways by turns inside at right angles and are intersected ribbed drum or cage formed of tubes fixed into the end of the drum. The clothes are placed inside the cage, which is kept revolving in opposite ways by turns inside at right angles and are intersected into the end of the drum. The clothes are placed inside the cage, which is kept revolving in opposite ways by turns inside at right angles and are intersected into the end of the drum. The clothes are placed inside the cage, which is kept revolving in opposite ways by turns inside at right angles and are intersected into the end of the drum. The clothes are placed by the civ. First among northwest section, being bounded N. by the Pacific Capital by the revolv Washington (wosh'ing-tun), one of and small, some of them beautifully laid the Pacific States of out, are distributed throughout the vast the American Union, in the extreme area occupied by the city. First among northwest section, being bounded N. by British Columbia, w. by the Pacific Capitol, an architecturally beautiful edicage, E. by Idaho, and S. by Oregon; fice on a hill above the Potomac, in the area, 69,127 sq. miles. Prior to 1861 it also comprised the present States of acres. It consists of a central building of Idaho and Montana. It is drained by the Columbia and its tributaries, and the elevated Cascade Mountain range runs through the State from N. to s., about 100 miles from the Pacific coast, about 100 miles from the Pacific coast, with heavy rainfall and many highly fertile valleys, in which hops, fruits of all kinds, and vegetables of immense size are grown. The eastern part is well adapted for the growth of all kinds of grain, and other farm products, some sections being admirably suited for wheat raising. Cattle and live stock of all kinds of well, the abundance of grasses and lightness of the snowfall permitting them to graze through the winter season. The State is very rich in natural resources and adverted in Natural resources and adverted in 1888-97, at a cost of very rich in natural resources and adverted in 1888-97, at a cost of very rich in natural resources and adverted in width, its entrance

hall and stairways being unsurpassed in can Republics, etc.
beauty of design and decoration. This ornate edifice contains at the present time nearly 2,000,000 books, pamphlets, has 523 acres of improved park and manuscripts, maps, etc. The collection forest and serves as an attractive rural is rich in history, political science, official resort and free driving park, in addition documents and Americana (including to its function of providing a comfortable important files of newspapers and manuscripts of colonial and later times). Northways of colonial and later times, Northways of the Insane, with nearly 1006 subject to the city's highways, its from the District of Columbia), is situation drive extending to the Treasury ated on the heights above Anacostia, an building, an immense edifice in the eastern branch of the Potomac. Among Grecian style of architecture, near which is the precident's house, or executive are the George Washington (formerly the mansion, commonly known as the White Columbian) University, Georgetown Unibuse of the work of the White House is a large and handsome building accommodating three of the National Deaf Mute College. Monuscome building accommodating three of the National Deaf Mute College. Monuscome building accommodating three of the National Deaf Mute College. Monuscome building accommodating three of the National Washington Monuthe War and the Navy, it being 567 feet nich, northways of the States. Bronze statues, chief among them the governmental departments, the State, being the national Washington Monuscome building of the General Post Office), of the States. Bronze statues, equestrian a great Doric portico; the building of the and others, are very numerous, there being Smithsonian Institution (devoted to hardly a public square or civic circle scientific research and the promotion of without its monument. The city, with ties o of the United States National Museum, over 1000 acres, extending for miles along in which is housed an enormous collection the picturesque banks of the stream, amid of economic products, examples of art forests of great natural beauty. Washand manufacture, and objects of natural ington is abundantly supplied with pure history, the latter including the extensive by a conduit 15 miles long, from sive series of African animals contributed by ex-President Roosevelt as a result of Virginia, is Arlington, with its beautiful his African hunting trip. Other institutions are the Army Medical Museum, below the city is Mount Vernon, formerly with valuable pathological collections, the home of Washington. Pop. 331,069. botanical garden and the zoological (See Columbia, District of.) with valuable pathological collections, the bone of Washington. Pop. 331,069. botanical garden and the zoological gardens. situated in the Rock Oreek district. The United States Naval Observatory, of white marble, occupies a retired and commanding site on Georgetown in an and commanding site on Georgetown in an and commanding site on Georgetown in an and coal mining region, and pro-Heights. Other interesting institutions duces canned goods, lumber, furniture are the Corcoran Gallery of Art, a and iron products, cooperage stock, unnotable collection of paintings and derwear, etc. Pop. 7854.

Washington, a town, county seat of Washington, a town, county seat of Mashington, research and discovery, with of Newbern. It has foundries and manuan endowment by Andrew Carnegie of factures of lumber, knit goods, boats, bug-\$10,000,000; the Washington Academy of gies, flour, oil, etc. Pop. 6211.

Sciences, National Geographic Society, Biological Society, Anthropological Society, International Bureau of the Ameri-



THE WHITE HOUSE

The official residence of the President of the United States in Washington, D. C. It was begun in 1792, burned by the British in 1814, rebuilt in 1818.

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known of his childhood, though various French, but the death of the colonel threw problematical stories have gathered about the command into his hands and he perhis name, some of them, possibly, based formed his responsible task with great upon fact. He appears to have been a skill and judgment. Outnumbered by the strong, healthy boy, quiet and thoughful French, he built a small woodland fort beyond his age, not brilliant as a student, where he defended himself with soldierly but with the innate qualities of a man resolution, surrendering only when de-of action. In 1747 he went to Mount fense had become hopeless and favorable

burgh. It is in a coal and oil region, vernon, then the residence of his halfand has extensive manufactures of tin
plate, iron, steel, glass, etc. Here is greater part of the estate. This gave
Washington and Jefferson College and him access to books and to better teachother collegiate institutions. Pop. 25,000. ers and brought him in contact with
Washington, Booker Tallaferro, ers and brought him in contact with
washington, born of African parentage at Hale's Ford, Virginia, in the Shenandoah Valley. The boy,
about 1859. The son of a slave, he who had been dissuaded by his mother
succeeded in obtaining entry at Hampton Institute, was graduated in 1875 and quired some knowledge of mathematics
taught there until put in charge of the
Tuskegee Normal and Industrial Institute, Alabama, in 1881. This, under his
ley property. He alternated surveying
care, has made a remarkable progress in
industrial education, and has done much Mount Vernon, and in 1751 accompanied
toward solving the race problem between his brother, stricken with consumption, care, has made a remarkable progress in with hunting, spent the winters at industrial education, and has done much hunting, spent the winters at industrial education, and has done much hunting, spent the winters at industrial education, and has done much his brother, stricken with consumption, the blacks and whites, while its president in Barbadoes. Here Lawrence died in is regarded as one of the most remarkable men of the age. He has published daughter and heir to his estate if she Sousing and Reaping, Up from Blavery, Future of the American Negro and already given his younger brother instruction of the American Negro and already given his younger brother instruction, born in Westmoreland County, Virginia, in 1759; died in 1829. He was appointed adjutant-general in the County, Virginia, in 1759; died in 1829. He was appointed a justice of the Virginia age, was chosen for a service of great Convention which ratified the Constitution of the United States in 1788. In forts on territory near Lake Eric claimed 1798 he was appointed a justice of the by Virginia, and Governor Dinwiddie sent United States Supreme Court. The estate of Mount Vernon was left to him senger returned in fright before finishing in the will of his illustrious uncle.

Washington, Geosse, the hero of Washington, possibly at Lord Fairfar's be has long been popularly called, was the wilderness and fitted for the duty. Dorn at Bridges Creek, Westmoreland ence, and the 'father of his country,' as young man, familiar with the ways of he has long been popularly called, was the wilderness and fitted for the duty. Dorn at Bridges Creek, Westmoreland ence, and the 'father of his country,' as young man, familiar with the ways of he has long been popularly called, was the wilderness and capable came of good English stock, being the grandson of John Washington, who eminated in 1657 from Northamptonshire, of the Ohio, gave the warning required, England, where the Washington is misting and took occasion to study the Indian Potential Potential Potential Poten orders being sent from England that gress which met at Philadelphia in Sepany English field officer should be supetior in command to any colonial officer, session, when Patrick Henry was asked even one of higher rank, Washington at once resigned; but in 1755 he consented to accompany Braddock as a volunteer on his unfortunate expedition. The affair would have ended very differently if the opinionated Englishman had listened to the advice of his Virginian aide-determs were offered. the opinionated Englishman had listened to the advice of his Virginian aide-decamp, but, as it proved, Washington was almost the only officer who returned unharmed from the disastrous expedition. He was now placed at the head of the Virginia forces, and in 1756 visited Boston and had an interview with General Shirley, the commander-in-chief with ton and had an interview with General Shirley, the commander-in-chief, with whom he satisfactorily settled the question of rank. During the remainder of the war he was occupied on the frontier, where the Indians were attacking the settlers, and in 1758 accompanied General Forbes in the second expedition against Fort Duquesne. He commanded of solid information and sound judgment, when we will be recommended that Colonel Washington is unquestionably General Forbes in the second expedition against Fort Duquesne. He commanded the part of the army which occupied that the part of the operations of the French in that quarter, settled the question of orwardship of the Ohio region. This ended his military career for that period. Electred in 1758 to the House of Burgesses of Virginia, he was on his first appearance highly complimented by the speaker of arms, and on the 15th of June Washington rose ington was unanimously elected by Conto reply, but in such a state of nervousgress the commander-in-chief of the American forces, that he could not speak a word. It is down, Mr. Washington, said the speaker; Your modesty equals your command of the forces then besieging valor, and that surpasses the power of Boston. The battle of Bunker Hill had any language I possess. In 1759 he married Martha Custis, a rich young provincials for bravery, but Washington widow, and settled down to the life of found the militia a disorganized mass, a farmer at Mount Vernon, which had more an armed mob of patriots than an fallen to him through the death of his army. It took him some time to understand him, but he soon brought order out of purchase until it reached a total of 8000 are wife, made him one of the richest men in the land, his estate growing through him, but he soon brought order out of purchase until it reached a total of 8000 are wife, made him one of the richest men in the land, his estate growing through him, but he soon brought order out of purchase until it reached a total of 8000 are wife, made him one of the richest men in the land, his estate growing through him, but he soon brought order out of purchase until it reached a total of 8000 are wife great event man on that floor.'

Washington and his fellow and salled at least the gratian from the mother country, but after the affair textending to a transmitted to

sent Virginia in the Continental Con-



For years he remained a member of the these circumstances it is a matter of House of Burgesses, but took no promigreat credit to Washington that in nine ment part in its debates, being ever more months' time he forced the British to a man of action than an orator. In evacuate Boston with their army of 1773 he came again prominently into veterans and surrender to him the first public affairs as a member of the conseat of the war.

We must deal briefly with the remainasserted the right of the colonies to self-ing history of the war, the events of government, declaring that taxation and representation could not justly be separated. This convention chose him, with Island led to the loss of New York and Patrick Henry and five others, to repre-For years he remained a member of the these circumstances it is a matter of

Jersey, followed by the brilliant victory hasty southward march, besieged Yorkat Trenton on Christmas night, 1776, town with a force of about 15,000 men,
and the subsequent victory at Princeton, and on October 19 forced Cornwallis to
on January 3, 1777. These successes
surrender his forts and his force of 7000
greatly revived the spirits of the Americans, which had been much depressed by
everans. It was the most important
in the lack of recruits, the want of
the preceding ill fortune, but Washington had still many difficulties to contend with
in the lack of recruits, the want of
money and war materials, and the superiority of his foes in all military requnisites. Their one lack lay in their
commanders, among whom Cornwallis
was obviously the strongest and ablest
remains one of them compared with Washington, and he did not fail to take advantage of their weakness and inefficiency. The next movements of the enemy were Burgoyne's disastrous march
southward from Canada and Howe's expedition against Philadelphia by way of
Chesapeake Bay. Washington's army
was defeated by superior forces at the
Brandywine, the British occupied Philanetter attacked them at Germantown, losring the battle mainly through the confusion caused by a fog. But the loss in
this quarter was recompensed by the defeat and capture of Burgoyne's army at
Saratoga, and Washington's army went
in the quarters at Valley Forge
with reviving hope from the cheering
and other necessaries. The spirit of their
great leader, however, remained unbroken,
and when the tidings of the alliance with
France and the danger of the Delaware
them of the constitute of their
spire leader, however, remained unbroken,
and when the tidings of the alliance with
France and the danger of the Delaware
them of the constitute of the constitute of their
spire leader, however, remained unbroken,
and when the tidings of the alliance with
France and the danger of the Delaware
thought a force of about 15,000 men,
and the lange of the Leaware
the very substant o great leader, however, remained unbroken, and the necessity of a stronger govand when the tidings of the alliance with the events that followed, leading to the being closed by a French fleet caused the calling of the Constitutional Convention British to evacuate Philadelphia, Washington took an active part, ton was quickly on their track, attacked and he was chosen president of the conthem at Monmouth, and probably would have given them a crushing defeat but few months, devised the admirable Confor the misconduct of one of his subordinates. The following winter was passed by the American army at Morristown, New Jersey, and in 1780 the war was the transferred to the South, the weakness said, 'with more diffidence and reluctant destitution of the movements which make a man a great soldier are and destitution of Washington's army obliging him to remain on the defensive, my life.' The mental characteristics though closely watching the movements which make a man a great soldier are of the enemy in and about New York. The climax came in 1781, when Lord constitutional governor, but Washington's Cornwallis injudiciously moved his army judgment, good sense and moderation to Yorktown, Virginia, fortified that adapted him very well to his new duties, place and awaited reinforcements from and he dealt with the difficulties that New York. The alert American comsurrounded him in his new position with mander took instant advantage of the a wisdom that few of his associates opportunity. He had been reinforced by manifested. Reëlected in 1792, he retered Chesapeake Bay and cut off Cornmoved him from the private life that wallis' communication with New York, appealed more to his disposition, espeand Washington at once set out on a cially in view of the fact that he was

assailed by political foes as virulently as he had formerly been by military foes. On the 7th of December, 1796, he for the last time met the Houses of Congress, and made to them a dignified Farewell Address, so full of wise advice that it has since been regarded as one of the great state papers of the country. Declining a third term in office, he retired again to Mount Vernon, but in 1798 his services were once more demanded by his countrymen. A naval conflict had arisen between France and the United States, there was danger of the United States, there was danger of a declaration of war, and a small army was raised, of which Washington was appointed commander-in-chief. nately no war followed and the home life of the venerated chief was not again disturbed. He died after a short illness,

due to acute laryngitis, at Mount Ver-non, on December 14, 1799.

History presents us with few characters so worthy of our admiration and esteem as George Washington. His mental as George Washington. His mental gifts were not of the dazzling kind nor were his talents of the brilliant order, yet he possessed the essentials of wisdom in a high degree, his powers and traits of character being so finely proportioned and adjusted and so firmly controlled by a heroic will and high moral faculty, the property of the state as to enable him to withstand alike disaster and obloquy, to reject the promptings of ambition, and to pursue the even tenor of his way unmoved by but one aspiration, to promote the happiness, prosperity and good government of his country. The equipoise and harmony of

Washington Court House,

sity, the outcome of the Augusta Co., Virginia, founded in 1749. Becoming the Washington Academy, it was removed in 1803 to Lexington, Va. Before the Civil war 'Stonewall' Jackson was one of its professors. In 1865 Gen. Robert E. Lee became its president, and after his death, in 1870, it was given its present name. In 1900 it had 42 instructors and about 600 numils. and about 600 pupils.

Washington Monument.

a magnificent monument erected at Washington, D. C. by the American people in honor of George Washington. It ple in nonor or George Washington. It stands in the Mall, a public park extending to the Potomac, and is 555½ feet high and 55 feet, 1½ inches square at base, tapering upward to 34 feet, 5½ inches square. It is built of blocks of marble two feet thick, and has a stairway and an elevator in its interior, the States having contributed wishing armed. States having contributed richly carved stones for the decoration of its interior walls. The corner-stone was laid in 1848 and the work finished Dec. 6, 1884. Washita (wosh'i-ta), a river of Arkansas and Louisiana, an affluent of Red River; length, 600 miles; valuable for navigation.

Wasp (wosp), the common name applied to insects of various genera belonging chiefly to the family Vespidæ, order Hymenoptera. Those best known belong to the genus Vespa, and live in societies, composed of females, males, and neuters or workers. The females and neuters are armed with an extremely powerful and venomous sting, especially so in the Hornet.

Waste Products, Utilization of.

In the process of manufacture much substance is useless for the purpose intended and vast quantities of material have in the past been thrown aside as 'waste.' Within later times much of this material has been found useful for other purposes, being at times more valuable than the original product. This utilization of waste has proceeded to bis powers, his keen foresight and rate valuable. This powers, his keen foresight and rate judgment, led to that wise discrimination utilization of waste has proceeded to which is the outcome alike of well developed mental and moral faculties. Mashington merited the noble title of Thus 'waste silk' is now valuable, though it retains this name. Rags of the country.' a city, county seat of Fayette Co., Ohio, on Paint Creek, 75 miles E. N. E. of Cincinnati. It has a poultry packing house, and manufactures of stoves, furniture, shoes, fertilizers, etc. Pop. 8000.

Washington and Lee Univerthe Augusta

the Augusta

Augusta

Augusta much in utilizing refuse, coal tar, for instance, now yielding a multitude of useful products. The saving effected by this utilization is too varied to be further particularized, and the saving amounts to vast sums.

Watch (woch), a well-known pocket instrument for measuring time. invented at Nürnberg in the end of the fifteenth century. The wheels in watches

that it cannot turn when the fusee is winding up. The inner end of the spring hooks on to the barrel-arbor, the outer to the inside of the barrel. If the fusee is turned round in the proper direction it will take on the chain, and consequently take it off from the barrel. consequently take it off from the barrel. This coils up the spring; and if the fusee and great wheel are left to themselves, the force exerted by the spring in the barrel to unroll itself will make This coils up the spring; and if the sue fusee and great wheel are left to them selves, the force exerted by the spring in the barrel to unroll itself will make the barrel turn in a contrary direction to that by which it was bent up. This sel who together work her for an allotted time, the time being also called to that by which it was bent up. This force communicating itself to the wheels for continuing in motion will depend on the number of turns of the spiral groove on the fusee, the number of teeth in the first or great wheel, and on the number of leaves in the pinion upon which the great wheel acts, etc. The running down, and of making the watch from 'running down,' and of making the wheels move with uniform motion, gave rise to the use of the balance-wheel and and ingeniously designed mechanism, the escapement (which see). On the persected, watches are now almost exclusively provided with either the horizontal, the lever, the chronometer, of modern watches the fuse has been abandoned in favor of the going-barrel. The latter offers better facilities for mometer, and for ordinary purposes is amply reliable. The mainspring in this class of watch is very under a pressure of one atmosphere when viewed in mass. It manufactured in great quantities. The spring in this class of watch is very under a pressure of one atmosphere when viewed in mass. It takes a solid form, that of ice or snow, long, but only a few coils are brought and retains that form at all higher into action. The great wheel is attempted to the secapement. The invention of the spring horce is directly transmitted to the secapement. The invention of the spring hair-spring by Dr. Hooke (about 1900 the proporties since, and the intelligent use

are urged on by the force of a spiral of compensation (which see) in the spring, generally of steel, contained in balance, have combined to give to the a cylindrical barrel or box, to which one best chronometers of to-day a uniformity end of a chain is fixed, the chain also of rate which it is probably impossible making several turns round the barrel to excel. A number of watches for outside; the other end of the chain is special performances are also confixed to the bottom of a cone with a structed. Such are the calendar watch, spiral groove cut on it, known as the the repeater, the chronograph (which fusee (which see). On the bottom of see), etc. Large quantities of the the fusee the first or great wheel is put. cheaper class of watches are now made The barrel-arbor is so fixed in the frame by machinery in the United States, that it cannot turn when the fusee is Switzerland. France. Germany, and Engelia. see), etc. Large quantities of the cheaper class of watches are now made by machinery in the United States, Switzerland, France, Germany, and England. They are generally produced on the interchangeable system, that is, if any part of a watch has become unfit for service, it can be cheaply replaced by an exact duplicate, the labor of the watch repairer thus becoming easy and watch repairer thus becoming easy and expeditious.

Watch (nautical), a certain part of the officers and crew of a ves-

pressure, many degrees above 212° F. a chemical point of view water exhibits without passing into the state of steam. in itself neither acid nor basic properwithout passing into the state or steam. The specific gravity of water is 1 at 39.2° F., being the unit to which the specific gravities of all solids and liquids are referred, as a convenient standard, on account of the facility with which it is obtained in a pure state; one cubic inch of water at 62° F. and 29.9 inches barometrical pressure, weighs 252.458

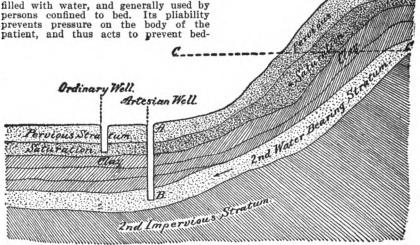


Tank and Pump House.

ties: but it combines with both acids and bases, forming hydrates; it also combines with neutral salts. Water also enters, as a liquid, into a peculiar kind of combination with the great number of combination with the greater number of all known substances. Of all liquids water is the most powerful and general solvent, and on this important property its chemical use depends. Without water not only the operations of the chemist but the processes of animal and proceedings if the world some transfer of the company of the compan water not only the operations of the chemist but the processes of animal and vegetable life would come to a stand. In consequence of the great solvent power of water it is never found pure in nature. Even in rain-water, which is the purest, there are always traces of carbonic acid, ammonia, and sea-salt. Where the rain-water has filtered through rocks and soils, and reappears as spring or river water, it is always more or less charged with salts derived from the earth, such as sea-salt, gypsum, and chalk. When the proportion of these is small the water is called soft, when larger it is called hard water. The former dissolves soap better, and is therefore preferred for washing; the latter is often pleasanter to drink. Some springs contain a considerable quantity of foreign ingredients, which impart to the water particular properties. They are known under the general term mineral waters, and according to the predominating constituents held in solution are divided into carbonated waters (alkaline, magnesian, calcareous, and chalybeate), sulphates), chlorinated waters (containing chiefly sulphates), and sulphuretted waters (containing large quantities of sulphides or of sulphuretted hydrogen). The only way to obtain perfectly pure water is to distil it, but matter simply held in suspension may be got rid of by suitable filtration. The great reservoirs of water on the globe are the oceans, seas, and lakes, which cover more than three-fifths of its surface, and from which it is raised by evaporation, and, uniting with the sir in the state of venor, is wafted of its surface, and from which it is raised by evaporation, and, uniting with the air in the state of vapor, is wafted over the earth ready to be precipitated in the form of rain, snow, or hail, and grains. Distilled water is \$15 times in the form of rain, snow, or hail, and heavier than atmospheric air. Water is make its way by river channels to the sea. at its greatest density at 39.2° F. Water, like air, is absolutely necessary (=4° C.), and in this respect it presents a singular exception to the general that it should be free from contaminalaw of expansion by heat. If water at tion, hence an ample and pure water 39.2° F. be cooled, it expands as it supply is considered as one of the first cools till reduced to 32°, when it solidies; and if water at 39.2° F. be heated, it expands as the temperature increases penetrates the rock crest of the earth in accordance with the general law. In

vent powers produces important effects. the Waterbury watches and clocks, which It can be reached by boring in some of are known throughout the world. the most arid parts of the earth, and Electro-plate is also made and there are rising to the surface as artesian waters, numerous rolling mills and foundries brings fertility to desert regions. It is and extensive manufactures of pins, butsupposed also to be the cause of volcanic tons, pearl goods, lamps and many eruptions, through the explosive force of other products. The city contains a steam, into which it is converted when it sinks to the hotter parts of the earth's

Water-bed, a bed consisting of an india - rubber mattress filled with water, and generally used by persons confined to bed. Its pliability prevents pressure on the body of the



Geological Drainage of Water into Wells.

see).

Waterbury (-ber-i), a city of New Haven Co., Connecticut, in a valley on the Naugatuck River, 77 in a valley on the Naugatuck Kiver, II miles northeast of New York. It is an important railway junction and tributed throughout Europe, Western manufacturing town. Brass and brass Asia, North Africa, introduced into North goods are the staple products, the largest America and certain British colonies, and part of the output of the country being choking some rivers of New Zealand, produced here. It is also the seat of where the stem grows as thick as the

sores. Water-beds, however, have been number of benevolent and academic inlargely superseded by the more constitutions. Pop. 78,141. yenlent and healthier air-beds (which Water-chestnut. See Traps.

Water-beetle, the name given to beetles, having legs adapted for swimming, the two hinder pairs being flattened and fringed with hairs. They are exceedingly voracious both in the adult of the darval state, even devouring young fishes.

Water-colors, used in painting are water-colors carefully ground up with water and isinglass or exceedingly voracious both in the adult other mucilage instead of oil. Water-colors are often prepared in the form of small cakes dried hard, which can be rubbed on a moistened palette when water-boatman (Notonects ca). See Boat-fluid state are also used: they are genful. fluid state are also used; they are gen-

erally kept in metal tubes, which preserve them from drying up.

Water-cress (Nasturium officināle),
a cruciferous plant dis-

wrist. It grows on the margin of clear streams, or even partly immersed in the water. It has antiscorbutic properties, and is cultivated near many large towns to be used as salad, or otherwise. Water-cure. See Hydropathy. Water-cure.

Water-dog, a variety of dog baving a curly coat, long ears, a rounded head, and webbed toes. It seems to be allied to the poodle, but differs from the latter in its firmer set and stouter body, and in its larger size. The water-dog is highly intelligent, but less so then the retriever. It is usually less so than the retriever. It is usually of a grayish white varied with black and brown.

See Cataract. Waterfall.

Water-flea, a name given to various genera of small swimming crustaceans belonging to the class Entomostraca. Among the commonest are Cypris and Cyclops (which see). One very familiar water-flea is the Daphnia pules. See Daphnia.

Waterford (wa'ter-furd), a city and seaport in the southeast of Ireland capital of the country of seaport. of Ireland, capital of the county of same name, 97 miles s. s. w. of Dublin, on the right bank of the Suir, which soon after



joins the Barrow, the combined stream reaching the sea by the fine estuary Waterford Harbor. It 88 stretches along the Suir for about 1 stretches along the Suir for about 1 materials to right mile, has convenient quay accommodation for large vessels, and commands a considerable shipping trade. The bulk of the manufactures of Waterford county are carried on at Waterford and its vicinity, and most of the exports pass

large bacon-curing establishments, breweries, saw and flour mills, etc. The principal buildings are the Episcopal and Roman Catholic cathedrals. Pop. 26,769.—The county belongs to the province of Munster. The area is 721 sq. miles. The coast is in general bold and social way to be a sq. miles. and rocky, and besides the harbors of Waterford and Youghal at its east and west extremities respectively, has the deep indentations of Dungarvan Harbor and Tramore Bay. The interior is largely rugged and mountainous. The principal rivers are the Suir and the Blackwater. Dairying is the chief recourse of the rural population Slate. source of the rural population. Slate, sandstone, and marble are quarried, and there is a large export of potter's clay. The fisheries are valuable. Pop. 87,187. The fisheries are valuable. Pop. 87,187.

Water-gas, a gas prepared by passing steam through incandescent carbon. It is used for heating and welding purposes in metallurgy, and also for illumination, especially in the United States. Numerous deaths from poisoning have resulted from its use, however, this being largely due to its want of smell. Burnt in the usual way it gives a blue flame, but by suspending a comb of thin magnesium rods in the flame the filaments are quickly heated to a white heat, producing a bright glow light of high illuminating power, but which is neither unpleasant to the eye nor prejudicial to the sight. Mantels made of several infusible metais are now in common use fusible metais are now in common use and give a brilliant light with a comparatively small consumption of gas.

through Waterford Harbor. There are

Water-glass, a substance which, when solid, resembles glass, but is slowly soluble in boiling water, although it remains unaffected by ordinary atmospheric changes. It consists of the soluble silicates of potash or soda, or a mixture of both. It is prepared either by breaking down and calcining flint nodules, the fragments or particles of which are then added to a solution of caustic potash or soda, whereupon the whole is exposed for a time to intense heat, or by fusing the constituents together in a solid state, and afterwards reducing them to a viscid condition. Among the purposes to which water-glass is applied are painting on glass, coating stone, wood and other materials to render them waterproof, glazing scenery and paintings, fixing wall-paintings, etc.

See Gallinule.

See Capybara.



From the Painting by V. Checa.

THE RAVINE AT WATERLOO One of Napoleon's desperate charges to stem the tide of defeat on the great Belgian battlefield came suddenly on the surken road of Ohain, into which horses and riders plunged to death, forced over the brink by the pressure of the ranks behind.



Waterhouse (wa'ter-hous), Alfred, architect, was born at Liverpool in 1830; studied architecture important buildings in that city and London. He also partly reconstructed Balliol College, Oxford and Caius and Pembroke, Cambridge. He was elected a royal academician in 1885.

Waterloo, a city, county seat of Blackhawk Co., Towa, on Cedar River, 100 miles N. E. of Des in Manchester, and designed various Moines. It is the trade center of a wide farming and grazing region, and has rail-tondon. He also partly reconstructed royal repair shops, canning and packing Balliol College, Oxford and Caius and packing Balliol College, Oxford and Caius and requirements, etc. Pop. 35,000.

Waterloo, a city, county seat of Blackhawk Co., Towa, on Cedar River, 100 miles N. E. of Des in Farming and grazing region, and has rail-tondon. He also partly reconstructed engines, automobiles, farming and creamery implements, etc. Pop. 35,000.

Waterloo (wa-ter-lö'), a village of Belgium, nearly 10 miles s. s. s. of Brussels. It is famous for the memorable battle which was fought here on June 18, 1815, and which finally shattered the power of Napoleon. The Prussian defeat at Ligny, and his own Prussian defeat at Ligny, and his own unsuccessful engagement at Quatre-Bras on the 16th of June, caused Wellington to retire towards Waterloo, while Blücher concentrated his troops at Wavre, about 10 miles distant. The whole British position formed a sort of curve, the center of which was nearest to the enemy. The French forces occupied a series of heights opposite, there being a valley of no great denth. cupied a series of heights opposite, there being a valley of no great depth, and from 500 to 800 yards in breadth, between them. Each army probably consisted of about 70,000 men. The object of Napoleon was to defeat the British, or force them to retreat, before the Prussians, who, he knew, were coming up, could arrive in the field; while that of the Duke of Wellington was to maintain his ground till he could be joined by his allies, when it might be in his nower to become the assailant. The his power to become the assailant. The French began the battle about noon, and it continued with great fury till evening, when the appearance on the scene
of the Prussians caused Bonaparte to
redouble his efforts. His imperial
guards, which had been kept in reserve,
made a final attempt. Wellington's

Pembroke, Campung a royal academician in 1885.

Waterhouse, John William, an English painter, born about 1840, became a member of the Royal Academy in 1895. Among his paintings are Mariamne, Ulysses and the Sirens and The Lady of Shalott.

Water-lily. See Nymphæaceæ, Lotus, Nelumbium, Viotater-lily. See Nymphæaceæ, Lotus, Nelumbium, Viotater-lily. See Nymphæaceæ, The Cassowary, etc.

Waterloo, Stanler, an Waterloo, Stanler, and Co, Michigan, in 1846. He became a journalist and editor of various papers, the latest the works include A Man and a Woman, Armageddon, The Wolf's Long Howl, The Cassowary, etc.

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Waterloo, Stanler, and Co, Michigan, in 1846. He became a journalist and editor of various papers, the latest the works include A Man and a Woman, Armageddon, The Wolf's Long Howl, The Cassowary, etc.

Watermelon, a favorite fruit, cultivated largely in the United States and many other countries for its cool and refreshing juice and palatable pulp. It often grows to a very large sign recombline to the combine of th large size, resembling the pumpkin in shape. It is the melon of Scripture.

Water-ousel, or DIPPER. See Dip-

Water-pitcher, the popular name of plants of the order Sarraceniacese, the leaves of which somewhat resemble pitchers or trumpets in general forms. in general form.

Water-plantain, the common name various species of plants of the genus Alisma, nat. order Alismaceæ. One species, A. Plantago (great water-plantain), is a common wild plant in wet ditches and by river sides.

Water Power, a general phrase applied to the various means by which the energy of moving water may be utilized. To make such a source of energy effectual it is necessary and sufficient to have the water falling from a higher to a lower level. Such conditions more or less favorable exist in all streams, though in many cases the fall is so slight and the velocity of the water so small that praclocity of the water so small that practically no useful work can be obtained redouble his efforts. His imperial tically no useful work can be obtained guards, which had been kept in reserve, Of the various machines by which the made a final attempt. Wellington's necessary transformation is usefully line, however, charged them at the point of the bayonet, and the imperial guard began a retreat, in which they were imbegan a retreat, in which they were imperial guard began a retreat, in which they were important of the Prench army. The British left the pursuit to the Prussians. The whole French army was dispersed of water-power through the aid of turned disabled, and their artillery, baggage, etc., fell into the hands of the coand its secondary application in this form querors. Their loss in killed, wounded, to power purposes at great distances and prisoners amounted to between 40,-from its source, together with the grow-mounted to 23,000 killed and wounded. localities, have brought the question of the conservation and utilization of water-been applied extensively in Canada. A thus produced, while rain-resisting, of-great dam on the lower Susquehanna, refers the same ventilation as ordinary conservation and utilization of water-been applied extensively in Canadaa. A thus produced, while rain-resisting, of-great dam on the lower Susquehanna, refers the same ventilation as ordinary cently completed and estimated to yield great dam on the lower Susquehanna, recently completed and estimated to yield materials.

100,000 horse-power, is supplying Baltimore, many miles distant, with electrical power, and may in the future supply dant in the swampy tracts bordering Philadelphia. Applications of water-power are in this way have become numerous and extensive in various parts of the United States and in other countries. A great excellent swimmer, and subsists chiefly concrete dam, 9096 feet in total length, is being built across the Mississippi at Keokuk, Iowa, at the foot of the Des Moines rapids, which is expected to yield 300,000 horse-power, a little more than 300,000 horse-power, a little more than half that obtained from the Niagara. In view of the coming wide installation of works of this character, far-seeing capitalists have made insidious efforts to gain control of the leading sources of watercontrol of the leading sources of water-power, not yet occupied, in the United States, having in view doubtless the States, having in view doubtless the coming replacement of steam by electricity in railroad traction. To forestall this, the government has withdrawn the important water-power sites in the West of hemipterous insects, the species of from private exploitation, reserving them for the benefit of the people at large when are powerful insects, 2 or 3 inches in the time for their utilization shall arrive. length. They receive their popular Waterproof Cloth, cloth rendered name from the scorpion-like form of the forelegs, with which they seize their water. water. There are numerous processes for waterproofing fabrics of all kinds. The earliest patent, that of Macintosh (1823), consisted in covering cloth with a paste obtained by dissolving caoutchouc in benzol or coal naphtha. In the treatment of cotton and linen cloth a small proportion of sulphur is generally added. A thin layer of this or different temperatures meet in the rubber solution is spread on the fabric by special machinery, after which the cloth is doubled, pressed and finished in calenders, the waterproof layer being thus in the center of the finished in calenders, the waterproof layer being thus in the center of the finished on a hygienic point of view unsuitable for a hygienic point of view unsuitable for tends downward. This vortical motion as hygienic point of view unsuitable for vast funnel, which, descending near the prolonged personal wear. This led to surface of the sea. draws up the water the introduction of other solutions and methods of application intended to produce fabrics which, while resisting rain.

Water Ram. See Hydraulio Rem.

Water-rat. See Vole.

to the clouds, assumes a magnificent appearance, being of a light color near its brakes, silk, etc. There is here a State axis, but dark along the sides. When armory, homes for the aged and orphans, acted on by the wind the column assumes a position oblique to the horizon, but in calm weather it maintains its vertical position, while at the same time

Dakota, 225 miles west of Minneapolis. It is the trade center of a rich farming country and has a large wholesale and



waterspont.

Waterspont.

it is carried along the surface of the gars move with different velocities, causing the parts to separate from each other, often with a loud report. The is Colby College (1820), and the Colburn whole of the vapor is at length absorbed in the air, or it descends to the sea in clude cotton and woolen goods, machinery, bricks, flour, apiary supplies, dairy products, shoes, boxes, etc. Here is the Northwestern University (Lutheran) and the Sacred Heart College (Catholic). Pop. 8829.

Waterville, Maine, on the Kennebec River, 81 miles N. N. E. of Portland. Classical Institute. Manufactures include cotton and woolen goods, machinery, bricks, flour, apiary supplies, dairy products, shoes, boxes, etc. Here is the Northwestern University (Lutheran) and the Sacred Heart College (Catholic). Pop. 8829.

Waterville, Maine, on the Kennebec Clo., School of the vapor is at length absorbed in the sacred Heart College (Catholic). Pop. 8829.

Classical Institute. Manufactures include cotton and woolen goods, machinery, bricks, flour, apiary supplies, dairy products, shoes, boxes, etc. Here is the Northwestern University (Lutheran) and the Sacred Heart College (Catholic). Pop. 8829.

Classical Institute. Manufactures include cotton and woolen goods. whole of the vapor is at length absorbed Classical Institute. Manufactures inin the air, or it descends to the sea in clude cotton and woolen goods, machina heavy shower of rain. Sudden gusts ery, foundry products, furniture, shirts, of wind, from all points of the compass, etc. At Winslow, on the opposite side of are very common in the vicinity of the river, are large paper and pulp mills. waterspouts. What are sometimes Waterville was settled as a part of Winscalled waterspouts on land, or cloud-low in 1764. Pop. 12,500.

Watervillet (-vlet), a city of Albary Co., New York, on erally during thunder-storms. In sandy the Hudson River, opposite Troy, on the deserts they draw up the sand as Delaware and Hudson Railroad and the waterspouts draw up water. The tor-Erie Canal. It has a national argenal. waterspouts draw up water. The tor-nado of the central United States is a destructive example of the whirling storms which on the ocean produce water-

Waterton, CHARLES, an English nat-uralist, born at Walton Hall, Wakefield, in 1782; died in 1865.

country, and has a large wholesale and jobbing trade. Pop. 7010.

Watertown, a city of Jefferson and Dodge Cos., Wisconsin, on the Rock River, 44 miles w. by N. of Milwaukee. It is the trade center of an extensive farming region and has manufactures of machinery, bricks, flour,

sand as Delaware and Hudson Rahroau and the The tor- Erie Canal. It has a national arsenal, ates is a car-works, foundries, woolen factories, whirling hardware works, etc. Pop. 15,074.

Water-wheel, a wheel moved by water, as the over-

ish nat- shot wheel, the undershot wheel, the Walton breast-wheel and the turbine. (See these terms.)

Hall, Wakefield, in 1782; died in 1865. these terms.)
He was educated at the Roman Catholic College at Stonyhurst, where he evinced a great taste for natural history. He spent many years in travel, and published Wanderings in South America and Essays in Natural History, with an Autobiography.

Watertown (wa'ter-town), a village of Watertown township of which it is a residental suburb. It remains of the masonry aqueducts of paper, rubber goods, woolens, shoddy, modern cities of Europe and America soap, starch, etc. Pop. of town, 13,000. we their possible existence to copious Watertown, a city, capital of Jefson Co.. New York, siderable distances, carried in large pipes on Black River, about 10 miles from Lake Ontario. The rapids of the river by means of houses, Water land water being needed to drive the supply utilized in extensive manufactures of to the upper stories of houses, Water

for this purpose is obtained from various miles N. by W. of Elmira. It has large sources, by pumping from rivers, as in salt works and brewing industries. It Philadelphia, from a lake, as in Chicago, is notable for the deep and picturesque and by conveyance from large reservoirs, ravine known as Watkin's Glen, in as in New York and many other cities. Which are numerous beautiful cascades The most striking example of the latter and which attracts large numbers of method of supply is that of New York visitors. Pop. 2817. city, which has long been supplied from Watkin (wot'kin), Sir Edward William, railway manager, was born at Salford, England, in 1819: The most striking example of the latter and which attracts large numbers of method of supply is that of New York visitors. Pop. 2817.

Watkin (wot'kin), Sir Edward William, railway manager, conveyed through a great rock tunnel to the city. The need of a larger supply has led to the damming of Esopus and Catskill Creeks in the Catskill Mountain region, to form a lake capable of holding 130,000,000,000 gallons. Great tunnels have been made to convey the water to the city, including a number of steel pipe siphons, the most remarkable of which is one which passes under the Hudson River at the great depth of 1100 Channel Tunnel, and of Wembly Park feet. The amount of water expected from this stupendous work is 500,000,000 gallons daily. The supply for the city of which draw all their supply from the Thames, with the exception of a portion obtained from wells and springs. The East London Company obtains nearly all its supply from the river Lea, the New River Company from the Chadwell, Amwell and Lea, the Kent Company entirely from chalk wells. Meters are used and the average use of water per day per head is 25 gallons. This is greatly exceeded in some American cities, especially in the city of Philadelphia, whose citizens use (or waste) more water than graduated at the University of Michiper head is 25 gallons. This is greatly Watson (wot'son), James Crarg, exceeded in some American cities, especially in the city of Philadelphia, whose County, Canada West, in 1838. He was exceeded in some American cities, especially in the city of Philadelphia, whose citizens use (or waste) more water than those of any other city in the world. It gan in 1857, and became professor of obtains its supply from the Delaware and Schuylkill rivers, an extensive filtration plant having recently been constructed in 1879, and professor of the observatory. Plant having recently been constructed in 1879 he became professor of asto purify the waters of these rivers. The system of purification here employed is that of slow sand filtration, but in many places coagulating chemical substances are used for the removal of impurities. A disinfecting agent now coming into wide use is hypochlorite of lime. It must be said in conclusion that the methods of purification now employed have proved very efficacious in the prevention of such epidemic diseases as cholera and typhoid fever.

Watford (wotford), a town of Engand novelist of Sciences for discovering six of them in one year. He also discovered several comets, was a member of the eclipse expedition of 1869 and 1870, and of the transit of Venus expedition in 1874. He wrote Theoretical Astronomy.

Watford (wotford), a town of Engand novelist of Scotch parentage, born land, in Hertfordshire, on the river Colne and the Grand Junction 1850. Educated at Stirling and Edin-bridge across the Colne connects it with 1880-1906.

Canal. It is well built, and has large burgh, no became a Fresoyterian minisbreweries, corn and paper mills. A ter, and was stationed at Liverpool
bridge across the Colne connects it with 1880-1905. His Beside the Bonnie
Bushey, a residential suburb. Pop. Briar Bush made him famous as an
author. This was followed by a rapid
watkins (wot'kinz), a village, capiseries of works. A popular preacher
tal of Schuyler Co., New and lecturer, he visited the United
York, at the head of Seneca Lake, 22 States on lecturing tours in 1896 and in

1907, dying during the latter tour at famous. (See Steam-Engine.)

the Mississippi and in Mobile Bay, in the latter engagement, when Admiral Farragut had taken a position in the port mizzen rigging to observe the fight, Watson lashed him to the rigging to prevent the danger of his falling. He was made commodore in 1897, commanded the blockading squadron in the North Cuban coast in 1898, and in 1899 succeeded Dewey in command at Manila, being appointed rear-admiral. He was United States naval representative at the coronation of Edward VII in tive at the coronation of Edward VII in

1902. Retired August 24, 1904.

Watson. Thomas E., politician and Watson, historian, was born in Columbia Co., Georgia, in 1856. He was elected to Congress by the Populist party in 1891, and was nominated for vice-president by this party in 1896, and for President in 1904. He became publisher of Tom Watson's Magazine in 1905, and in 1906 founded the Jeffersonian Magazine and the Weekly Jeffersonian. He wrote The Story of France and Life of Napoleon, popular histories; carried on the establishment at Soho in partnership with a son of Mr. Boulton's.

was born at Greenock, January 19, 1736; and died at his seat of Heathfield, Staffordshire, August 25, 1819. His father was a merchant and magistrate of Greene and Large magistrate of Greene and Large magistrate. trate of Greenock, and James received a good education in its public schools. Having determined to adopt the trade of mathematical instrument maker, he went to London (1754) to learn the art, went to London (164) to learn the art, but ill health compelled him to return after only a year's apprenticeship. Shortly after his return he endeavored to establish himself in Glasgow. The corporation objecting, he was appointed in 1757 mathematical instrument maker to the university and recided within its to the university, and resided within its to the university, and resided within its so that one norse power per second is walls till 1763, when he removed into equal to 746 watts. It is customary to the town. From this time till 1774 he use the kilowatt as the practical unit. acted as a civil engineer—made several surveys for canals and harbors, and some of his plans were afterwards carried into execution. It was during this reied into execution. It was during this period that he conceived and gave shape to his improvements on the steam-died at Nogent-sur-Marne, in 1684; to his improvements on the steam-died at Nogent-sur-Marne, in 1721. In engine, which have rendered his name

Mount Pleasant, Iowa.

Watson, John Crittenden, admiral, born at Frankfort, Ken-tucky, in 1842. He was graduated at the Naval Academy in 1860, and served at Soho, Birmingham. He retired from in the navy throughout the Civil war, being master on Farragut's flagship, the he may throughout the civil war. He took part in the battles on the Mississippi and in Mobile Bay, in ried, and was survived by one son, who the latter engagement, when Admiral To give



also Life of Jefferson and Bethany, a partnership with a son of Mr. Boulton's. Study and Story of the Old South.

Watt (wot), James, the celebrated steam engine, which first rendered it effective for general industries, Watt inword at Greenock January 19 vented or improved a variety of mechanisms. fective for general industries, Watt invented or improved a variety of mechanical appliances, including a letter-copying press. He was a man of high mental powers generally, and possessed a wide and varied knowledge of literature and science.

Watt, the name of the electrical unit of activity or rate of doing work. It is measured by the product of work. It is measured by the product of the voltage or electromotive force of the source into the current supplied. Thus a dynamo which is yielding 30 amperes at a voltage of 100 is working with an activity of 3000 watts. The watt is equal to 0.735 foot-pound per second; so that one horse power per second is equal to 746 watts. It is customary to use the kilowatt as the practical unit. It is equal to 1000 watts or 1.2 horse

bread by working for decorative painters. quish his pastoral duties. His Pealms For many years he struggled in ob- and Hymns give him the first rank For many years he struggled in obscurity, but his talent once recognized he rapidly became popular and prosperous. In 1717 he was received at the Academy, and enrolled as a painter of fêtes galantes, that is, pleasure parties, balls, masquerades, etc., subjects in which he excelled. Lightness, elegance, and brilliancy form the chief attractions of his style.

watterson (wat'er-sun), Henry, iournalist, born at Washington, D. C., in 1840. He edited the Republican Banner, Nashville, Tennessee, before and after the Civil war, and during this war served in the Confederate army. He edited the Louisville Waukesha, at Louisville, Ky., 1867-68, and after that date the Courier-Journal, at Louisville, Ky., 1867-68, and won the reputation of being one of the most brilliant of American journalists. He wrote History of the Spanish-American War, Abraham Lincoln, etc.

Wattle-bird (wot'l-burd), an Australian bird (Anthorhors) and Carroll College are located chara carunculata) belonging to the sound is a popular summer and health resort, having mineral waters which are largely used. There are varied manufactures, including sugar refineries, steel and brass works, scales, and organ works, etc. It is the business center of a large farming district. Pop. 16,069.

Waukesha (wa-ke'sha), a town, county seat of Waukesha (out) seat of Milwaukee. Here are numerous mineral springs, the waters of which are widely exported. There are iron, aluminum and bridge works, motor works.

chara carunculata) belonging to the here. Pop. 8740.
honey-eaters, and so named from the Wausau of Marathon Co., Wisconsin, about the size of a magpie, and is of 42 miles of Marathon Co., Wisconsin, about the size of a magpie, and is of 42 miles of Marathon Co., Wisconsin, about the size of the belief of the size of Marathon Co., Wisconsin, about the size of the belief of the size of the bold, active habits.

key. See Tallegalla.

Watts (wots), George Frederick, born in

among English hymn writers. He was the author of various other works in

prose and verse.

Waukegan (wa-kē'gan), a city, capital of Lake Co., Illinois, on the w. shore of Lake Michigan, 35 miles w. by N. of Chicago. It is built on a commanding bluff, has a good harbor, and is a popular summer and health

There is a county school of agriculture Wattle-tree, a name given in Australia to several species of acacia.

Wattle-turkey, a name often given wattle-turkey, to the brush-tur
Vary See Tribories.

Wave (wav), in physics, a disturbance of matter in such a way that energy is transmitted through great an English artist, born in distances, sometimes, but not always, ac-1820. He first exhibited at the Royal companied with a slight permanent dis-Academy in 1837. Among his more implacement of the particles of the con-portant pictures are: Life's Illusion veying medium. When a disturbance (1849), The Window Scat and Sir is produced at a point in air, waves pro-(1849), The Window Scat and Sir is produced at a point in air, waves pro-Galahad (1862), Ariadne (1863), Essau ceed from that point as concentric (1865), Love and Death (1877), Time, spheres and carry sound to the ear of Death, and Judgment (1878), Happy a listener. (See Sound.) Light is sup-Warrior (1884), Hope (1886), Judg-posed to be propagated by the wave ment of Paris (1887), The Angel of motion of the ether in a manner some-Death (1888), and Fata Morgana what analogous to the propagation of (1889). He was one of the most subsound in air. (See Undulatory Theory.) tle and powerful of portrait-painters, When waves are produced by the disamong his successful work in this line besides of Theory and Millelia Laight as when a nebble is thrown into a nool. ing portraits of Tennyson, Millais, Leigh- as when a pebble is thrown into a pool, ton, Cardinal Manning, Browning, etc. they appear to advance from the dis-He was perhaps the greatest idealist in turbed point in widening concentric cir-He was perhaps the greatest idealist in turbed point in widening concentric circontemporary British art. He became cles, the height of the wave decreasing R.A. in 1868, and in 1886 presented gradually as it recedes from the center; some of his famous pictures to the nation. He died June 1, 1904.

Watts, ISAAC, an English divine and poet, born at Southampton in to roll onwards, but, in reality, each 1674; died at London in 1748. In particle of water only oscillates with a 1702 he became minister of a Dissenting vertical ascent and descent. Where the congregation in the metropolis, but ill depth of the liquid is invariable over its health compelled him in 1712 to reline extent, or sufficient to allow the socilhealth compelled him in 1712 to reline extent, or sufficient to allow the oscillations to proceed unimpeded, no progressive motion takes place, each ridge or column being kept in its place by the pressure of the adjacent columns. Should, however, free oscillation be prevented, as by the shelving of the shore, the columns in the deep water are not balanced by those in the shallow parts, and they thus acquire a progressive motion towards the latter, or take the form of breakers, hence the waves always roll in a direction towards the shore, no matter from what point the wind may blow.

The height of the wave depends in a great measure on the depth of the water in which it is produced. The waves of the ocean have been known to reach a height of 43 feet, from trough to crest. The horizontal pressure of a strong Atlantic wave has been recorded as high as 3 tons to the square foot.

Wax (waks), an unctuous-feeling substance partaking of the nature of fixed oil. It is secreted by bees, and is also an abundant vegetable production, entering into the composition of the pollen of flowers, covering the enclosed the relope of the plum and of other fruits, and, in many instances, forming a kind of varnish to the surface of leaves. Common wax is always more or less colored, and has a distinct, peculiar odor, of both of which qualities it may be deprived by exposure in thin slices to air light and moisture or more speed. air, light, and moisture, or more speedily by the action of chlorine. At ordinary temperature wax is solid and somewhat brittle; but it may be easily cut with a knife. Its specific gravity is 0.96. At 155° Fahr. it melts, and it softens at 86°, becoming so plastic that it may be molded by the hand into any form. Wax is insoluble in water, and its only dissolved in small quentities by is only dissolved in small quantities by alcohol or ether. The principal appli-cations of wax are to make candles and medicinal cerates; to give a polish to furniture or floors; to form a lute or cement, for which it is used by chemists; and to serve as a vehicle for colors. (See Encaustic Painting.) Sealing-wax is not properly a wax. See also Candleberry, Carnauba, China Wax, Waxpalm.

MINERAL. See Ozokerite. Wax.

Waxahachie, a town, capital of Ellis Co., Texas, 30 miles s. of Dallas. It has cotton, cotton seed oil and lumber mills. Pop. 6205.

Wax-bill, a small finch, genus Estrilda, so called from its beak being red like wax. It is often kept in cages.

Wax Insects. See China Was.

Wax-myrtle. See Candleberry.

See Encaustic Wax-painting. Painting.

Wax-palm (Ceroxylon andicola), a species of palm yielding a substance consisting of two-thirds resin and one-third wax, which is found on its trunk in the form of a varnish. It is a native of the Andes, towering in majestic heauty on mountains which rise many thousand feet above the level of the sea, and sometimes attaining the height of 160 feet.

Wax Tree, a genus of tropical Amer-species of which yield a copious supply of yellow resinous juice, which resembles gamboge so closely that it is called American gamboge. Like gamboge, it has purgative properties.

Wax-wing (Ampelis garrula), an insessorial bird belonging to the dentirostral section of the order. It derives its name from the appendages attached to the secondary and tertiary quill feathers of the wings, which have the appearance of red sealing wax. An American wax-wing is the cedar-bird (which see).

Waycross (wa'kros), a town, capital of Ware Co., Georgia, 60 miles w. of Brunswick, on the Atlantic Coast Line and the Atlantia and Birmingham religed at the second works and

Coast Line and the Atlanta and Birmingham railroads. It has car works, and manufactures of lumber and naval stores. Pop. 14,485.

Wayland (wa'land), Francis, an educator, born in New York city, in 1736. He was graduated at Union College in 1813, and was president of Brown University in 1827-1855. He was the author of many valuable works, including: Elements of Moral Science, Elements of Political Economy, Limitations of Human Responsibility, Domestic Slavery Considered as a Scriptural Institution, Elements of Intellectual Philosophy, etc. He died in 1865.

Wayne (wan), Anthony, a Revo-

Wayne (wan), Anthony, a Revolutionary soldier, born at Easttown, Chester Co., Pennsylvania, in 1745. A surveyor in his youth, he was elected to the general assembly in 1774, and was a member of the committee of safety in 1775. In the latter year he raised a regiment and entered the army as a colonel. He served in Canada in 1776, afterwards took command of Fort Ticonderoga, and joined Washington's army in 1777 as a brigadier general. He took a leading part in the battles of Brandywine and Germantown, and was commended by Washington for his gallantry at Monmouth. His daring and founded in 1870 by the United States brilliant exploit in the capture of the Government its purpose being to make strong fortifications at Stony Point won him a vote of thanks from Congress. He took part in the siege of Yorktown, was a member of the constitutional convention of 1787 vention of 1787, and as major general in 1794 gained a complete victory over the insurgent Indians in western Ohio. He died in December, 1796, on his return from the west. Although called 'Mad Anthony,' on account of his impetuous daring, he did not lack prudence and judgment, and was an able com-

It is very persevering in hunting, keen in scent and in sight, bites severely and has a disagreeable smell. It usually sleeps during the day, and is most active at night. The fur is sometimes used, but the animal is too small to have any commercial importance.

Weather (weth'er). See Meteorology.

daily observations of the state of the weather in all parts of the country, to collate the information thus obtained, and to calculate from the results a forecast for each of various defined districts, these being published so that the peo-ple of each district may know in ad-vance the kind of weather likely to oc-cur. While of importance to the agriculturist, these forecasts are frequently of still more importance to ship masters, storm warnings being given that may waynesboro (wāns'bur-o), a town of Franklin Co., Penn-danger of injury or shipwreck. This sylvania, near South Mountain and Anserburg. It has large factories, producing engines, boilers, agricultural implements, machinery, etc. Also stocking and shirt factories, vise works, etc. Copper, iron and oil are found in its vicinity. Pop. 7199.

Wazan, or Wezzan, an inland town water conditions at sea. Study of results has led to the conception that weather conditions at sea. Study of results has led to the conception that studied on the northern slope of a two-peaked mountain, 90 miles s. E. of ditions, a knowledge of which enables Tangier. It is a sacred city and a place of pilgrimage, the headquarters of the closely their probable speed and direction and send warnings of their coming in advance. These forecasts cover the long line of shereefs. The trade, which weather probablities for 24 to 48 hours is carried on chiefly in Morocco, is mostkeep them in port when storms are im-Grand Shereef. The principal buildings are the great mosque and the tombs of a in advance. These forecasts cover the long line of shereefs. The trade, which weather probabilities for 24 to 48 hours is carried on chiefly in Morocco, is most in advance and at times embrace general ly in the hands of the Jews. Pop. about indications for a week. The forecasts cover the local weather conditions taken Wearmouth, Bishop's, and Monk tions of local weather conditions taken daily at 8 o'clock in the morning and 8 o'clock in the evening, Eastern time, Weasel (we'zl; Mustela vulgdris), a tabout 200 regular stations in the digitigrade carnivorous an i. United States and the West Indies, and from report of almost all the temper. mal, a native of almost all the temper. from reports received daily from variate and cold parts of the northern hemous other American localities. The respective is the head small and flattened, the neck graphed to Washington, where they are long, the legs short. It feeds on mice, charted for study and interpretation by rats, moles and small birds, and is often experts. These telegraphic reports in useful as a destroyer of vermin in ricks, their complete form include data regardbarns and granaries. The polecat, fering the temperature, atmospheric present, ermine and sable are akin. The sure, precipitation of rain, wind direction, weasel, like the related species, is very wind velocity, general weather conditions, courageous, and is marked by agility and and the kind, amount and direction of wariness and pertinaceous blood-thirst movement of the clouds. From these data, associated with those of preceding reports, the forecaster is able to trace the path of a storm area from its first appearance and to form an approximate decision as to its probable future course. In addition to the forecast center at Washington, there are others at Chicago. New Orleans, Denver, San Francisco and Portland, Oregon, the results of which

are sent to the surrounding areas. With- of automatic registering instruments. in two hours after the morning observa- Some of these travel hundreds of miles, tions, the forecasts are telegraphed to but nearly all are eventually found and more than 2300 principal distributing returned. points, whence they are further sent out by mail, telegraph and telephone, being mailed daily to 135,000 addresses and received by nearly 4,000,000 telephone sub-collegiate institutions, and cotton and scribers. Maps of wind and weather conother manufactures. Pop. 6500. ditions are printed and distributed, and other means of disseminating the information are taken. One of the most valuable services rendered is that of the warnings of cyclonic storms for the benefit of marine interests. These are displayed at nearly 300 points on the ocean and lake coasts, including all important ports and harbors, warnings of coming storms being received from 12 to 24 hours in advance. The result has been the saving of vast amounts of maritime property, estimated at many millions of dollars yearly. For storm signals, flags of different colors and markings are displayed, each signifying some special condition of wind and weather likely to occur. Agriculturists also derive great advantage from these warnings, especially those en-gaged in the production of fruits, vegetables and other market garden products. Warnings of frosts and of freezing weather have enabled the growers of such products to protect and save large quantities of valuable plants. It is said that on a single night in a small district in Florida, single night in a small district in Florida, fruits and vegetables were thus saved to the value of more than \$100,000. In addition, live stock of great value has been saved by warnings a week in advance of the coming of a flood in the Mississippi; railroad companies take advantage of the forecasts for the preservation, in their shipping business, of products likely to be injured by extremes of heat or cold, and in various other of heat or cold, and in various other ways the forecasts are of commercial, or other value. Similar bureaus have been established in other countries and progress is being made towards an international study of the weather. In this, observations made in the arctic and antarctic regions may hereafter become of utility. One of the chief stations for observations is that at Mount Weather, in the Blue Ridge Mountains of Virginia. This is equipped with delicate instru-ments in considerable variety for the study of the varying conditions of the upper air. Kites and captive balloons are sent up every favorable day, ascending to heights of two or more miles, and equipped with self-registering instruments to record the temperature and other conditions of the atmosphere. At other times free balloons are liberated, carrying sets

Weatherford, a city, county seat of Parker Co., Texas, 31 miles w. of Fort Worth. It has several

Weaver-bird (we'vr), a name given to birds of various genera, belonging to the Fringillidæ or finches. They are so-called from the remarkable structure of their nests, which are woven in a wonderful manner of various vegetable substances. Some species build their nests separate and singly, and hang them from slender

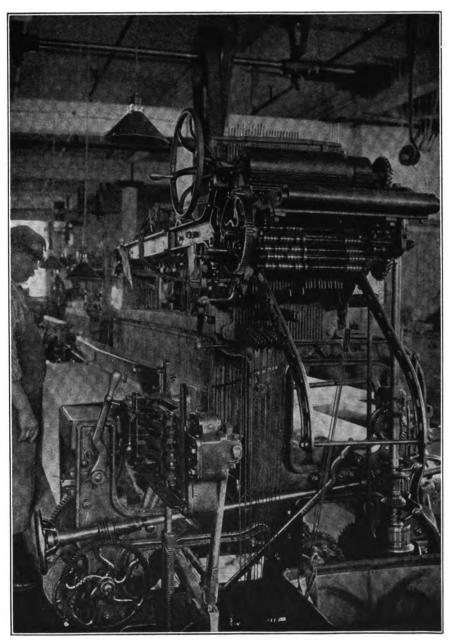


Yellow-crowned Weaver and Nest (P. icterocephalus).

branches of trees and shrubs; but others build in companies, numerous nests suspended from the branches of a tree being under one roof, though each one forms a separate compartment and has a separate entrance. They are natives of the warmer parts of Asia, of Africa, and of Australia. The Ploceus interocephdlus. or yellow-crowned weaver, is a native of South Africa.

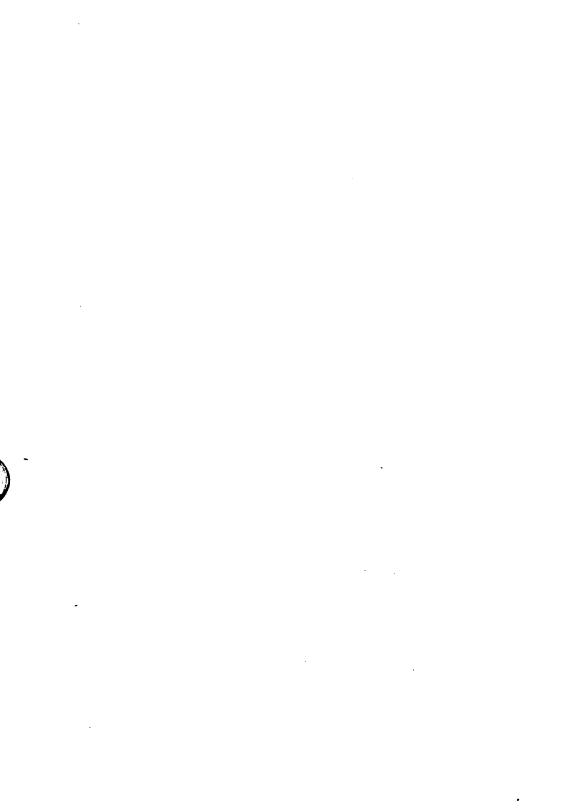
Weaver, James B., lawyer, born at Dayton, Ohio, in 1833. He served in the Union army during the Civil war, becoming a brigadier general of volunteers. Subsequently he practiced law in lowa; filled several public offices; edited the *Iowa Tribune*; was a member of Con-gress 1870-81, and 1885-89; was the Greenback candidate for President in 1880; and in 1892 the candidate of the Weaving (weving), the art of inter-lacing yarn threads or other filaments by means of a loom, so as to form a web of cloth or other woven fabric. In this process two sets of threads are employed, which traverse the web at right angles to each other. The first set extends from the end of the web in parallel lines, and is com-monly called the warp; while the other set of threads crosses and interlaces with rics of Italy and the Netherlands were produced. From the latter countries weaving by means of a hand-loom was introduced into England. This loom, in its latest form, consists of a frame of four upright posts braced together by cross-beams, the center beam at the back being the warp beam, the beam in front being that upon which the web is wound, while just below this, in front, is the breast-beam for the support of the weaver at his work. At the top of the loom is an apparatus by which the heddles are lifted or lowered by means of treadles under the foot of the weaver. These heddles consist of two frames, from which depend cords attached by a loop or eye to each thread in the warp. As these threads are attached to the frames, alternately, it follows that when one heddle is raised every second thread in the warp is also raised, while the remaining threads are depressed; and this is called shedding the warp. When the warp threads are thus parted there is left a small opening or shed between the threads, and it is through this opening that the weaver drives his shuttle from side to side. The shuttle, which is hol-

Populist party, receiving 22 electoral works to and fro like a pendulum by votes. He was mayor of Colfax, Iowa, in 1904-06. He died February 6, 1912. side called the swords. Attached to the lay is what is called the reed, which is a sort of comb having a tooth raised between every two threads of the warp, and so by driving up the lay after a weft thread has been introduced the weaver strikes home that thread to its place in the cloth. A great improve-ment was made upon the hand-loom The first set each the web in parallel lines, monly called the warp; while the other set of threads crosses and interlaces with the warp from side to side of the web, both ways with the warp from side to side of the web, both ways with the same of a cord attached to a boa of a cord attached to a boa of a cord attached to a cord attach lifted in any order and to any extent necessary to make the shedding required by the pattern. The order in which these hooks and wires are successively lifted and legended in date. cessively lifted and lowered is determined by means of a series of paste-board cards punctured with holes corresponding to a certain pattern and the cards passing successively over a cylinder or drum. The hooked wires pass through these holes and lift the warp-threads in an order which secures that the arranged pattern is woven into the fabric. When the pattern is extensive the machine may be provided with as many as 1000 hooks and wires. Another many as 1000 hooks and wires. Another development was made in the art of weaving by the invention of the power-loom by the Rev. E. Cartwright in 1784. In the power-loom, which has been gradually improved and adapted to steam-power, the principal motions of the old method of weaving, such as shedding the warp-threads, throwing the shuttle, and heating up the thread are still shuttle, and beating up the thread, are still retained. The frame of the power-loom is of cast-iron, and motion is communicated to the loom by means of a shaft, the stroke of the lay being made by side to side. The shuttle, which is hollow in the middle, contains the weftthread wound round a bobbin or pirn,
and as the shuttle is shot across the
web this weft thread unwinds itself. the loom. Although the principle of the
When the thread is thus introduced it
is necessary to bring it to its place in
is necessary to bring it to its place in
the fabric. This is accomplished by
means of the lay or batten, which is rics. The lappet loom is one suitable
suspended from the top of the loom, and for weaving either plain or gauze cloths,



A MODERN HIGH SPEED POWER LOOM

This wonderful machine is capable of turning out beautiful and intricate fabrics with great rapidity and is almost entirely automatic in its action.



and also for putting in representations in August, 1823. In 1826 Weber visited of flowers, birds, or the like. Cross London to superintend the production of weaving is a term applied to that process Oberon at Covent Garden Theater. It in which, as in gauze weaving, the was enthusiastically received. The comwarp threads, instead of lying conposer, however, was out of health, and stantly parallel, cross over or twist died in London, June 5, 1826. Besides around one another, thus forming a operas, he wrote a large number of other plexus or interlacing independent of that produced by the weft. Double weaving two webs simultaneously one above the other, and interventions. ously one above the other, and interweaving two at intervals so as to French River, 16 miles s. by w. of Worform a double cloth. Kidderminster or cester. It has extensive manufactures Scotch carpeting is the chief example of this process. *Pile* weaving is the process by which fabrics like that of velvets, summer resort. Pop. 11,509. pets are produced. In the weaving of these fabrics, besides the ordinary warp and weft, there is what is called the pile-warp, the threads of which are left in loops above the surface till cut. in loops above the surface till cut, and the cutting of which constitutes the pile.

Webb City, a city of Jasper Co., Missouri, 5 miles N. W. of Joplin. It is the center of a lead and zinc region, and has large mining interests. Has also a foundry, iron works, etc. Pop. 11,817.

Webb, CHARLES HENRY, humorist, born at Rouse's Point, New York, in 1834; died in 1905. Under the pen name of 'John Paul' he wrote for several newspapers, his humorous humorist, sketches being chiefly contributed to the New York Tribune. He wrote several burlesque dramas.

New York Tribune. He wrote several burlesque dramas.

Weber (våber), Karl Maria Friedrick (våber

Webster, DANIEL, famous orator and statesman, born January 18, 1782, at Salisbury, New Hampshire. He studied for four years at Dartmouth College, and having adopted the legal profession was admitted as a practitioner in the Court of Common Pleas for Suffolk county. In 1813 he was elected to Congress by the Federal party in New Hampshire, and from that period to the close of his life took a



as a slave state and to the Mexican war, but supported Clay's 'compromise' of 1850. In 1850, on the death of President Taylor, he became secretary of state under President Fillmore. This office he continued to occupy till his death which took place at his estate of death, which took place at his estate of Marshfield, Massachusetts, October 24, 1852. Among his many notable orations the most famous was that called out by the nullification movement of South Carolina in 1830. His great argument in defense of the Union and the Constitution on that occasion has rarely or never been surpassed in the history of oratory. Its closing sentence, 'Liberty and Union, now and forever, one and inseparable. has become an American watchword.

Webster Groves, a city of St. souri, 10 miles w. s. w. of the central

souri, 10 miles w. s. w. of the central point of St. Louis, to which it is closely related. Pop. 7080.

Webster, John, a dramatic poet of the seventeenth century, was clerk of the parish of St. Andrew, Holborn, and a member of the Company of Merchant Tailors. His works are: The White Devil (1612); The Duchess of Maily (1623); The Duchess of Maily (1623); Appius and Virginia (1654); The Thracian Wonder (1661); and A Cure for a Cuckold, a comedy (1661). He also assisted Dekker in writing the History of Sir Thomas Wyatt, and the comedies Westward Ho! and Northward Ho! By some critics he is accounted second only to Shakespeare.

Webster, Noah, lexicographer, was born at West Hartford, Connecticut, in 1758, and educated at Yale College. He chose the law as a profession, but relinquished it for teaching (1782). About the same time he began the compilation of books of school began the compilation of books of school instruction, and published his Grammatical Institute of the English Language, in three parts: Part 1, Webster's Spelling Book; Part 2, A Plain and Comprehensive Grammar; Part 3, An American Selection of Lessons in Reading and Speaking. All these works had an enormous sale. His literary activity was henceforth very great the works is. was henceforth very great, the works issued by him during the next few years including important legal and linguistic studies. In 1789 he settled at Hartford to practice law, but removed in 1793 to New York, where for some time he depottery, without much superficial glaze, voted himself to journalism. In 1806 and capable of taking on the most brilbe published an 8vo English Dictionary, liant and delicate colors produced by

was opposed to the admission of Texas the American Dictionary of the English Language. In preparing of the English Language. In preparing this work he visited England, and finished the dictionary during an eight months' residence in Cambridge. The first edition of his dictionary was published in 1828 (2 vols. 4to); it was followed by a second in 1840; since which time several englished and improved editions here are larged and improved editions have appeared. He died in May, 1843.

Wedge (wedj), a piece of wood or metal, thick at one end, and sloping to a thin edge at the other, used sloping to a thin eage at the other, used in splitting wood, rocks, etc. In geometrical terms it is a body contained under two triangular and three rectangular surfaces. It is one of the mechanical powers, and besides being used for splitting purposes is employed for producing purposes is employed for producing purposes. ducing great pressure, and for raising immense weights. All that is known with certainty respecting the theory of the wedge is that its mechanical power is increased by diminishing the angle of penetration. All cutting and penetrating instruments may be considered as wedges.

Wedgwood (wedj'wyd), Josian, a celebrated potter, born at Burslem, Staffordshire, England, 1730. He received little education, and went to work in his brother's factory at the age of eleven. An incurable lameness, the result of smallpox, which subsequently compelled him to have his right leg amputated, forced him to give up the potter's wheel. He removed for a time to Stoke, where he entered into partnership with persons in his own trade, and where his talent for ornamental pottery was first displayed. Returning in 1759 to Burslem, he set up a small manufactory of his own, in which he made a variety of fancy articles. His business improving, he turned his attention to white stoneware, and to the cream-colored ware for which he became famous; and he succeeded in producing a ware so hard and durable as to render works of art produced in it almost in-destructible. His reproduction of the Portland Vase is famous. He also executed paintings on pottery without the artificial gloss so detrimental to the effect of superior work. (See Wedgwoodware.) His improvements in pottery created the great trade of the Staffordshire Potteries. He died in 1795. See Pottery.

Wedgwood-ware, a superior kind of semivitrified which led the way for his great work, fused metallic oxides and ochers; s.

named after the inventor. It is much Weeks, FEAST OF. See Pentecost. used for ornamental ware, as vases, etc., and, owing to its hardness and property

of resisting the action of all corrosive substances, for laboratory mortars. Wednesbury (wenz'ber-i), a par-liamentary borough of England, in Staffordshire, 19 miles s. s. E. of Stafford, in the district known as the Black Country, and an important seat of wrought-iron manufactures. It has an ancient church. Pop. 28,108.

Wednesday (wenz'da), the name of the fourth day of the week (in Latin, dies Mercuri, day of Mercury), derived from the old Scandi-

navian deity Odin or Woden.

Weed (wed), Thurslow, journalist, born at Cairo, New York, in 1797; died November 22, 1882. He served as a private in the war of 1812, afterwards engaged in newspaper work, and in 1820 founded the Albany Evening Journal, which became the organ of the Whig party, and which he controlled for 35 years. He was a leader in state and national politics, but declined all offices for himself. He supported Lincoln and the Civil war, and was sent by the President on a mission to Europe in 1861-62. He wrote Letters from Europe and the West Indies, Reminiscences, and Autobiography.

Weed, a name applied to uncultivated plants growing wild or contaminating useful. cultivated ground. Many are

Week (wek), a period of seven days, one of the common divisions of time, the origin of which is doubtful. Among the nations who adopted the week as a division of time, the Chinese, Hindus, Egyptians, Chaldeans, Jews, Persians, and Peruvians have been mentioned, but in some cases the antiquity of the practice is doubtful, and in others the name has been applied to other cycles than that of seven days. The nations with whom the weekly cycle has been traced with certainty to the greatest antiquity are the Egyptians and the Hebrews. With the former we only know of its existence, but with the latter it had a much more important character. The use of the week was introduced into the Roman Empire about the first or second century of the Christian era from Egypt, and had been recognized independently of Christianity before the Emperor Constantine confirmed it by enjoining the observance of the Christian Sabbath. With the Mohammedans the week has also a religious character, Friday being observed by them as a Sabbath.

Weeper-monkey, or SAI. See Sa-

Weeping-ash, Frazinus pendula, a variety of ash differing from the common ash only in its branches arching downwards instead of upwards.

Weeping-birch, a variety of the birch-tree, known as Betüla pendüla, with drooping branches, common in different parts of

Europe.

Weeping-willow, a species of willow, the Salia Babylonica, whose branches grow very long and slender, and hang down nearly in a perpendicular direction. It is a native of the Levant, but has been introduced into the United States and other countries.

countries.

Weerd, or Weert (vārt), a town of Holland, in the province of Limburg. Pop. 8677.

Weever (wẽ'ver), a name of several acanthopterygious fishes of the genus Trachīnus, included by many authorities among the perches. Two species are found in the Atlantic, viz. the dragon-weever, sea-cat, or sting-bull, T. draco, about 10 or 12 inches long, and the lesser weever, T. vipēra, called also the adder-pike, or sting-fish, which attains a length of 5 inches. They inflict wounds with the spines of their first dorsal fin, which are much dreaded. first dorsal fin, which are much dreaded.

Their flesh is esteemed.

Weevil (we'vil), the name applied to beetles of the family Curculionidæ, distinguished by the prolonga-tion of the head,

so as to form a sort of snout or proboscis. Many of the weevils are dangerous enemies to the agriculturist, destroying grain, Corn-weevil (Calandra fruit, flowers, granaria). fruit, flowers, leaves, and stems. The larvæ of the size. corn-weevil (Ca-nife very destructive to



Insect natural The larvæ of the size. b, Insect mag-corn-weevil (Ca-nified. c, Larva, d, landra granaria) is Egg (both magnified).

grain, that of the pea-weevil (Bruchus pisi) to peas. See Corn-weevil and Peabectle.

See Weaving. Weft.

Weigelia (wi-ge'li-a), a genus of shrubs of the order Caprifoliacem (honeysuckles), natives of China and Japan, now cultivated in gardens for the beauty of their flowers.

ter in a body as estimated by the balance, or expressed numerically with reference to some standard unit. In determining weight in cases where very great precision is desired, due account must be taken of temperature, elevation, and be taken of temperature, elevation, and latitude. Hence in fixing exact standards of weight a particular temperature and pressure of air must be specified; thus the standard brass pound is directed to be used when the Fahrenheit thermometer stands at 62° and the barometer at 30°. See also Gravity, and prest article.

Weighing Machine. See Balance. of a new standard troy pound, weighing 5760 of such grains. In Britain the Weight (wat), the measure of the unit of lineal measure is the yard, all other force by which any body, or a given portion of any substance, graviples or aliquot parts of the yard. The tates or is attracted to the earth; in a length of the imperial standard yard, acmore popular sense, the quantity of matorial standard ward, and the standard season of the season of the standard ward, according to the act of parliament passed in 1824 was the straight line or distance. cording to the act of parliament passed in 1824, was the straight line or distance between the centers of the two points in the gold studs in the brass rod in the custody of the clerk of the House of Commons, entitled, standard yard, 1760. By the same act, the brass rod, when used, must be at the temperature of 62° of Fahrenheit's thermometer. It was enacted at this time their if this standard enacted at this time that if this standard should be lost or destroyed, the length thus the standard brass pound is directed should be lost or destroyed, the length to be used when the Fahrenheit therof the yard should be determined by mometer stands at 62° and the barometer at 30°. See also Gravity, and vibrating seconds of mean time in a next article.

Weights and Measures, scalevel. When the standard yard was sea-level. When the standard yard was actually destroyed, however, by the firethe standard used in accurately weighting and measuring quantities of emerical liament in 1824, the commissioners are the standard used in accurately weighing and measuring quantities, of especial liament in 1834, the commissioners apimportance in buying and selling, scienpointed to restore the standard decided tific operations, etc. The origin of the that it was better to do so by means of English measures is the grain of corn. authentic copies of the old standard that Thirty-two grains of wheat, well dried, were in existence. This was accordand gathered from the middle of the ear, ingly done, and five new official copies were to make what were called one were made one of which to be recorded. English measures is the grain of corn. Authentic copies of the old standard that Thirty-two grains of wheat, well dried, were in existence. This was accordand gathered from the middle of the ear, ingly done, and five new official copies were to make what was called one were made, one of which, to be regarded pennyweight; 20 pennyweights were as the national standard, is preserved called one ounce; and 20 ounces, one at the exchequer in a stone coffin in a pound. Subsequently, it was thought window-seat of a groined room. The better to divide the pennyweight into 24 equal parts, to be called grains. Will-tance between two fine transverse lines lamd the Conqueror introduced into Engon a square rod of gun-metal 38 inches land what was called troy weight long. In France the mêtre is the stand-(which see). The English were dissatard or unit of linear measure; the are, issied with this weight, because the or 100 square mètres, the unit of surpound did not weigh so much as the face measure; and the stère, or cube of pound at that time in use in England; a mètre, the unit of solid measure. The pound did not weigh so much as the face measure; and the stere, or cube of pound at that time in use in England; a mètre, the unit of solid measure. The consequently a mean weight was established, making the pound equal to 16 ounces. (See Avoirdupois.) But the troy pound was not entirely displaced all sorts of liquids, corn, and dry goods, by the pound avoirdupois; on the contrary it was retained in medical practice, and for the weighing of gold, silver, jewels, and such liquors as were sold by weight. There are 7000 grains in one pound avoirdupois, and 5760 grains in one pound troy; hence the troy pound avoirdupois pound as 14 to 17, or as 1 to 1.215. The troy pound was fied conditions gave as the result 277.274 retained as the British standard by an act passed in 1824; and in order that the standard pound, in case of damage or destruction, might be restored, by reference to a natural standard, it was lon. The United States has adopted ascertained that a cubic inch of distilled water, at a temperature of 62° Fahr.. weighed, in air, 252.458 grains; and it was directed that the standard resisted as bewildering irregularity pound should be restored by the making in the weights and measures used, but pound at that time in use in England; a metre, the unit of solid measure. The

since then they have been in great meas-ure regulated by statute, and entire uni-formity has been introduced. By the for navigating it, or for purposes of statutes the imperial standard yard, irrigation. pound, and gallon are fixed, and all local Weir. Harrison, an English artist, measures of capacity abolished. The legal stone is fixed at 14 lbs. avoirdupois. All articles sold by weight must be sold by avoirdupois, except gold, silver, platinum, and precious stones, which, as noted above, are still to be sold by troy weight. While the system described is in common and in all English marking in a common and in a com use in all English-speaking countries, the French metrical system has extended widely beyond the borders of France, and is now in use to some extent in nearly all civilized countries. In the United States and Great Britain it is largely used in scientific measurement. Besides the articles on Avoirdapois, Troy Weight, etc., see Ounce, Pound, Bushel, Decimal System, etc.

Wei-hai-wei (wā-hi-wā'), a small territory in the province of Shantung, China, extending 16 miles along the bay of the same name; area about 285 sq. miles; pop. about 150,000. A Chinese fleet was destroyed in the bay during the war with Japan in 1895. The territory, with the walled city of Wei-hai-wei, was leased to Great Britain by China in 1898.

Weimar (vi'mar), the capital of the grand-duchy of Saxe-Weimar, stands on the left bank of the Ilm, and in a beautiful valley surrounded by hills, but is not well built, and not-withstanding the presence of the court has a dull and lifeless appearance. Its public edifices most deserving of notice are the ducal palace, the so-called Red and Yellow Castles, now united and occupied by several public departments; the public library, containing an extensive collection; the museum; the theater; the Stedthirche with an elterniace one the Stadtkirche, with an altar-piece, one of the finest works of Lucas Cranach. Weimar is closely associated with the names of Schiller, Goethe, Herder, and Wieland, the first three of whom are buried here, and statues to all the four adorn the town. The houses of Goethe, Schiller, Cranach, and Herder are also objects of much interest. Pop. (1910) 34,582.

Weimar, Saxe. See Saxe-Weimar.

Weinheim (vin'him), a town in South Germany, in Baden, on the Weschnitz, 10 miles N. of Mannheim, with manufactures of machinery, silks, woolens, etc. Pop. 12,560. Weir, (wer), a dam erected across a river to stop and raise the water. either for the purpose of taking fish, of

taining the water at the level required for navigating it, or for purposes of

Weir, Well, was born at Lewes, Sussex, in 1824, and educated at an academy in Camberwell. Having learned the trade of a wood-engraver he turned his attention of a wood-engraver he turned his attention to painting. His first exhibited picture was in oil, entitled The Dead Shot. In 1847 he was elected a member of the new Society of Painters in Water Colors. He became chiefly noted for his pictures of country life, animals, fruits, flowers, and landscapes. As an illustrator of books and periodicals he is well known. He was the author of The Poetry of Nature; Everyday Life in the Country; Animal Stories; Old and New; and The Cat. He died Jan. 4, 1906. 1906.

Weismann (vis'man), August, bi-ologist, was born at Frankfort-on-the-Main in 1834; studied medicine, and in 1860 became phy-sician to the Archduke Stephen of Austria. He attracted great attention by his Essays on Heredity (translated 1892), in which he denied hereditary transmis-sion of other than race characters. With this he advanced a theory of generation that was accepted by many biologists. Others strongly opposed it and it was sustained by him in several volumes. It is known in biology as Weismannism. It maintains that the nucleus of every some several contracts a generalize which is germ cell contains a germ-plasm which is not derived from the body, but is transmitted from germ to germ. Thus it is unaffected by the hereditary characteristics of the body, but contains and reproduces those of the race only. Biological science is divided between the friends and foes of this unproved hypothesis.

Weissenburg (v'sen-burh), a town of Germany, in the province of Alsace-Lorraine, at the foot of the Vosges Mountains, on the Lauter, 34 miles N. N. E. of Strasburg. In the Franco-German war of 1870-71 a battle took place at Weissenburg on Aug. 4, 1870, the first important engagement between the two armies, in which the French were defeated. Pop. 6946.

Weissenfels (vi'sen-fels), a town of Prussia, in the governin ment of Merseburg, in the province of Saxony, on the Saale, with manufactures of porcelain, shoes, woolen fabrics, gold and silver articles, etc. It has a church containing the remains of Gustavus Adolphus. Pop. 30.894.

Weld. See Dyer's weed.

Welding (weld'ing), the union produced between the surfaces of pieces of malleable metal when heated almost to fusion and hammered.

Welland, a town of Ontario, Canada, on Welland Canal, 12 miles s. of St. Catharines. Pop. 6500. The canal, opened in 1829, affords navigation

canal, opened in 1829, affords navigation around the Niagara falls and rapids; is 26% miles in length and by means of 26 locks rises 326% feet.

Welles (welz), Gideon, an American naval officer and political leader, born in Glastonbury, Conn., July 1, 1802. He studied law and in 1826 became additor and proprietor of the Hest. came editor and proprietor of the Hart-ford Times, favoring Andrew Jackson's ford Times, favoring Andrew Jackson's Wellington (welling-tun), a town election to the presidency. From 1827 to 1835 he was a member of the Connecticut shire, 11 miles cast of Shrewsbury, with legislature. He became identified with the manufactures of nails, farm implements, Republican party in 1857, and was chairbrass and iron ware, etc. Pop. 7820. man of the Connecticut delegation in the Wellington, a town of England Convention that nominated Lincoln. He Wellington, Somerset, with m man of the Connecticut delegation in the Convention that nominated Lincoln. He wellington, a town of England, in Somerset, with manuwas secretary of the navy, 1861-69. He factures of druggets and serges. From

was secretary of the havy, 1801-05. He died February 11, 1878.

Welles, Thomas, colonial governor, born in England 1598; came to America about 1636, and settled in Hartford, Conn. He was commissioner of the United Colonies in 1649 and 1654, and governor in 1655 and 1658.

died in 1842.

Wellhausen (vel'how-sen), Julius. theologian and critic, born 1844. his works are Test der Bücher Samuelis, Die Pharisäer und Sadducäer.

undertaken by large corporations and the command as lieutenant-colonel of the other employers for the benefit of their 33d Regiment. During 1794 and 1795 employes. These range from lunch he served with his regiment under the rooms and locker rooms to extensive medical and sanitary systems, and the provisions for old age pensions, compensa-tion for industrial accidents, etc.

Wellingborough (wel'ing-bur-ō), a town of Northamptonshire, on the river Nen, 10 miles northeast of Northampton. It has a handsome parish church, a grammar school, and a corn exchange accommodating also a literary institute. The principal industries are the manufacture of boots and shows are the manufacture. of boots and shoes, and the smelting of iron. Pop. 19,758.

Wellington, a city, county seat of Sumner Co., Kansas, on Slate Creek, 30 miles S. by w. of Wichita. It has flour mills and grain elevators, and is the division point for the Santa Fé Railroad. Pop. 7034.

this place the Duke of Wellington took his title. Pop. 7634.

Wellington, the capital of New Zea-land, is situated on Port Nicholson, an islet of Cook's Strait, on the southwest extremity of the pro-vincial district of Wellington, North Isl-and. Its harbor is 6 miles long and 5 wellesley, a town of Norfolk county, which is the seat of Wellesley College, founded in 1875, for the higher education of women, which in 1913 had an enrollment of 1480 students, 133 instructors and a library of 74,000 volumes. Pop. of town 5413.

Wellesley, Province of. See Penary.

Wellesley (welz'ii), Richard College, left by nary.

Wellesley (welz'ii), Richard College, lington has an area of 11,250 sq. miles. It has an equable and healthy climate, but is subject to earthquake shocks. It is intersected by several mountain ranges, but there are many fine agricultural and pastoral districts. Gold was found in 1881. The chief rivers are the Manawatu and Wanganui.

Wellington, Arthur Wellesley.

Wellesley, Arthur Wellesley.

Wellesley (welz'ii), Richard College, etc., and is lighted by electricity. Pop. 64,372.—The provincial district of Wellington college, etc. It has several daily and weekly newspapers, botanic gardens, tramways, etc., and is lighted by electricity. Pop. 64,372.—The provincial district of wellington college, etc. It has several daily and weekly newspapers, botanic gardens, tramways, etc., and is lighted by electricity. Pop. 64,372.—The provincial district of wellington has an area of 11,250 sq. miles. It has an equable and healthy climate, but is subject to earthquake shocks. It has an equable and healthy climate, but is subject to earthquake shocks. It has two wharfs a

Wellington, ABTHUR WELLESLEY, DUKE OF, born in 1769, was the third son of the first Earl of a distinguished German Mornington, and was educated at Eton, Among at Brighton, and finally at the Military amuelis, College of Angers. In 1787 he received a commission as ensign in the 73d Foot. Welfare Work, the term applied to and after a rapid series of changes and various activities promotions, attained by purchase in 1793 activities promotions, attained by purchase in 1793 Duke of York in Flanders. In 1796 his regiment was despatched to Bengal, Colonel Wellesley landing at Calcutta in Feb., 1797, at a critical moment for the

British power in India. War had just perseded; but before giving up the combeen declared against Tippoo Saib, and mand he gained the battle of Vimeira over an army of 80,000, of which Colonel Junot, the campaign being brought to a Wellesley's regiment formed part, close with the convention of Cintra, by wellesley's regiment formed part, marched against him. An engagement took place at Mallavelly (Mysore) on the 27th, in which Wellesley, who commanded the left wing, turned the right of the enemy. He was subsequently employed to dislodge the enemy from their posts in front of Seringapatam and efformation and efformation and efformation and efformation and efformation and efformation. posts in front of Seringapatam, and after posits in troit of Seringapatam, and after the capture of that capital he was ap-pointed, in 1799, to the administration of Mysore, his brother being at this time governor-general. (See Wellesley.) In 1802 he attained the rank of majorgeneral, and in the following year he was appointed to the command of a force destined to restore the Peishwa of the Mahrattas, driven from his capital by Holkar. After this operation had been successfully performed the other Mahratta chiefs, Scindia and the Rajah of Berar, showed hostile designs against the British, and Wellesley was ap-pointed to the chief military and polit-ical command in the operations against ical command in the operations against them. After an active campaign, in which he took Ahmednuggur and Arungabad, he encountered a powerful Mahratta army, assisted by French officers, at Assaye, on September 23, and entirely defeated it. The parallel successes of General Lake, and the defeat of the Rajah of Berar by Wellesiey at Argaum on November 29 compelled the submission of the Mahrattas, and peace was restored on conditions drawn up by was restored on conditions drawn up by the successful general. Early in 1805, his health failing, Wellesley obtained leave to return home, and arrived in England in September. He had before leaving Madras received his appointment as Knight Commander of the Bath. From November to February he was engaged as brigadier-general in Lord Cathcart's expedition to the continent, which was without result. In January, 1806, he succeeded Lord Cornwallis as colonel he succeeded Lord Cornwallis as colonel of his own regiment, the 33d. On April driven 120,000 veteran troops from 10, 1806, he married Lady Catherine Spain. Napoleon abdicated on April 12, Pakenham, third daughter of the Earl and a few days later the war was of Longford. He was shortly after-words elected M.P. for Rye, and in April, ventions with Soult and Berthier. In 1807, was appointed secretary of state for Ireland. In August he received the command of a division in the expedition to Copenhagen under Lord Cathcart and copenhagen under Lord Cathcart and muted afterwards for £400,000. He readmiral Gambier, and took Kioge on April 29, the only land operation of importance. On April 28, 1808, he attained the rank of lieutenant-general and castlereagh as British representative in in June received the command of a force the Congress of Vienna. In April he destined to operate in the north of Spain took the command of the army assembled in the Netherlands to oppose Napo-

perseded; but before giving up the command he gained the battle of Vimeira over Junot, the campaign being brought to a close with the convention of Cintra, by which the French agreed to evacuate Portugal. In 1809 Wellesley was appointed to take the chief command in the Peninsula, which had been overrun by the French. The famous passage of the Douro, and the defeat of Soult which followed, fittingly opened this masterly campaign. For the victory at Talavera (July 28), the first of a long list that subsequently took place in the Peninsula, the government raised the commander-in-chief to the peerage as Viscount Wellington. Towards the end of 1810 Wellington fought the battle of Busaco, which was followed by the famous fortification and defense of the lines of Torres Vedras. A little later (in 1811) occurred the victory of Fuentes de Onoro. In the following year he took Ciudad Rodrigo and Badajoz by storm, and fought the battle of Salamanca, accounted one of his most famous victories. On August 12, 1812, Wellington entered Madrid. For his brilliant conduct of the campaign thus far he received the thanks of parliament. was conduct of the campaign thus far he reconduct of the campaign thus far he received the thanks of parliament, was raised to the dignity of marquis, and a sum of £100,000 was voted to purchase him an estate. Next followed the battle of Vittoria (June 21, 1813), for which decisive victory Wellington was given the baton of field-marshal; then battles in the Pyrenees, the capture of San Sebastian, and the crossing of the Bidassoa into France. In 1814 the battle of Orthez was gained, and in the Bidassoa into France. In 1814 the battle of Orthez was gained, and in the same year the battle of Toulouse, in which Soult's best troops were routed, and the hopes of France in the Peninsula utterly annihilated. The way was now open for the British troops to the heart of France. In six weeks, with scarcely 100,000 men, Wellington had marched 600 miles, gained two decisive battles, invested two fortresses, and driven 120,000 veteran troops from

(See France and Waterloo.) On his return to England after the restoration of peace he received a vote of £200,-000 for the purchase of the estate of Strathfieldsaye, to be held on presenting a colored flag at Windsor on the 18th of June each year. With the return of peace he resumed the career of politics. He accepted the post of master-general of the ordnance with a seat in the cabinet of Lord Liverpool in January, 1819. In 1822 he represented Great Britain in the Congress of Vienna. In 1826 he was appointed high-constable of the Tower. On January 22, 1827, he succeeded the Duke of York as commander-in-chief the forces On January 22, 1827. the Duke of York as commander-in-chief of the forces. On January 8, 1828, he accepted the premiership, resigning the command of the forces to Lord Hill. In January, 1829, he was appointed governor of Dover Castle and lord warden of the Cinque Ports. In 1830 repeated motions for parliamentary reform were defeated, but the growing discontent throughout the country on this subject and a defeat in parliament caused the and a defeat in parliament caused the resignation of the government in November. His opposition to reform made the ber. His opposition to reform made the duke so unpopular that he was assaulted by a mob on June 18, 1832, and his life endangered. He accepted office under Sir Robert Peel in 1834-41, and again in 1846, when he helped to carry the repeal of the corn-laws, which till then he had opposed. In 1842 he resumed the command of the forces on the death of Lord Hill He died at Walmer death of Lord Hill. He died at Walmer Castle, September 14, 1852.

Wellman, WALTER, journalist and explorer, was born at Mentor, Ohio, November 3, 1858. He established a weekly newspaper at the age of 14; at 21 established the Cincinnati Evening Post, and has been a correspondent of the Chicago Herald and Record-Herald since 1884. In 1892 he marked with a monument the supposed landing place of Columbus in Watling Island; in 1894 and 1898 headed Arctic exploring expeditions: in 1996 huits a exploring expeditions; in 1906 built a large airship at Paris, and attempted an aerial flight to the north pole in 1907 and again in 1909, both proving failures. In 1910 he attempted a flight from the United States to Europe, starting at Atlantic City, N. J. He failed in this effort, but made a flight over the ocean of 1000 miles, the greatest airship flight made to that time.

Wells (welz), a city of England, in Somersetshire, contains one of the most magnificent cathedrals in England, 415 feet long, with a transept measuring 155 feet, and three towers. Pop. 4655.

Wells, DAVID A., economist, born in Springfield, Massachusetts, in 1828. He was graduated from Williams College in 1847. Among other publications his essay on Our Burden and Our Strength, issued in 1864, had a large circulation. In 1867 he visited Europe, under government commission, and investigated industries competitive with those of the United States. His experience resulted in his acceptance of free-trade doctrines. He was a prolific writer of pamphlets on economic sub-jects. He died in 1898.

Wells, HERBERT novelist, GEORGE, a British born at Bromley, British Kent, in 1866. He wrote a Text Book of Biology in 1893, and followed this by a series of highly imaginative stories, entitled The Time Machine, The War of the Worlds, When the Sleeper Wakes and various others, among the latest being The New Machinelli ing The New Machiavelli.

ing The New Machiavelli.

Wells, Horace, dentist, born at Harthorn ford, Vermont, in 1815. He appears to have been the first to employ anæsthetics successfully, by inhaling nitrous oxide gas to destroy pain in dental operations. He tried it first on himself in 1844. Dr. Morton, of Boston, substituted ether for nitrous oxide in 1846. Wells lost his reason in 1848, probably as a result of inhaling chloroform, and committed suicide.

Wallston a city of St. Louis Co.

Wellston, a city of St. Louis Co., Missouri, in the vicinity of

Wellston, Missouri, in the vicinity of St. Louis city. Pop. 7312.

Wellston (wels'tun), a town of Jackson Co., Ohio, 32 miles s. E. of Chillicothe. There are coal mines in the vicinity, and it has iron, steel and cement works. Pop. 6875.

Wellsville (welz'vil), a city of Columbiana Co., Ohio, on the Ohio River, 48 miles w. N. w. of Pittsburgh. It has iron and tin-plate works, boiler, tanks, sewer-pipe and pottery works, etc. Pop. 7769.

Welshach Light an invention of

Welsbach Light, an invention of Welsbach, an Austrian, in 1884. In Welsbach, an Austrian, in 1884. In Europe it is known as the Auer light. It is based upon the discovery that certain materials become incandescent at a low temperature. The process fol-lowed is to saturate a combustible fila-ment in the form of a network with a solution of a salt of a refractory earth, such as zirconium. It is then dried out and burned, the combustible element disappearing and leaving a frame of refrac-tory material, which becomes incandes-cent at a low temperature. The fila-ment is called a mantle and is exceed-ingly fragile. It gives a brilliant light

Welwitschia (wel-wich'i-a), a remarkable plant growing in Southern Africa in dry regions near the western coast, between lat. 14° and 23° s. It presents a stem or rhizome forming a woody mass rising to a foot at most above the ground, and having a diameter of from 4 to 5 inches to as many feet, this mass bearing the two original cotyledonary leaves, which, when they reach their full development of 6 feet in length or so, become dry and split up into shreds but do not fall off. Every year several short flower-stalks are developed at the base of these leaves, but no other leaves are produced. There seems to be but one species, W. mirabilis. It is placed among the Gnetaceæ.

Wen, an encysted tumor occurring on the scalp or other parts of the body. They are formed by the accu-mulation of sebum in a hair follicle, or in the recesses of the sebaceous gland ford. See Strafford. of the hair sac, causing distension of the sac. An encysted tumor, in its com-mencement, is always exceedingly small, and perfectly indolent; and it is often

and perfectly indolent; and it is often many years before it attains any great machinery, etc. Pop. (1905) 19,473.

Wenceslaus (wen'ses-las), or Wenzell, an Emperor of Emperor of Mensell, an Emperor of miles northeast of Düsseldorf. Coal miles is carried on in the vicinity. Pop. (1905) 11,029.

Werewolf (wer'wulf), a man-wolf, a man transformed into a wolf according to a superstition previous description. Hussites, but was unable to save the life of Huss. He died in 1409.

wen-chow (wen'chou), a Chinese treaty port, in Chewkiang, at the head of a bay. Pop. 100,000. Wends, the name of a section of the that of a wolf by night.

Wends, the name of a section of the that of a wolf by night.

Werff (werf), Adriaan van der Rotaustia, partly in Prussia, partly terdam in 1659; died there in 1722. He in the Kingdom of Saxony. In the sixth century the Wends were a powerful people, extending along the Baltic from the ment of Solomon, Christ Carried to the Elbe to the Vistula, and southwards to Sepulcher, Ecce Homo, Abraham with the from of Rohemia. They come Saxah and Hagar, and Magadles in the

and of very irregular shape. Its greatest length, northeast to southwest, is about 100 miles; and its breadth may born in 1750; died in 1817. In 1775 average about 30 miles; area, 2306 he was appointed inspector and teacher

and has come into very wide use for square miles. Its chief feeder is the stores and dwellings.

Welwitschia (wel-wich'i-a), a remarkable plant grow-is at its southwestern extremity, where its superfluous waters are received by the river Gotha. In winter it is frozen for several months, and crossed by sledges. It abounds with fish.

Wenlock (wen'lok), a municipal bor-ough of England, in Shropough of England, in Shropshire, 12 miles southeast of Shrewsbury. It comprises Much Wenlock, Broseley, Madeley, Coalbrookdale, etc. There are large iron and other industries. Pop. 15,244.

Wenlock Group, in geology, that subdivision of the Silurian system lying immediately below the Ludlow rocks, and so called from being typically developed at Wenlock. See Geology.

See Scalaria. Wentletrap.

Wentworth (went'wurth), SIR THOMAS, Earl of Straf-

Werdau (ver'dou), a town of Saxmiles w. s. w. of Chemnitz, with extensive manufactures of yarn and worsted,

wolf according to a superstition prevalent in ancient and mediæval times. It was generally thought that such beings had the form of a man by day, and

as Lusatia, partly in Prussia, partly terdam in 1659; died there in 1722. He in the Kingdom of Saxony. In the sixth century the Wends were a powerful people, extending along the Baltic from the Elbe to the Vistula, and southwards to Sepulcher, Ecce Homo, Abraham with the frontiers of Bohemia. They comprised a variety of tribes. The favorite occupation of the Wends was, and still is, agriculture. There are several pieces, which are most exquisitely findialects of the Wend language still extant.

Wener (ven'er), the largest lake of Sweden, and after those of Ladoga and Onega the largest in Europe, situated in the southwest of the kingdom. It is 147 feet above sea-level, and of very irregular shape. Its great-

of mineralogy and mining in the Mining Academy at Freiberg, in which position he remained for the rest of his life. Werner was the first to separate geology from mineralogy, and to place the former on the basis of observation and experience. The great geological theory with which his name is connected in that which attributes the phenomena is that which attributes the phenomena exhibited by the crust of the earth to the action of water, and is known as the Wernerian or Neptunian theory, in distinction to the Huttonian or Plutonic, in which fire plays the chief part.

Wernigerode (ver'ni-ge-rō-dė), a town of Prussia, in the province of Saxony, 43 miles southwest of Madgeburg, at the foot of the Harz Mountains. It has several interesting ancient Gothic buildings, a residence of the Counts Stolberg-Wernigerode, with a library of about 120,000 volumes, etc. Pop. (1905) 13,137.

Werra. See Weser.

Wesel (va'zl), a river port and strong-ly fortified town in Rhenish Prussia, at the confluence of the Rhine and the Lippe, 30 miles N. N. W. of Düsseldorf. It contains the old Gothic church of St. Willibrord, recently restored, a fine old Gothic town house, and many quaint buildings. The manufac-

tures comprise woolens, chemicals, leather, etc. Pop. (1905) 23,237.

Weser (va'ze'n), a river of Germany, formed by the junction of the Fulda and Werra at Münden, flows generally in a northwest direction, and, after a very circuitous course, traverses the city of Bremen, and then falls by a the city of Bremen, and then falls by a wide mouth, very much encumbered with sand-banks, into the German Ocean. Its length, including the Werra, is about 430 miles. The navigation for vessels of large size ceases about 10 miles below Bremen. See Bremen.

Wesley (wes'li), CHARLES, younger brother of John Wesley, was born at Epworth, England, in 1708, and was educated at Westminster School and Christ Church, Oxford. He accompanied his brother to Georgia as an or-

and Christ Church, Oxford. He accompanied his brother to Georgia as an ordained clergyman, but after his return to England he became, in 1738, a preacher in the Methodist connection, and materially assisted the success of the movement by his numerous hymns, large collections from which have been frequently published. He died in 1788. Two of his sons, Charles and Samuel, were celebrated for musical genins.

Waglay John, the founder of Wes-

being rector of the parish), June 17, 1703, and educated at the Charterhouse, and at Christ Church, Oxford. He took his degree of B.A. in 1724, was ordained deacon in 1725, became a fellow of Lincoln College, and lecturer and moderator in classics in 1726; and took priest's orders in 1728. He now gathered to-gether a number of pupils and com-panions who met regularly for religious purposes, and by their strict and methodical habits acquired the name Methodists. Among these companions were Hervey, Whitefield, and Law, the author of the Serious Call to the Unconverted. In 1735 Wesley accepted an invitation from General Oglethorpe to go out to America to preach to the colonists of Georgia. After a stay of two rooms he returned to Eveland (Exc.) two years he returned to England (Feb., 1738), and in the following May an important event took place in his inner religious life, namely, his conversion. In June he paid a visit to Herrnhut, the Moravian settlement, returning to England in September. Early in the following year (1739) he began open-air preaching, in which he was closely associated with Whitefield, from whom, however, he soon separated, but without a permanent personal breach. Having now the sole control of the religious body which adhered to him, he devoted his entire life without intermission to the work of its organization, in which he showed much practical skill and admirable method. His labors as an itinerant preacher were incessant. He would ride from 40 to 60 miles in a day. He read for the skill and the skill and the skill and the skill are skill and the skill are skill and the skill are skill as the skill as the skill are skill as the skill are skill as the skill as the skill are skill as the skill are skill as the skill are skill as the or wrote during his journeys, and frequently preached four or five times a day. He married in 1750 Mrs. Vizelle, a widow with four children, but the union was unfortunate, and they finally separated. He died March 2, 1791. He held strongly to the principle of episcopacy, and never formally separated from the Church of England. His collected works were published after his death in thirty-two volumes, octavo. He contributed to the collection of hymns, the greater part of which were writ-ten by his brother Charles. See Methodists.

Wesleyan Methodists. See Methodists. Wessex (wes'seks), that is, West Saxons, one of the most important of the Anglo-Saxon kingdoms in England during the sixth, seventh, and eighth centuries, and the early part of the ninth, and that in which the other Wesley, John, the founder of Weskingdoms were ultimately merged in the at Epworth, Lincolnshire (his father counties of Devon, Dorset, Somerset kingdoms were ultimately merged in the reign of Egbert in 827. It included the Cornwall.

West, BENJAMIN, painter, born in Delaware Co., Pennsylvania, October 10, 1738. He showed great prea portrait-painter at Philadelphia. In July, 1760, he visited Italy, and settling July, 1760, he visited Italy, and settling tape, leather, straw and leather goods, in Rome, painted Cimon and Iphigenia, underwear, etc. Pop. 5446.

Westbrook

England in 1763, and was so well patronized that he determined to make it butter residence. He painted Hector and Andromache, The Return of the Paper, cotton and silk mills, foundries and other industries. Pop. 8500.

Prodigal Son, and a historical painting of Agrippina, the last for the Archbishop of York, who introduced him to George III. who became his steadfast the visited was underwear, etc. Pop. 5446.

Westbrook

Eumberland Co., Maine, Daper, cotton and silk mills, foundries and other industries. Pop. 8500.

West Bromwich, a municipal tary borough of England, in Stafford-George III. who became his steadfast the visited was proposed to the visited was partially and parliamentary borough of England, in Stafford-George III. who became his steadfast the visited was partially and parliamentary borough of England, in Stafford-George III. George III, who became his steadfast shire. It is in a rich iron and coal repatron, and gave him commissions to the gion and has extensive iron works and extent of about £1000 a year for upmanufactures of metal goods. Pop. wards of thirty years. He painted a 68,345.

West Chester (west'chester), a and for the orders the group wards of the content that the content the and for the oratory there a series on the

progress of revealed religion. On the death of Reynolds, in 1792, he was elected president of the Royal Academy. He afterwards painted a number of religious and historical pictures of large size, among them being Christ Healing the Sick (in the National Gallery), the Crucificion, Ascension, and Death on the Pala Heave. Pale Horse. The Death of General Wolfe at Quebec and The Battle of La Hogue are accounted the best of his his-Hogue are accounted the pest of his historical pieces. 'The 400 historical pictures which he painted show skill in composition and considerable inventive power, but they have no real vitality.' Tame in style and monotonous in color, the property of the p

from Milwaukee. Its manufactures include engines, chains, belts, steam pumps,

with Bay City.

Wilts, Hants, Berks and a part of facturing region. It is closely associated with Berwick, its banking point. Pop. 5512.

(west'bur-o), a town of Worcester Co., Massachu-Westboro cocity in his aptitude for painting, and at setts, 33 miles from Boston, on the Boston established himself as ton and Albany Railroad. Its manufactures include iron and brass beds, trellises, tape, leather, straw and leather goods,

West Chester (west'chester), borough, capital Chester Co., Pennsylvania, is situated 30½ miles w. of Philadelphia. It stands in a rich farming region, a rolling country, about 450 feet above tide-water, and has a notable courthouse, a botanical garden, and is the seat of a State normal school and other educational institutions. It has large grain and dairying industries, and manufactures of dairy supplies, wheels, tags, paper, etc. Pop. 11,767.

Westcott (west'kot), EDWARD NOYES, provided to the provided to the

novelist, was born at Syracuse, New York, in 1847. He is known for one work, David Harum: a Story of American Life, of which the humor power, but they have no real vitality. And skillful character drawing gave it a rate in style and monotonous in color, very wide circulation. He died March they now possess little interest. Many 31, 1898, before its publication. died in London March 11, 1820, and was buried in St. Paul's Cathedral.

Washington Co. Rhode Island (1997)

was buried in St. Paul's Cathedral.

West African Colonies of Britania, the Gold Coast, Lagos, Gambia, and Sierra Leone (which see).

West Allis, a city of Milwaukee Co., Wisconsin, a few miles printing presses, and a highly superior quality of granite is largely quarried. From Milwaukee. Its manufactures in Two Milwaukee. Its manufactures in Two Milwaukee. The March 11, 1820, and Westerly township (town), Washington Co., Rhode Island, on the Pawcatuck River, 44 miles s. W. of Providence. Cottons and woolens are largely manufactured, also thread and printing presses, and a highly superior quality of granite is largely quarried.

Western Australia, a British colony which west Bay City (formerly Wenona), a former city of Bay Co., Michigan, on the Saginaw River, near its mouth, and opposite Bay City.

The total estimated area is mouth, and opposite Bay City.

The total estimated area is mouth, and opposite Bay City.

The total estimated area of 129° E. lon. This territory measures from E. to w. The total estimated area is mouth, and opposite Bay City.

The total estimated area is 129° E. lon.

The total estimated westward of the Australian colonies.

The really occupied portion, apart from scattered settlements round the coasts, is almost entirely in the southwest and is almost entirely in the southwest, and West Berwick, a borough in Co- is about 600 miles in length, and 150 miles in average breadth. The re-avlvania, in an agricultural and manu- mainder is almost wholly desert or sandcovered plain, with large areas desti-tute of vegetation. A region of moun-tains border the western coast line, with other more interior ranges. West-western Reserve. a tract of land with other more interior ranges. Western Australia was first settled in 1820 as the Swan River Settlement, and for many years the population was very forming part of the claims of Connectismall. In 1850 it was made a concut in the Northwest Territory. When, vict station, and remained such till the by the treaty of 1783, Great Britain reabolition of transportation in 1868. linquished the territory s. of the Great Since that time it has been making Lakes and E. of the Mississippi, disputes arose among the States of Virginia, Since that time it has been making gradual progress. Perth is the capital, gradual progress. Perth is the capital, on Swan River. Besides this river there are, in the southwest, the Blackwood, Murray, Murchison, etc., further north, the Gascoyne, Ashburton, Fortescue, De Grey, Fitzroy, etc., none of them navi-gable at all seasons. The southgable at all seasons. The south-west has vast forests, which supply valuable timber for exportation, especially that known as jarrah (which see). Other trees are the lofty eucalyptus or blue gum, sandalwood, karri, etc. Copper and lead are found in abundance and are slightly worked. The other chief minerals are gold, coal, zinc, and iron; the gold deposits being widespread and the product of much value. The pearl fisheries are rising in value. The Kimberley and northern districts contain boundless pearlurge and tricts contain boundless pastures, and there are lands suitable for the growth of sugar, tobacco, wheat, etc. In the Kimberley district considerable quantities of gold are now obtained from quartz reefs. In other parts are soils and climates admirably adapted for the cultivation of silk, olives, the vine, etc. Fruits are abundantly general. The live stock includes sheep, cattle, horses, pigs, goats, and a few thousands of camels. Sheep are largely kept and the wool clip is large and valuable. The principal exports are wool, pearls and shells, timber, and sandalwood. The chief imports from Great Britain are apparel and haberdashery. ale. iron. cottons. and haberdashery, ale, iron, cottons, telegraph wire, etc. In 1901 the colony became a State of the commonwealth of Australia, its population at that date being 184,124. Pop. (1914) 325,019.

Western Empire, a portion of the Roman empire, a portion of the Roman empire.

consisting of Italy, Illyricum, Spain, Gaul, Britain and Africa, which Valen-tinian I reserved for himself when in 364 he shared the imperial authority with his brother Valens, who reigned in Constantinople as Emperor of the East, and whose territories comprised the eastern half of the Roman Empire. This partition of the Roman Empire became final in 395, when Theodosiu; the Great divided the Roman world between his sons, Honorius, who became Emperor of from Florida to the shores of Venezuela. Rome and the West, and Arcadius, who

arose among the States of Virginia, New York, Massachusetts, and Connecti-cut as to the right of occupancy in that locality. The difficulty was finally setcut as to the right of occupancy in that clocality. The difficulty was finally settled by the cession of the whole to the Federal government, but Connecticut reserved a tract of nearly 4,000,000 acres on Lake Erie. The State finally disposed of this in small lots to colonists, and so accumulated a very large school fund.

Westfield (west'feld), a town (town-ship), of Hampden Co., Massachusetts, on Westfield River, 9 Massachusetts, on Westfield River, 9 miles w. of Springfield. It contains a State Normal School, Westfield Athenæum, and other institutions. The mannæum, and other institutions. The manufactures are extensive and include whips, cigars, paper, steam heaters, machinery, thread, etc. The town was settled in 1658. Pop. 16,044.

Westfield, a town of Union Co., New of Elizabeth. It is chiefly a residence place for New York business men. Pop. 6420

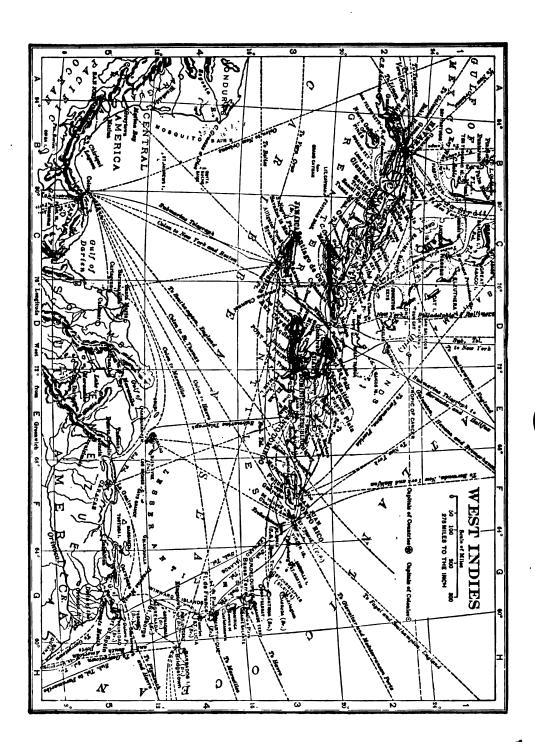
6420.

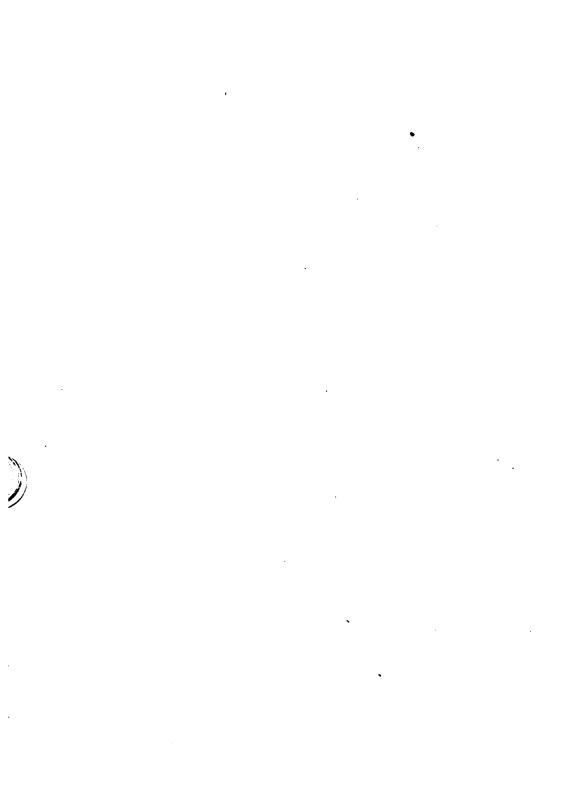
West Haven, a borough of New Haven Co., Connecticut, separated from New Haven by the West River. It has manufactures of buckles, pianos, safes, etc. Within its limits is Savin Rock, on Long Island Sound, a popular resort. Pop. 8543 (included in pop. of Orange).

West Hoboken, a town of Hudson Co., New Jersey, near the Hudson River, contiguous with Hoboken and Jersey City. Its manufactured an address included as a substitution of the control of t tured products include embroideries, silks, braids, pearl buttons, artificial flowers, etc. The town was set off from Bergen in 1861. Pop. 35,403.

Westhoughton (-hō'ten), a town-b miles w. s. w. of Bolton, with manufactures of silk and cotton, and coal mining. Pop. 15,046.

West India Apricot. See Mammee-tree. West Indies (-in'dez), also called the ANTILLES, the extensive archipelago which lies between North and South America, stretching from Florida to the shores of Venezuela.





stretching from near the coast of lantern, the oil cook stove, the stove Florida in a southeasterly direction; the board, etc. He died December 28, 1900. Greater Antilles, comprising the four Westmacott (west'ma-kot), SIR largest islands of the group, Cuba, Westmacott RICHARD, sculptor, born Hayti, Porto Rico and Jamaica; and in London in 1775. In 1793 he went to tobacco, maize, etc.; oranges, lemons, limes, pomegranates, citrons, pineapples, etc.; manioc, yams, potatoes, etc. Except Hayti and Cuba (which are independent), Porto Rico, Santa Crus, St. Thomas, and St. Johns (which now belong to the United States, the latter three purchased recently from Denmark), and a few islands off the coast of S. America, sq. miles. The surface is hilly in the north, but elsewhere undulates gently. The drainage is shared between the Shannon and the Boyne. The former, with all sainds are: Jamaica, Barbados, St. Lucia, St. Vincent, Trinidad, Tobago, Antigua, St. Kitt's, Dominica, Virgin Islands and the Bahamas.—Dutch: St. Eustatius, Saba, St. Martin (partly the cap, and Oruba or Aruba.—French: larger part of the available surface is Martinique, Deseada, Guadeloupe, Marie devoted to grazing. Important means of Galante, St. Martin (partly Dutch), St. Bartholomew, and Les Saintes. See the various islands and groups.

Westinghouse (west'ing-hous), George, inventor, capitalist and manufacturer, was born at Central Bridge, New York, in 1846.

He entered the machine shop of his father and at the age of 15 designed a rotary in and in ordinary speech are mentioned as

He entered the machine shop of his father of royalty, is now so united with London and at the age of 15 designed a rotary that in appearance they form one city, engine. He served in the Union army in and in ordinary speech are mentioned as 1863-64. He is best known by the famous air-brake that bears his name, so jurisdictions. Temple Bar (now regenerally used in railroad traffic. He moved) separated the two cities. Within originated other devices, including electrical machinery, railroad signals, etc., Hall, Abbey, and School, Buckingham and was an extensive manufacturer of Palace, the Houses of Parliament, St. electrical goods, his enormous manufactur- James. Palace, the Whitehall Banqueting establishment, that of the Westing-house, etc. Pop. 160,277. (See house Mfg. Co., being at Pittsburgh, Pa. London.)

Westminster Abbey, the corona-

Hayti, Porto Rico and Jamaica; and in London in 1775. In 1793 he went to the Lesser Antilles, stretching like a great bow, with its convexity towards such progress that he gained the pope's the east, from Porto Rico to Trinidad, nanual gold medal for sculpture. He near the coast of Venezuela. Almost the also obtained a first prize for sculpture whole archipelago lies within the torrid at Florence. In 1798 he returned to zone. The total area does not exceed 95,000 square miles, of which the Greater sion. Many of the monuments in St. Antilles occupy nearly \$3,000 square from his chisel. He designed miles. The climate is tropical, but modified by the surrounding oceans and the statue of Lord Erskine in Lincoln's Inn elevated surface of many of the islands abound in troppool Exchange, besides statues of Addical productions, as sugar, cotton, coffee, son, Pitt, etc. He was elected an ical productions, as sugar, cotton, coffee, son, Pitt, etc. He was elected an tobacco, maize, etc.; oranges, lemons, associate of the Royal Academy in 1805, limes, pomegranates, citrons, pineap- a full member in 1816, and in 1827 suc-

Westlake (west'lāk), WILLIAM, born in Cornwall, England, in Cornwall, England, in of the sovereigns of England, and one of the chief ornaments of London, is a magarly in life; later learned the tinnificent Gothic pile, situated near the smith's trade; was employed by Capt. Thames, and adjoining the Houses of John Ericsson to make models for his Parliament. In 1065 a church was built first hot-air engine. His inventions emhere in the Norman style by Edward the brace the Westlake car heater, the globe Westminster Abbey, the corona-

remains in the pyx-house and the south the Confession of Faith, and the Larger side of the cloisters; but the main building, as it now stands, was begun in practically the standards of the Presby-1220 by Henry III (who built the choir terians to the present day. At the and transepts), and was practically completed by Edward I. Various additions, however, were made (including the nave and aisles, the west front, and the Jerusalem (Pamber) down to the time of westminster Hall, the hall of the present day. salem Chamber) down to the time of Henry VII, who built the chapel which bears his name, while the upper parts of the two western towers were designed by Sir Christopher Wren. The extreme length of the church, including Henry VII's chapel, is 531 feet; breadth of transepts, 203 feet; height of the roof, 102 feet; height of towers, 225 feet. The corporation corporation company these sleep in the coronation ceremony takes place in the choir, where the coronation stone brought by Edward I from Scotland is situated beside the coronation-chairs of the Engbeside the coronation-chairs of the English sovereigns. Westminster Abbey is distinguished as the burial-place of numerous English kings from Edward the Confessor to George II; the north transept is occupied chiefly by monuments to warriors and statesmen; while in the south transept is situated the 'Poets' Corner,' the burial and memorial place of most of England's great writers from of most of England's great writers from Chaucer to Robert Browning. See Lon-

Westminster Assembly of Di-

vines, a celebrated assembly held at Westminster for the settlement of a general creed and form of worship throughout Great Britain. By an ordinance passed June 12, 1643, 121 clergommoners as lay assessors, were nominated as constituents of the assembly began its sittings in July, face, with the exception of a small 1643, in Westminster Abbey, but in the portion in the south sloping to Morecambe as very mountainous. Much issued forbidding the assembly to meet, of the celebrated lake scenery of England which had the effect of indusing the is within the limits or on the horders. which had the effect of inducing the greater part of the Episcopal members to absent themselves. The majority of those who remained were Presbyterians, but there was a strong minority of Independents. A deputation was now sent along with commissioners from the English parliament to the General Assembly of the Scottish Church and the Scottish Pop. 66
Convention of Estates, soliciting their coöperation in the proceedings of the Westminster Assembly, and accordingly in September four Scottish clergymen, West with two laymen, were admitted to seats and votes by an act of the English sey, adjacent to West Hoboken. It has legislature. The assembly continued to silk mills. Pop. 13,560. Among the results of its deliberations were the Directory of Public Worship, on-Sea), a seaport and watering-place

Westminster Hall, the hall of the palace of Westminster, was erected by Richard II (1397-99) on the foundations of a structure built by William Rufus. It has a fine porch, and its hammer-beam roof of carved timber is considered the most notable of its kind; length of the building, 290 feet, breadth 68 feet, and height 110 feet. This building is closely associated with many stirring events in English history; but it is chiefly remark able as the place where were held such great State trials as those of the Chancellor More, Lady Jane Grey, the Earl of Strafford, King Charles I, and Warren Hastings, and as the center of the highest English courts of law till these were removed to the new buildings recently erected for their accommodation. The hall now serves as a fine vestibule to the Houses of Parliament.

Westminster School, or the Royal St. Peter's, Westminster, one of the great public schools of England, was founded in 1560, and was reorganized in 1868. There are forty foundationers, the number of vacancies yearly being ten.

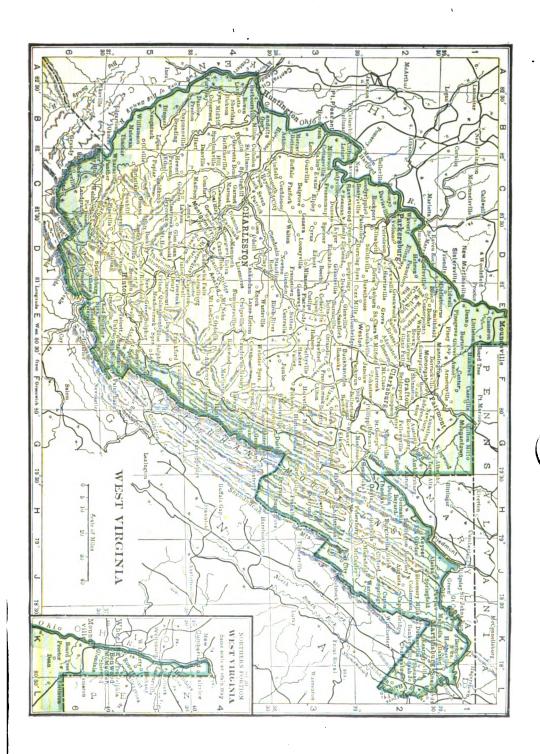
is within the limits or on the borders of this county, the chief lakes being I'lleswater, Grasmere, Rydal Water, and Windermere. The principal rivers are the Eden, Lune, and Kent. The minerals include graphite, roofing slate, mar-ble, and small quantities of coal, lead, and copper. Appleby is the chief town. Pop. 63,575.

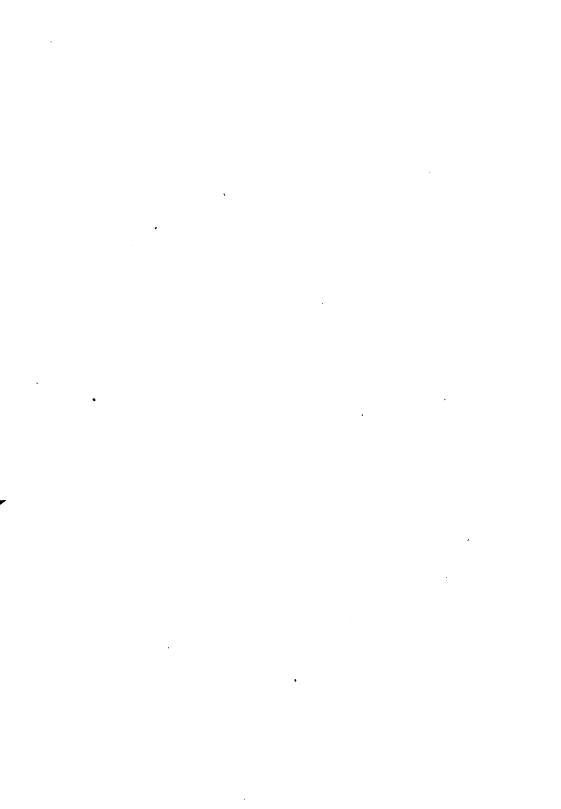
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Westmount, a town of Quebec province, Canada. Pop.

West New York, a town of Hud-

Weston-super-Mare (mā'rē; that is, Weston-





in England in the county of Somerset, on the Bristol Channel, 19 miles southwest of Bristol. It is recommended as a place of resort both in winter and summer. A fine esplanade, pier, etc., are here. Pop. 23,235.

West Orange, a town of Essex Co., New Jersey, adjoining the city of Orange. It contains Llewellyn Park, a beautiful residential tract on the s. E. slope of Orange Moun-

ract on the S. E. slope of Orange Mountain; also a large country club. Hats, etc., are made here. Pop. 10,980.

Westphalia (west'fā-li-a), the name given at different periods to (1) one of the circles of the old German Empire; (2) one of Napoleon's kingdoms (1807-13), conferred upon his brother Jerome; and (3) now to a province of Prussia. The latter is bounded by Rhenish Prussia. Holland. Hanover. by Rhenish Prussia, Holland, Hanover, Brunswick, Hesse and Nassau. Its area is 7771 square miles. The surface in the south and northeast is generally mountainous; the northwest spreads out into extensive and often marshy plains, and belongs to the basin of the Ems; the northeast and a small part of the east to the basin of the Weser; the remainder, constituting the far larger por-tion of the whole, belongs to the basin of the Rhine, whose chief tributaries are of the Khine, whose chief tributaries are the Ruhr and Lippe. Besides iron and coal in abundance the minerals include copper, lead, zinc and salt; and the manufactures are varied and important. The province is divided into the three governments of Münster, Minden and Austhance Minster is the capital. Pop. Arnsberg. Münster is the capital. Pop. (1905) 3,618,090.

Westphalia, PEACE OF, the name given to the peace concluded in 1648 at Münster and Osnabrück, by which an end was put to the Thirty Years' war (which see). By this peace the sovereignty of the members of the empire was acknowledged. The concessions that had been made to the Protestants since the religious peace in 1555 were confirmed. The elector-palatine had the palatinate of the Rhine and secularization of numerous ecclesiastical foundations. The independence of the United Provinces was recognized by

quehanna River, opposite Pittston, and staples include corn, wheat, oats and

on the Lackawanna and Lehigh Valley Railroads. Pop. 6848,

West Point, a village of New York, on the Hudson river, about 50 miles above New York City. It is notable as the seat of the United States Military Academy, and is a favorite summer resort. A fortress was built here during the Revolutionary war, and the treason of Benedict Arnold consisted in his endeavor to deliver this to the British. The site of the academy commands one of the finest river views. commands one of the finest river views in the world.

West Troy, the omeian poor designation of the town

of Watervliet (which see).

Westport (west'port), a seaport in Ireland, County Mayo, at the mouth of a small river in Clew Bay, 10 miles s. s. w. of Castlebar. Pop. 3892.

West Springfield, a town (town-ship) in Hampden Co., Massachusetts, with a village of the same name, on the Connecticut River, opposite Springfield. It has some manufactures. Pop. of town, 9224.

West Tampa, a city of Hillsboro Co., Florida, in West Tampa precinct. Pop. 8258.

West Virginia, a State of the American Union, bounded N. and E. by Pennsylvania and Maryland, E. and S. by Virginia, and w. by Ohio and Kentucky; area 24.170 sq miles. The surface is very largely mountainous and billy being traversed in tainous and hilly, being traversed in the east and center by parallel ranges of the Allegheny Mountains. About two-thirds of the area is covered with for-ests. The soil of the ridges is fertile, and the summits of many of the mountains are level, forming natural meadows or glades. Blue grass is indigenous and grazing excellent, especially in the val-ley of the Great Kanawha. The forests are chiefly made up of hardwood trees of valuable kinds, making the lumber interest very important; coal is highly valuable product, nearly the whole State lying within the Allegheny coal system. The coal is bituminous and is estimated to underlie 16,000 square the electorate restored to him; Alsace State lying within the Allegheny coal was ceded to France; Sweden received system. The coal is bituminous and is Western Pomerania, Bremen, Verden, estimated to underlie 16,000 square Wismar and a sum equal to £750,000: miles. Petroleum is also abundant and Brandenburg, Mecklenburg, Hanover and is extensively produced, and natural Brunswick were compensated by the gas is found in some sections. Other minerals include salt, largely produced; iron-ore, glass-sand, kaolin, limestone and grinding stone. The minerals and min-Spain.

West Pittston, a borough of Luvania, on the North Branch of the Susing famous for its wool. The agricultural

tobacco, and orchard fruits are extengively cultivated. Manufactures are as yet little developed, except in the towns on the Ohio river, but the State has enormous water-power, all its streams having a rapid descent. This will undoubtedly be utilized. The leading industries are those of steel and iron, glass, dustries are those or steel and 1ron, glass, four, salt, lumber and wood products, coke, pottery, firebrick, leather, cigars and tobacco. Wheeling is the largest and most important city; and the manufacturing center, nearly all the industries named flourishing here. Pop. 1,221,119. Westward-Ho, a sea-bathing place of England, in the county of Devon, on Barnstaple Bay, about 3 miles N. w. of Bideford. Westward Ho. College in a military and the college in the college in a military and the college in a military and the college in the college

nearly 300 feet, but its depth is in some parts above 400 feet. The is Wetter forms part of the canal connection between the Cattegat and the Bal-The chief town on its shores is Jönköping.

Wetterhorn (vet'ter-horn), a mountain of Switzerland, in the Bernese Oberland, with three peaks respectively 12,149, 12,166 and 12,107 feet high.

feet high.

Wetzlar (vetz'lär), a town in Rhenish Prussia, at the junction of the Lahn and Dill. It was anciently a free imperial town, and was the seat of the imperial German court of justice from 1698 to 1806. Pop. (1905) 12.276.

Wexford (weks'furd), a maritime county in Ireland, on the Irish Sea and St. George's Channel; area 901 sq. miles. The chief inlet on the east coast is Wexford Harbor, which, though spacious, is of intricate navigation and obstructed by a ber. The surface of the interior is hilly, rising The surface of the interior is hilly, rising into a ridge on the northwest, declining into a level peninsula to the southeast. The chief rivers are the Slaney and Barrow. The prevailing soil is stiff clay, generally well cultivated, and producing oats, wheat, barley, and potatoes. The fisheries are extensive. Pop. 104,104.

— Wexforn, the county town, is a seaport on the river Slaney, where it enters Wexford Harbor. The herring and salmon fisheries employ many persons; malt is manufactured, and distilling,

Wexiö (vek'si-eu), a cathedral city of Southern Sweden, with an old

cathedral. Pop. 7365.

Weyler, VALERIANO Y NICOLAU, a Spanish general, born at Barcelona in 1840. He was a military attaché of Spain at Washington during the American Civil war and served in the army under Sheridan. He took part the army under Sheridan. He took part in the Carlist war, has a high reputathe Carlet war, has a light reputa-tion as a soldier, was made governor of the Canary Islands in 1879 and captain-general of the Philippine Islands in 1889. He afterwards held high offices in Spain and in 1896 was sent to Cuba to sup-press the insurrection. His ruthless cruelty to the natives excited such in-

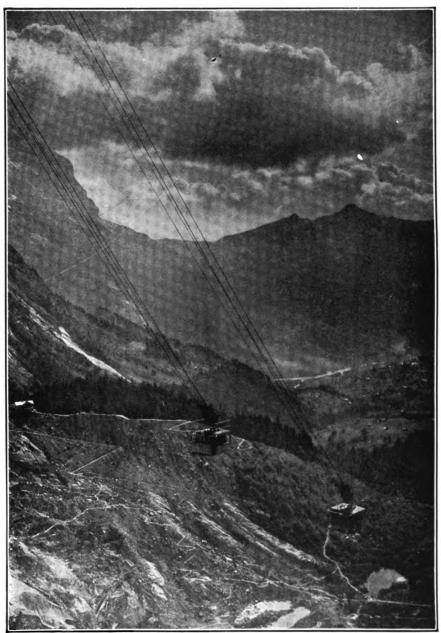
county of Devon, on Barnstaple Bay, cruelty to the natives excited such inabout 3 miles N. W. of Bideford. Westward-Ho College is a military school, and there is an excellent golfing links.

Wetter (vet'ter), a lake in Sweden, an English novelist, born at Ludlow in 1855. His novel of romance Lake Wener; greatest length, 80 miles; and adventure, A Gentleman of France medium breadth, about 15 miles. Its (1893), became highly popular, and was height above the level of the Baltic is followed by a number of others in the same vein.

Weymouth and Melcombe-

Regis, a seaport of England, in Dor-setshire, on a semicircular bay, 7 miles south-southwest of Dorchester, Weymouth being on one side, Melcombe-Regis on the other of the small river Wey, over which is a bridge. There is a considerable coasting trade, the chief export being Portland stone. Malcombe-Regis attracts numerous visitors. There is a fine esplanade, about 1 mile in length. Pop. 22,325.

Weymouth (wa'muth), a seaport in Norfolk Co., Massachusetts, on Bogton Harbor, 11 miles s.s.e. of Boston. It has manufactures of boots and shoes, isinglass, fireworks, etc., and a considerable trade. Pop. 12,895. Whale (wal), the common name given to the larger mammals of the order Cetacea (which see). They are characterized by having fin-like anterior limbs, the posterior limbs being absent, but having their place supplied by a large horizontal caudal fin or tail. Their abode is in the sea or the great rivers, and they resemble the fishes so closely in external appearance that not only non-scientists, but even some of the sarlier zoölogists regarded them as beearlier zoölogists regarded them as belonging to that class. The whales are usually divided into two families, the Balænidæ and the Physeteridæ or Catodontidæ. The Balænidæ, or whalebone whales, are distinguished by the absence brewing, and shipbuilding are carried on. of teeth, by the presence of baleen or The chief trade is in exporting grain, whalebone in the mouth. The typical cattle, poultry, butter, etc. Pop. 11,168. representative of this family is the com-



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THE WETTERHORN ARRIAL RAILWAY

This remarkable railway operates on the famous Wetterhorn Mountain in Switzerland. The cars, each holding twenty passengers, are carried on wire cables and balance each other by means of a cable attached to each, which passes around a drum at the top.



whale Greenland mosticetus), so valuable on account of the oil and whalebone which it furnishes. (See Whalebone.) It is principally found in the Arctic seas, but it is also found in considerable numbers in many other parts of the world. Its length is usually about 60 feet, and its greatest circumference from 30 to 40 feet. Allied to the Greenland whale is the ror-



Greenland Whale (Balana mysticētus).

qual. It measures as much as 85 feet in length, and from 30 to 35 feet in circumference. (See Rorqual.) Of the Physeteride or Catodontide, the best known species is the sperm-whale or cachalot (Physeter or Catodon macrocephālus), which averages from 50 to 70 feet in length. (See Sperm-whale.) Some species of the Delphinide or dolphin family are also known as whales phin family are also known as whales. (See Beluga, Caaing-whale.) Whale fishing for the sake of the oil and whalebone has been an important industry since the twelfth century. It was for since the twelfth century. It was for long prosecuted with great energy by the Dutch, English, French, and Americans, of small crustaceans, so named from but of recent times it has greatly decreased, chiefly on account of the scarcity of whales. The British whaling fleet now numbers barely a dozen vessels, mostly belonging to Dundee and Peterhead. The American whale fishery is chiefly prosecuted by New Bedford ressels, but is fast dwindling away.

The instruments used in the capture of the whale are the harpoon and the lance. the whale are the harpoon and the lance.

The harpoon is an iron weapon about

3 feet in length, terminating in an arrowknaped head. This is attached to a line,
and is thrown at the whale by hand, so

Colonial life. as to transfix it, or is discharged from a Wharton, EDITH, American author, small swivel cannon placed in a boat.

The lance is a spear of iron about 6 1862. Her fiction includes: The Valley of feet in length, terminating in a thin sharp steel head. These, with the necessary lines, boats, etc., are all the apparatus required for capturing the whale. In modern whale fishing guns, with explosive bullets, are brought into

(Balana use, and the danger of the fishery is ecount of greatly reduced. When captured the furnishes, animal is cut up, the blubber boiled and rincipally the oil extracted, and the whalebone it is also dried. In recent years there has been in many an increase in the amount of whale length is products in America, with a corresponding greatest ing increase in prosperity.

Whaleback, the name of a form of steam vessel invented by Capt. Alexander McDougall, of West Superior, Wisconsin, in 1874, for use on the Great Lakes. In 1888 the first whaleback barge was built of 437 tons registry and 1400 tons capacity. The name whaleback was suggested by the resemblance of the visible portions of the vessel, when afloat, to the back of a whale. A whaleback crossed the Atlantic in 1891. Vessels of this kind are now in common use.

Whalebone (wāl'bon), or Baleen, a well-known elastic horny substance which hangs down in thin parallel plates from the sides of the upper jaw of the family of whales called Balænidæ. These plates or laminæ vary in size from a few inches to 12 feet in length; the breadth of the largest at the thick end, where they are attached to the jaw, is about a foot, and the average thickness is from four to five tenths of an inch. From its flexi-bility, strength, elasticity, and lightness, whalebone is employed for many purposes, as for ribs to umbrellas and parasols, for stiffening corsets, etc. In commerce it is often called whale-fin.

Whale-louse (Cyamus ceti, order Læmodipoda) a genus

became a resident of Philadelphia and wrote Through Colonial Doorways, A Last Century Maid, Heirlooms in Miniature, and other works dealing with

Ohio, in 1856; was afterwards ordained as a rector in the Episcopal Church, and became professor in the Episcopal di-vinity school at Cambridge, Mass.; also professor of international law in the Boston Law School, and in 1885 solici-tor for the State Department at Washington. He wrote A Treatise on the Criminal Law of the United States, A Treatise on Medical Jurisprudence, The Conflict of Laws, etc.

Wharton, Joseph, manufacturer, was born at Philadelphia in 1826; died in 1909. He engaged in the 1826; died in 1909. He engaged in the white-lead manufacture, was manager of the Lehigh Zinc Co., 1853-63, aided in founding the Bethlehem Iron Co., and established extensive nickel works at Camden, New Jersey. He founded the Wharton School of Finance and Economics, University of Pennsylvania, and endowed a chair of history and economics

at Swarthmore College.

Wharton, Thomas Wharton, Marquis of, born 1640; died 1715; is the reputed author of the celebrated political ballad Lillibullero, and was severely castigated by Swift.— His son, Philip Wharton (1699-1731), was severy categories (1699-1731), was created a duke in 1720. Like his father, he lived a very profligate life, and is now chiefly remembered as the subject of Pope's satire, as his father was of Swift's.

Whately (hwat'li), RICHARD, Archbishop of Dublin, was born in London in 1787; died in 1863. He received his education at a private school at Bristol, and at Oriel College. Oxford. He graduated B.A. in 1808, and in 1810 won the English essay prize. In 1819 he made his first apwas then appointed principal of St. Alban's Hall, Oxford. In the latter year in the lake dwellings of prehistoric Euche published Essays on Some of the rope. It is now cultivated in all the Peculiarities of the Christian Religion. A second series of essays On Some Difficulties in the Writings of St. Paul and other Parts of the New Testament, vated in the United States, Canada and came out in 1828; and a third series, wide regions of South America. Wheat The Errors of Romanism Traced to Their of very fine quality is produced in Ausorigin in Human Nature, in 1830. In tralia. It does not thrive in the torrid 1827 was published The Elements of zone, except in elevated situations, Logic, and the scarcely less popular though it does well in subtropical regions. Elements of Rhetoric in 1828. Both of A hardy plant, it can endure very severe

died in 1889. He became professor of these works were written originally for logic and rhetoric of Kenyon College, the Encyclopædia Metropolitana. He occupied the chair of political economy at Oxford in 1830-31, and afterwards published Introductory Lectures on Political Economy. In 1831 he was appointed archbishop of Dublin, a position publish he did not be the position of the position of the publish he did not be the public to the publish he did not be the publish to did no in which he did much for national edu-cation and other worthy objects in Ire-land, including the foundation and endowment of a chair of political economy in Trinity College. Besides the works mentioned he wrote or edited many others.

Wheat (hwet; Triticum sativum), the most important species of grain cultivated in Europe, and a very important crop in America, India, Australia, etc. It grows readily in almost every climate; but its natural home seems to be a temperate climate, and the soils best adapted for its culture are rich clays and heavy loams. Of cultivated wheats there are many varieties the differences, however, being the differences, however, being mostly due to soil, climate, and mode of cultivation. Three primary varieties may be mentioned: (a) T. hybernum (muticum), winter or unbearded wheat; (b) T. estivum (aristatum), summer or bearded wheat; (c) T. spelta (adhærens), spelt or German wheat, which is of much less value than the others. but grows on poorer soils and more elevated localities. White wheat and red wheat are names applied according to the color of the grain, the red sorts being generally hardier than the white, but of inferior quality, and the yield is less. Winter wheat is sown in the autumn, with the view of being harvested the following year; summer wheat is sown in the spring of the year in which it is reaped. The native country of the cultiperrance as an author by publishing his vated wheat has usually been considered famous Historic Doubis Relative to to be the central parts of Asia, and it Napoleon Bonaparte. In 1822 Whately has been reported as growing wild in was appointed Bampton lecturer at Ox- Kurdistan, Mcsopotamia and elsewhere, ford, and delivered eight lectures On the but this lacks proof. It has been cultitora, and delivered eight fectures on the but this lacks proof. It has been culti-Use and Abuse of Party Feeling in Mat-vated from a very early period, probably ters of Religion. He held the living of as early as 3000 B.C. in China. It was Halesworth in Suffolk in 1822-25, and one of the principal crops in ancient was then appointed principal of St. Al-Expet and Palestine, and has been found

countries. Yet, only within recent times has it become a common article of food among the laboring classes in any coun-try and it is still little eaten by these classes in many countries. On the other hand its use is growing in some of the rice-eating countries, as in China. In England, down to the beginning of the eighteenth century only the rich tentury of the second of the countries. eighteenth century, only the wealthier classes used wheaten bread as a common article of food, house servants being provided with rye, oats or barley, and in northern England and Scotland the use of wheaten bread was very rare for nalf a century later. At the present day the use of wheat is spreading rapidly throughout the world as the most desir-

winters if covered with snow. For its ished the quantity it can spare to send successful cultivation it must have a abroad and the extra supply needed in mean temperature of not less than 55° F. Europe is now largely obtained from for three or four months of the year. As other countries. Chief among these may it is an annual plant, its capacity for be named Argentina and Canada, both enduring cold is of importance, since this of these countries possessing large areas permits it to be sown in the autumn, so fitted for wheat cultivation. Though as to have a good start in the following they have come somewhat recently into as to have a good start in the following they have come somewhat recently into spring. Its cultivation does not extend the market for wheat supply, their anas far north as that of oats, rye or nual harvest is rapidly increasing and barley, its northern limit in Europe their surplus for exportation growing, being about 60° N. latitude. The quality Wheat is not native to America, its of the grain varies in different soils and climates, and certain varieties are distinguished by difference of quality and of England and Virginia shortly after their external appearance. The varieties of settlement, the spread of its cultivation wheat are, from its long cultivation, very keeping pace with that of settlement and numerous, many of these varieties being its production becoming phenomenal in in high esteem in certain districts, the middle west within a comparatively though little known beyond them. The recent period. Of late years a variety relative proportions of straw and grain of wheat adapted to dry climates has though little known beyond the relative proportions of straw and grain of wheat adapted to us, a proportion of grain to that of straw large area of semiarid land, unadapted when dried for stacking varying from 20 to the former varieties, is becoming a to 47 per cent. The value of wheat depends mainly upon the quantity of fine ance. This is not well fitted for breadflour which it yields, the best wheat yielding 76 to 80 per cent., at times as from its chief use. At the present time much as 86 per cent., while inferior the United States and European Russia wheat may be under or little over 60 are about equal in product, each having per cent. In general the smoother and an annual yield of about 700,000,000 thinner the grain is in skin the more fine flour it yields. The greater part of the come next with about half this quantity husk is separated in milling and is known as days and Austria-Hungary with about 250,000,000. Other countries with over 100,000,000 bushels each are Canada, Argen-Wheat being the most esteemed of the countries with over 100,000 bushels each are Canada, Argencereals, especially for bread-making, the tina, Germany, Italy, Roumania and increase in its growth has kept pace with Spain. The principal diseases to which the development of the art of agriculture the wheat plant is subject, some of them and the increase in wealth in many the source of great loss to farmers, are due to the presence of parasitic fungi, the chief of these diseases being known as rust, smut, bunt, and mildew. The plant is attacked also by a number of insect pests, such as threadworms, wire-worms and others of what are known as corn insects. The Hessian fly has long been a destructive enemy of wheat in American fields, first known as scourge in the years 1786 and 1789, and claimed to have been introduced from Germany by the Hessian mercenaries in the British army. In some years it has caused enormous loss. The eggs are laid on the leaves, and the larve bore into the stem, suck the juices and kill the plant.

Wheat-ear (Saxicola ananthe), a bird of the crder Insessores belonging to the dentirectual certisory.

throughout the world as the most desirable and palatable bread-making cereal. Wheat-ear bird of the (rder Inses-For many years past the United States sores belonging to the dentirostral section has been the greatest of wheat producers, of the order, and to the family of the growing annually enough to supply Europe largely with wheat flour from its is 6½ inches, and its color gray above, surplus, while retaining an abundance breast brown, and under parts white. It for home use. The rapid increase in its is a native of northern Europe and Asia, population, however, has greatly diminant in Alaska and Greenland.

Wheat-eel, a disease in wheat called also ear-cockle and purples. See Ear-cockle.

Wheel, an instrument of torture formerly employed in France and Germany, on which the criminal was

Wheat-fly, a name common to insects of the genus Cecidomyia, applied especially in England to C. tritici, sometimes also called the wheat-midge. It is a two-winged gnat about the tenth of an inch long, and appears about the end of June. The females lay their eggs in clusters among the chaffy flowers of the wheat, where they produce little footless maggots, whose ravages destroy the flowers of the plant, and render it shriveled and worthless. The American wheat-fly (C. destructor) is described and figured under Hessian-fly.

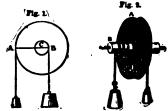
Wheaton (hwe'tun), Henry, jurist and diplomatist, born at Providence, Rhode Island, in Nov., 1785; died in March, 1848. He studied law, edited the National Advocate in New York, and held official positions, becoming minister to Germany in 1837. He gained a wide reputation for his able works on legal subjects, especially his Elements of International Law, a standard authority, and History of the Law of Nations in Europe and America, a work of the greatest merit. Among his other works is a History of the Northmen.

Wheatstone (hwēt'stun), Sire Charles, scientific investigator and discoverer, born at Gloucester in 1802; died at Paris in 1875. Before he was of age he commenced business for himself in London as a maker of musical instruments, and in 1823 attracted the attention of men of science by the publication in Thomson's Annals of Philosophy of a paper entitled New Experiments on Sound. This was followed by a number of other papers, some of them describing inventions of his own, all of which are remarkable for their ingenuity and delicacy of mechanical construction. In 1834 Wheatstone was appointed professor of experimental philosophy in King's College, London, but he seldom lectured. In 1836 he exhibited at King's College experiments showing the velocity of electricity, which suggested to him the idea of applying his apparatus to telegraphing and in 1837, in conjunction with W. F. Cooke, he took out the first patent for the electric telegraph. He was a fellow of the Royal Society from the year 1836, and in 1868 he received the honor of numerous papers, chiefly contributed to the Philosophical Magazine and the Journal of the Royal Institution.

Wheel, an instrument of torture formerly employed in France and Germany, on which the criminal was placed with his face upwards and his legs and arms extended along the spokes. On the wheel being moved round the executioner broke the wretch's limbs by successive blows with a hammer or iron bar, and after a more or less protracted interval put an end to the sufferings of his victim by two or three severe blows, called coups de grâce (mercy strokes), on the chest or stomach, or by strangling him. In Germany its use lingered down till the beginning of the nineteenth century.

Wheel (hwel), Persian. See Persian Wheel.

Wheel and Axle, one of the mechanical powers, which consists of a wheel round the circumference of which a string may be wound, having a small weight attached to its free end, and an axle whose circumstances.



Wheel and Axle.

cumference, being smaller than that of the wheel, will sustain a heavier weight at the end of the string which is wound upon it in the opposite direction to that of the string on the wheel.

Wheeler (hwēl'er), WILLIAM ALMON. vice-president of the United States, was born at Malone, New York, in 1819; died in 1887. He was for a time state senator, and was member of Congress 1861-63 and 1869-77. He opposed an increase of salary and returned the extra pay allotted him under the salary bill. He was the author of the 'Wheeler Compromise' of the Louisiana difficulties of 1875, and in 1876 was nominated by the Republican party for vice-president and elected under the decision of the Electoral Commission, serving through the Hayes administration.

Wheeler, Joseph, soldier and legislator, born at Augusta, Georgia, in 1836. He was graduated at West Point, and was appointed a brevet second-lieutenant of dragoons in 1859. He resigned April 22, 1861, entering the Confederate service as lieutenant of

many miles of trolley lines. There are including Polity (1845): On Liberal large manufacturing interests producing Education in General; Lectures on the iron, steel, tinplate, pipe, nails, machinery, tin cans, glass, enameled ware, stogies and other tobacco products, pottery, and Lectures on Political Boonomy leather, etc. Wheeling is the center of a large coal industry, adjoining Belmont County, Ohio, the largest coal-producing county in that State, with mines employing 15,000 men. Natural gas is obtainable at low rates. Pop. 41,641.

Wheel-window, in Gothic architecture, a circular window with radiating mullions resembling the spokes of a wheel. See Rose-window.

Rose-window.

Whelk (hwelk), a general name applied to various species of gasteropodous molluscs. The large or common whelk (Buccinum undatum) is found on the coast of Europe, and is distinguished by the shell having its

early education at the free grammar school of his native town, afterwards at Haversham Grammar School, whence he went to Trinity College, Cambridge. In due course he became fellow and tutor of his college. In 1828 he was elected professor of mineralogy. In 1832 he resigned this chair for that of moral philosophy, which he held till 1855, when he became vice-chancellor of the unifered mineral product of the service. In 1841 he was nominated to highest twigs of which it perches, and

artillery; his promotion was rapid; the mastership of Trinity, and in this from 1862 until the close of the war position labored earnestly and successhe commanded the cavalry corps of the fully to obtain for the natural and moral Army of the West. During the war he sciences a better recognized position was three times wounded and had sixteen horses shot under him. After 1881 became fellow of the Royal Society in till the Spanish war he was a member of Congress. He served with distinction in that war and subsequently served in the Philippines, and in 1900 was made a brigadier general in the regular army. He died June 25, 1906.

Wheeling (hwelling), the largest city Theology (1833); History of the Inductive sciences (1837); Philosophy of the Inductive Sciences (1840); History of branches of three railroad systems and many miles of trolley lines. There are including Polity (1845); On Liberal large manufacturing interests producing Education in General; Lectures on the iron, steel, tinplate, pipe, nails, machinery, tin cans, glass, enameled ware, sto (1852); Platonic Dialogues (1859-61); gies and other tobacco products, pottery, and Lectures on Political Economy leather, etc. Wheeling is the center of a [1863].

or canary, and during the breeding sea-son the male is supplied with long, drooping tail-feathers, giving it a graceful appearance.

Whig (hwig), in English history, the name which was from the time of Charles II to within little more than a generation ago applied to the political ture of large size. The whelks are the constitution as tend in the direction typically carnivorous molluses, and possess long odontophores or tongues provided with siliceous or finty teeth. These animals are largely used for food and bait.

Wherry (hwer'i), a light, shallow brought to England, where it was used boat used in England, with seats for passengers, and plying on rivers Wherry (nwer'i), a light, shallow brought to England, where it was used as the distinguishing appellation of the seats for passengers, and plying on rivers.

Whetslate, See Hone.

The term Liberals is now generally applied to the representatives of the party formerly known as Whigs. The Whig party in the United States stood opter, England, in 1794, and received his early education at the free grammar about 1835 to 1856, when the Northern school of his native town, afterwards at wing of the Whigs merged in the new

attendance.

Whipple (hwip'el), EDWIN PERCY, essayist, was born at Gloucester, Massachusetts, in 1819; died in 1886. He contributed essays and critical articles to the reviews and magazines of his time, a collection of his articles, Essays and Reviews, being published in 1849. Other works were Essays on Sub-

jects Connected with Literary Life, and Character and Characteristic Men. He was esteemed as a lecturer, and published a volume of lectures on Literature of the Age of Elizabeth.

Whip-poor-Will, the popular name of an American bird, the Chordeiles, Antrostomus, or Caprimulgus vociferus, allied to the Eu-Caprimulgus vociferus, allied to the European goat-sucker or night-jar, and so called from its cry. It is very common in the eastern parts of the United States; is about 10 inches long, and feeds on dying moths and other insects. Its note is heard in the evening, or early in the morning. During the day these birds retire into the darkest woods.

Whip Snake, the name given a species distinguished by its very slender back and tail, which has been compared to the thong of a whip, and long and narrow head, which ends

occasionally sings very sweetly. It is chiefly by the meeting of currents of air closely allied to the stone-chat (which which run in different directions. When Whipper-in, in fox hunting, one they occur cu land they give a whirling motion to dust, sand, etc., and sometimes wandering, and whips them in, if bulk, carrying them either upwards or necessary, to the line of scent. In downwards, and scattering them about politics, one who enforces party discipline among the supporters of the government or opposition, and urges their frequent and violent in tropical countries, and are common in an exaggerated tries, and are common in an exaggerated form in the Central United States, where they are known under the name of Tornadoes.

Whiskey (hwis'ki; a corruption of the Gaelic word uisge, water, whiskey being called in Gaelic uisge-beatha, which signifies water of life), the name applied to an ardent spirit distilled generally from barley, but sometimes from wheat, rye, sugar, molasses, etc. There are two chief varieties of whiskey, viz., malt-whiskey and grain-whiskey. The former variety is of finer warder of the decided the state of the sta quality, and made chiefly from malted barley and sometimes from rye. The lat-ter is made from sugar, molasses, potatoes, Indian corn, barley, oats, etc. Distillation.

Whispering Gallery, Whispering Dome, a gallery or dome of an elliptical or circular form,

in which faint sounds conveyed around the interior wall may be readily heard, while the same are inaudible elsewhere in the interior.

Whist (hwist), a well-known game at cards, first clearly described by Edmond Hoyle in his Short Treatise on the Game of Whist (1743). The game and long and narrow head, which ends in a protruding rostral shield or in a splayed with the full pack of fifty-two flexible anout. They are arboreal in cards by four persons, two being partners habit, usually green in color, and feed on birds and lizards.

Whirlpool (hwerl'pöl), a circular one in rotation. The last card dealt is eddy or current in a river turned face up, and is called the trump or the sea produced by the configuration of the channel, by meeting currents, by suit to which it belongs. The cards winds meeting tides, etc., as those of Charybdis, the Maelstrom, and Corrow Mhirlwig, Whillwig - Beetle (Gy-menced by the person on the left hand of the dealer laying down a card face up which abounds in fresh water in the on the table, the other players following which abounds in fresh water in the United States; may be seen circling in succession with cards of the same round on its surface with great rapidity. Its eyes are divided by a narrow band, so that, although it has only two, it is made to look as if it had four.

Whirlwind (hwerl'wind), a violent wind moving in a spiral form, as if moving round an axis, this taxis having at the same time a progressive motion. Whirlwinds are produced of the dealer laying down a card face up on the dealer laying down a card face up on the table, the other players following in succession with cards of the same suit if they have them. When all have played the player who has laid the high constitute a trick. The winner of the trick then leads, as the first of a new trick, the winner of which becomes axis having at the same time a progressive motion. Whirlwinds are produced were way an act of grace became a Baptist. Among his latest labors were his Memoirs of My Oun Life (1749-50). Besides numerous original productions he published a well-known translation of the works of Josephus. White (hwit), Andrew Dickson but one; if one side hold all the honors. four by honors is counted bonors be equally by honors, as the opposite side can nave but one; if one side hold all the honors, four by honors is counted; should the honors be equally divided neither side counts, the honors being then said to cancel each other. In long whist, an obsolescent form of the game, ten of these points made a game. In short whist, the game now generally played, the number has been reduced to five or saven and in this form it is common to seven, and in this form it is common to count by tricks alone, honors not being counted. A rubber consists of a series of three games, and is won by the side that secures two of them. Should one

whistler (hwistler), JAMES ABBOTT MCNEIL, artist, born at Lowell, Massachusetts, in 1834. He studied art in Paris and in 1855 went to England where he specified. to England, where he spent the re-mainder of his life. His paintings at-tracted great attention and found ardent admirers and severe critics. His etchings are universally praised, and he is now looked upon as the greatest painter of his age. One of the most admired of them is a portrait of his mother. He is the author of the cuttingly satirical Gentle Art of Making Enemies. He died July 17, 1903.

Whiston (hwis'tun), WILLIAM, an English divine and mathematician, born in 1667; died in 1752. He studied at Clare Hall, Cambridge, where, having taken his degree in 1690, he was chosen a fellow of his college, and became an academical tutor. Entering into holy orders he was appointed in 1694 chaplain to the Bishop of Norwich. In 1696 he published a Theory of the Earth on the principles of the Newtonian philosophy; in 1698 became rector of Lowestoft; and in 1701 was appointed Lowestoft; and in 1701 was appointed deputy-professor of mathematics at Cambridge by Sir Isaac Newton, who shortly afterwards resigned the professorship in his favor. He was extensive the trade of stocking weaving. From his pelled from the university in 1710 for Arian opinions, and the following year was deprived of his professorship. He was the son of a butcher, but being of a delicate constitution he was put to infancy he manifested great love of Arian opinions, and the following year learning, and at the age of fourteen was deprived to the metropolis, and poetry. He published, in 1803, a poem published his Primitive Christianity, called Clifton Grove; and after his death

take the trick, or lay one of a different which caused him to be prosecuted as a suit, which gives him no chance of winning the trick. When the hand is played out the score is taken as follows: (1715). Towards the close of his life the partners who conjointly gain the became a Baptist. Among his latest majority of tricks score one point for labors were his Memoirs of My Oun Life every trick taken above six. The ace, (1749-50). Besides numerous original king, queen and knave of the trump suit productions he published a well-known are celled heavers and count one seek transletion of the works of Iosephus

White (hwit), Andrew Dickson, educator, born in 1832 at Homer, Cortland Co., New York, was graduated from Yale in 1853. He filled the position of president of Cornell University, was minister to Germany 1879-81, and was appointed ambassador there in 1897 Among his numerous works

81, and was appointed ambassador there in 1897. Among his numerous works are Outline of Lectures on History, The New Germany, and The Warfare of Science with Theology.

White, EDWARD DOUGLASS, jurist, born in Lafourche parish, Louisiana, in 1845. He served through the Civil war in the Confederate army and was admitted to the bar of Louisiana in 1868. He was elected to the and was admitted to the bar of Louisiana in 1868. He was elected to the State senate in 1874, appointed a justice of the Louisiana Supreme Court in 1878, and was United States Senator from Louisiana 1891-94. In the latter year he was appointed an associate justice of the Supreme Court of the United States. In this position he should sweet States. In this position he showed great learning and efficiency, and on December 11, 1910, he was appointed by President Taft Chief Justice of the Supreme Court of the United States.

of the United States.

White, GILBERT, naturalist, born in 1720 at Selborne, England: died in 1793. He was educated at Oriel College, Oxford, of which he became a fellow in 1744. He declined all church preferment, but in his later years served as curate in his native village, in the beautiful rural scenery of which he spent the greater part of his days, occupying his leisure hours mainly with the study of natural history, in which he was a most assiduous and accurate observer. His Natural History of Selborne was published in 1789, and has retained a deserved and unimpaired popularity to the present day. Mr. White was also the the present day. Mr. White was also the author of letters on the antiquities of Selborne.

White, HENRY KIRKE, poet, born at Nottingham, England, in 1785.

Whitefield White

his *Remains*, consisting of poems, letters, etc., were edited by Southey. He died in 1806.

RICHARD GRANT, author, was White, born in New York city, May 22. 1821. His literary tendencies drew tendencies drewntic 22, 1821. him from law, and his musical, dramatic and art criticisms gave him prominence. He occupied a place among the most learned Shakespearean scholars. He learned died in 1885.

White, WILLIAM, Protestant Episcopal bishop, was born in Philadelphia, in 1748. He was ordained priest in 1772, and subsequently became rector of Christ Church and St. Peter's Church, Philadelphia. During the Revolution Dr. White sided zealously with the colonies. In 1786 he was elected Bishop of Pennsylvania, being consecrated in Lambeth palace, England, in 1787. He lived to see the Episcopal Church thoroughly organized in the United States, he consecrating eleven bishops. He died in 1836.

White William Hall, an English

White, WILLIAM HALL, an English novelist who, under the pen name of 'Mark Rutherford,' has writ-ten The Revolution in Fanner's Lane,

and summer, and is much prized by the Londoners. The English cabinet used to assemble at Greenwich previous to the prorogation of parliament in autumn to partake of a white-bait dinner.

Whiteboys, an illegal association formed in Ireland about 1760. The association consisted of starving day laborers, evicted farmers, and others in a like condition, who used themselves obnoxious in the locality. In many cases they did not confine their acts of aggression merely to plunder and destruction, but even went the length of murder.

White Cross, an organization similar in many respects to the famous Red Cross, from which it differs chiefly in the fact that it is distinctly American. It was founded in 1898 by Mrs. Jane Creighton, of Portland, Oregon, who became its first president.

caring for the wounded and sick American soldiers and sailors, but the aiding of the widows and orphans of those who are killed in battle or die of disease or accident.

White Elephant, an elephant af-binism. Such animals appear to have been known to the ancients. They are highly esteemed by some Eastern potentates, and are considered sacred in Siam. A specimen purchased by the late P. T Barnum from King Theebaw, of Burma, was brought to the United States in 1884, but the genuineness of this is very doubtful. It is generally reported that when the King of Siam desires to ruin anyone he makes him a present of a white elephant. The sacred elephant has an enormous appetite, and, being sacred, it is a crime to let it die, so that the gift generally entails financial ruin on the recipient.

Whitefield (hwit'fēld), GEORGE, founder of the Calvin istic Methodists, was born in 1714 at Gloucester, England. At the age of eighteen he entered as servitor at Pembroke College, Oxford, where he became acquainted with the Wesleys, and joined White Ants. See Termites.

White-bait, a name for the young deacon in 1736, and soon became very abounds in the Thames during the spring. to the American settlement of Georgia, where his ministrations gave great satisfaction to the colonists. In the following year he returned to England to procure subscriptions for building orphan house in the settlement. Having taken priests' orders, he repaired to London, where the churches in which he preached proved incapable of holding the crowds who assembled to hear him. He now adopted preaching in the to assemble at nights to destroy the open air, and visited various parts of the property of harsh landlords or their country, addressing vast audiences. In agents, the Protestant clergy, and tithe 1739 he again embarked for America, collectors, or any others that had made and made a tour through several of the colonies, preaching with great effect to immense crowds. He returned to Eng-land in the following year, where for a time differences between him and Wesley deprived him of many followers.

After visiting many parts of England,
Scotland, and Wales he again returned to America, and remained there nearly four years. Soon after his return he was introduced to the Countess of Huntingdon, who made him one of her chaplains. A visit to Ireland and two dent. The motto of the organization more voyages to America followed, and is Truth, Charity and Philanthropy, for several years his labors were unand its purposes include not only the remitting. At length, on his seventh

visit to America, he died at Newbury- and Canada. It i port, Mass. in 1770. pentry. See Pine.

Whitefish, a fish of the salmon family (Coregonus albus), found abundantly in the Great Lakes, and in some American rivers. It is 15 and in some American rivers. It is 10 City, the birthplace of the State of Thew to 20 inches long, bluish-gray above and white below. It is caught in large Plains, 1776. It is chiefly a residential numbers and is esteemed as a food fish.

Whitehall (hwit'hal), a locality in Pop. 20,000.

Whitehall (westminster, where are the admiralty office, and that of the commander-in-chief (the Horse Guards), etc. (See London.) On the bank of the Thames was a palace called Whitehall built before the middle of the thirself-with its tributaries it affords the Thames was a palace called write-hall, built before the middle of the thir-teenth century. In 1530 it became the residence of the court, but in 1697 was destroyed by fire, excepting the Ban-queting Hall, added by James I, accord-ing to a design of Inigo Jones, in 1619. Whitehaven (hwit'hāvn), a parlia-mentary horough and

White-lead. See Ceruse.

White Lady, The, a figure in opinion of John D. Rockefeller, Jr., who has developed a Bureau of Social Hysistant supposed to haunt certain places of cases 'merely tools in the hands of and to be seen on particular occasions. It dates from the sixteenth century, being lieved, render easy the procuring of girls. White Mountains, a group of New Hampshire, belonging to the Alleghenies. They have fine scenery and are a favorite summer resort. The culminating point is Mount Washington, 6288 feet.

White Oak, a species of oak, the popular mame are: (a) acute or chronic inflammation of the synovial membrane; (b) White Oak, a species of oak, the popular discontinuing the foundation of the synovial membrane; (b) white Oak, a species of oak, the popular of the synovial membrane; (b) white Oak, a species of oak, the popular of the synovial membrane; (b) white Oak, a species of oak, the popular or membranes on the synovial membrane; (c) acute or chronic inflammation of the synovial membrane; (d) the popular of persons devoting the number of persons devoting the number of persons devoting the initial manumer clausites about 5000. In the opinion of John D. Rockefeller, Jr., who has developed a Bureau of Social Hysica, the prostitutes are in the majority of men.' Economic conditions, it is believed, render easy the procuring of girls.

White Swelling, for all severe discontinuity of the synovial membrane; (b) white Oak, a species of oak, the popular of persons devoting the initial mumber of persons devoting the about 5000. In the opinion of John D. Rockefeller, Jr., who opinion of John D. Rockefeller

Canada.

White Pine, the Pinus Strobus, one of the most valuable and inveresting species of pines, common to warblers. The common white-throat the northern parts of the United States (sylvia undata) attains a length of 5

It is widely used in car-

White Plains, a village, county seat of Westchester Co., New York, 10 miles north of New York City, the birthplace of the State of New York, and scene of the Battle of White Plains, 1776. It is chiefly a residential

gether with its tributaries it affords 500 miles of boat navigation. (2) A river in Indiana, formed by the confluence of the East and West Forks, emptying into the Wabash near Mount Carmel.

Whitehaven (hwit'havn), a parliamentary borough and seaport of England, in Cumberland, situated on a bay of the Irish Sea, has a good harbor and dock, and enjoys a considerable shipping trade. Iron ship-buildag a coast-line of 1000 miles. It has an good harbor and brass foundries. It is naving is carried on, and there are blast-furnaces and iron and brass foundries. White Slave The Market Land White Slave Land White

Pop. 19,048.

Whitehorse, a river port of the Yusituated on the Yukon River at the foot
of Whitehorse Rapids, the head of navigation of the Yukon River 456 miles from
Dawson City and 110 miles from Skagway, Alaska. It is in the center of the
copper belt, at the head of the trail connecting the Shushana gold district of
Alaska with the steamer and rail service.
Pop. (1911) 727.

White Slave Trame, plied to the
business of organized vice, which is now
attracting widespread attention. The reoper of the Chicago Vice Commission
throws light on the financial aspect of
may be taken as typical of conditions in
copper belt, at the head of the trail connecting the Shushana gold district of
servative estimates, the annual profits
from prostitution in Chicago are \$16,
Pop. (1911) 727. White Slave Traffic, the term applied to the

White Oak, a species of oak, the pulpy thickening of the synovial memorial of the United States and of parts of (d) scrofulous diseases of the joints beginning in the bones.

White-throat, a small singing bird of the family of The

is a regular summer visitor to Northern without any apparent cause, but are al-Europe.

Whitgift (hwit'gift), John, Archbishop of Canterbury, was
born at Grimsby in 1530, and completed his education at Cambridge under
Ridley and Bradford. He imbibed from factures include boots and shoes, leatherthrough a wound.

Whitman (hwit'man), a village of
Plymouth Co., Massachupleted his education at Cambridge under
factures include boots and shoes, leatherthrough a wound. his uncle, Abbot Whitgift, opinions that board, tacks, etc. Pop. 7292, inclined him later to the side of the Whitman, Charles Seym Reformation; but by a cautious reserve his uncle, Abbot Whitgift, opinions that inclined him later to the side of the Whitman, Charles Seymour, Ameri-Reformation; but by a cautious reserve he escaped persecution during the reign of Queen Mary, and on the accession of 28, 1868. He was admitted to the bar in Elizabeth was ordained priest. He held successively many posts at Cambridge, insuccessively many disciplinarian; but he now became an inquisitor, insisted on new articles of subinquisitor, insisted on new articles of subscription, suspended the clergy who refused them, and in every way acted as 1802. He emigrated to the Pacific coast the intolerant ecclesiastic. He took a in 1836, to serve as a missionary, and in leading part in the conference at Hamp-1843 made a visit to the East, riding over

in the seas of Northern Europe generally, country, but later criticism seemed to and exceeds all the other fishes of its show that it was not political. He was tribe in its delicacy and lightness as an killed by Indians in 1847. article of food. The American whiting is Whitman. Walt, poet, was born at known as the hake.

elected mayor of Toledo as Independent against four other candidates, served four terms and refused the fifth. In December, 1913, he was appointed by President Wilson U. S. minister to Belgium. His published works include The Turn of the Balance (1907), Forty Years of It (1914), etc. Whitlow (hwit'lo), in surgery, is an inflammation affecting the skin, tendons, or one or more of the finger

inches, frequents gardens and hedges, and pricks, contusions, etc. They often occur ways preceded by the entrance of bacteria
Arch- through a wound.

Whitman (hwit'man), a village of Plymouth Co., Massachusetts, 21 miles s. of Boston. Its manu-

publican ticket.

ton Court under James I, and died soon 3000 miles on horseback through the after, in 1604.

Rocky Mountain region in winter, and Whiting (hwiting; Merlangus mer-suffering great hardships. His purpose langus), a well-known fish was said to have been to acquaint the government. Whiting (hwit'ing; Merlangus mersuffering great hardships. His purpose langus), a well-known fish was said to have been to acquaint the govbelonging to the cod tribe. It abounds ernment with the value of the Oregon with the cod tribe.

Whitman, Walt, poet, was born at West Hills, Long Island, New York, in 1819. In his earlier years Whiting, a town of Lake Co., Indi-New York, in 1819. In his earlier years miles s. E. of Chicago. Its industries subsequently a school teacher, editor, and Pop. 6587.

Whiting-pout, a British fish of the cod family (Morcivel war he took an extended states of the long lander and editor the brooklyn Eagle. Previous to the chus lusca). See Bib. willing-pout, cod family (Mor-Civil war he took an extended Southern trip. During the war Whitman gave de-Whitlock (hwitlock), Brand, American author and statesman, and Washington. This irretrievably how in Urbane Ohio March 4 1860. born in Urbana, Ohio, March 4, 1869. He ruined his great physical health. In 1873 engaged in newspaper work, studied law, he was stricken with paralysis at Washwas admitted to the Illinois bar in 1894 ington and went to Camden, N. J., where and to the Ohio in 1897. In 1905 he was he lived till his death, March 28, 1892. He had been a clerk in the period from the war to 1874. The first edition of his war to 1874. The first edition of the poetic volume, Leaves of Grass, then quite poetic volume, issued in 1855. There have been numerous subsequent editions, each one with added pages, the last in December, 1891, under his own supervision. His entire published works now appear in ten volumes—Leaves of Grass, containing all the poems, and Prose Works, including Specimen Days and Collect. He discarded somes, and generally terminating in an Specimen Days and Collect. He discarded abscess. There is a similar disorder rhyme and metrical uniformity in his which attacks the toes. Whitlows differ poems, and while possessed of great poetmuch in their depth and extent. The ical ability failed to gain wide popularity, usual exciting causes of whitlows are largely because he insisted on introducing in his poems sexual subjects tabooed

in ordinary polite society.

Whitney (hwit'ni), ADELINE DUT-TON (Train), author, born in Boston, Massachusetts, in 1824. Wrote The Gay-Faith Gartney's Girlhood, worthys, Leslie Goldthwaite's Life, Ascutney Street, etc. She died in 1906.

inventor, born Massachu-Whitney, Eu, inventor, born at Westborough, Massachusets, in 1765, and educated at Yale College, where he was graduated in 1792. Going then to Georgia as a teacher, he invented the machine since known as the cotton gin, its purpose being to separate the cotton from the seed, thus greatly cheapening the production of this important

cial attention to Sanskrit language and moral heroism. My Psalm is considered literature. He also studied Sanskrit in a masterpiece in the realm of spiritual Germany from 1850 to 1853, returning thought. He died September 7, 1892. in the latter year to America. The first- Whittlesev (hwit'l-se), an old town fruits of his studies in Sanskrit was an edition of the Atharva-Veda in conjunction with Roth (1856). He had previously (1854) been made professor of Sunskrit and of comparative philology at Yale College. Among his independent works may be mentioned Language and the Study of Language (1867), Oriental and Linguistic Studies (1872-74), Life and Growth of Language (1875), Sanskrit Grammar (a highly important work). krit Grammar (a highly important work), German Grammar, etc. He was work), German Grammar, etc. He was the Kocky Mountains and the Cia editor of the great Century Dictionary House by the Sea. He died in 1910. of the English Language. He died in Whitworth (hwit'wurth), Sir Jo-1894. His brother, Josiah Dwight (hwit'wurth), Sir Jo-Whitney, became in 1865 professor of neer, was born in 1803; died in 1887. geology in Harvard University and pub-After working as a journeyman in Manlished a number of works on geology.

Whitstable (hwit'stā-bl), a seaport of England, county of Kent, 6 miles by rail w. N. w. of Canter-

Quaker parents in 1807 at Haverbill, Massachusetts, and educated at the academy of his native place. In his younger days he worked on his father's farm and learned the shoemaking trade, but early began to write for the press, and in 1831 published his first work, Legends of New England, in prose and verse. He carried on the farm himself for five years and in 1835-36 he was a member of the legislature of Massachusetts. After having edited several other papers he went to Philadelphia to edit the Pennsylvania Freeman, an antislavery paper, the of-fice of which was burned by a mob in 1839. In the following year he returned to his native state, settling in Amesbury, ing the production of this important fiber. Returning to the North he started business in conjunction with a man named Miller as a manufacturer of cotton gins. But his invention was pirated and the profits of the business, together with \$50,000 voted to him by the State of South Carolina, were swallowed up in his ausself in defense of his rights. He subsequently went into the manufacture of firearms, for which he received a government contract, and in this way made a fortune. He died in 1825.

Whitney, William Dwight, a distinction to Sanskrit language and his Barclay of Ury and Barbara town, and at Yale College, giving special attention to Sanskrit language and his paralm of spiritual wards chiefly resided. Among the numerous volumes of poetry which he merous volumes of poetry which he from time to time gave to the world the following may be mentioned: Moll the from time to time gave to the world the merous volumes of poetry which he from time to time gave to the world the merous volumes of poetry which he from time to time gave to the world the merous volumes of poetry which he from time to time gave to the world the following may be mentioned: Moll of Freedom, Songs of Labor, Snow Baudad, In War-time, National Lyrics, Snow Baudad, In

Whittlesey (hwit'l-se), an old town of England, in the county of Cambridge, 6 miles east by south of Peterborough. Pop. 4207. About 4 miles southwest of the town was

About 4 miles southwest of the town was the shallow lake, Whittlesey Mere, now drained and the land reclaimed.

Whittredge (hwit'rej), Worthington, painter, born at Springfield, Ohio, in 1820. Among his best-known works are The Old Hunting Grounds, The Pilgrimage to Saint Roche, The Rocky Mountains and The Old House by the Sca. He died in 1910.

chester and London, he started business in the former city in 1833 as a manufacturer of engineers' tools, thus founding the firm of which he was long the bury, of which it is the port. It has extensive oyster fisheries. Pop. 7984.

Whitsuntide (hwit'sun-tid). See threads, which was soon very generally adopted. This was followed by standard tention to a uniform system of screw-See threads, which was soon very generally adopted. This was followed by standard Whittier (hwit'i-er), John Green-gauges, which have been universally ac-LEAF, poet, was born of cepted for engineering work. In 1854-55

he began his experiments with firearms, which led to the production of the Whit-worth rifle, and later brought him into competition with Armstrong as a manu-facturer of rifled ordnance. He was also the originator of the fluid-pressed steel, used in the manufacture of cannon and ships' plates. He was created a baronet in 1869. The Whitworth scholarships, for the cultivation of theoretical and practical skill in mechanical and engineering arts, were founded by him in 1869. He was the author of Guns and Steel (1873).

Whooping-cough. See Hooping-

Whorl (hwurl), in botany, a ring of organs all on the same plane.
Whortleberry (hwur'l-ber-i: (Vaccinium), a genus of shrubbery plants, the type of the nat. order Vacciniaceæ, with alternate leaves, pink or red bell-like flowers, and berries of a dark nurse bluish or red colour. of a dark purple, bluish, or red colour. The common whortleberry, bilberry, or blaeberry (V. myrtillus) is a hardy plant which grows in forests, heaths, and on elevated mountains. In some of the pine forests of Scotland the plant attains the height of 3 feet. The berries have a pleasant, sweet taste, and are used for making jelly. The berries of the red whortleberry (V. Vitis-idæa) are of a bright red color, and possess acid and astringent properties; from their similarity to cranberries they are sold as such in various parts of Scotland. (See Cranberry.) Whortleberries are generally known in the United States as huckleberries and blueberries and grow abundantly in mountain soil.

Whydah (hwl'da), a town of West Africa in the kingdom of Dahomey, on the Bight of Benin. Pop. about 20,000.

See Whidah-bird. Whydah-bird.

Whymper (hwim'fer), EDWARD, traveler and artist, born in London in 1840. He is best known as a mountain-climber, and was the first to ascend the Matterhorn and Chimborazo. He published Scramble Among the Alps, Travels Among the Great Andes of the Equator, etc. He died in

Whyte-Melville, GEORGE JOHN, novelist, born in Fifeshire, Scotland, in 1821. He entered the army, and fought in the Crimean war. He first made himself known as a novelist in 1853, when he published Digby Grand. This was followed by or Fillingham. in Lincolnshire. He General Bounce, Kate Coventry, Market Harborough, The Gladiators, Sarchedon, and teacher of divinity in the university:

Satanella, Holmby House, Bones and I etc. He was killed in the hunting-field in 1878.

See Vibora. Wiborg.

Wichita (wich'i-ta), a city of Kansas, situated at the junction of the Arkansas and the Little Arkansas River, in south central Kansas, at the junction of seven different lines. Wichita's history dates back only to 1872. It is the leading manufacturing and distributed in the leading manufac is the leading manufacturing and distribpacking handracturing and distributing center of the Southwest. It has packing houses, railroad shops, flouring mills, woodworking establishments, and other large enterprises. It is the largest implement and machinery distributing point in its territory. It has a number of educational institutions. educational institutions. Pop. 67,847.

Wichita Falls, capital of Wichita Co., Texas, on the Wichita River, about 95 miles N. w. of Fort Worth. It has grain and lumber interests. Per 2000. interests. Pop. 8200.

Wick (wik), a seaport of Scotland, capital of the county of Caithness, at the head of the Bay of Wick, on the left bank of the river Wick, over which is a bridge connecting it with its suburb Pulteney-Town. It is the head-quarters of the herring fishery of Scotland. Pop. 7911.

Wickliffe (wik'lif), Wycliffe, Wic-Liff, Wyrlyf, etc., John, religious reformer, was born about 1320 at Hipswell, near Richmond, in Yorkshire. He was educated at Oxford; was



budgershall, in Buckinghamshire. Disputes existed at this period between Edand the ashes cast into the Swift. The
ward III and the papal court relative influence of his doctrines spread widely
to the homage and tribute exacted from on the Continent, and may easily be
John, and the English parliament had
resolved to support the sovereign in his
refusal to submit to the vassalage. enormous number of writings in Latin
Wickliffe came forward on behalf of the
patriotic view and wrote several tracts,
which procured him the patronage of
John of Gaunt, duke of Lancaster. In
1374 he was one of the commissioners
sent by the king to Bruges to confer
with the nuncio of Gregory XI respecting the statutes of provisors and præmunire. Shortly before Edward gave
numire. Shortly before Edward gave
him the valuable rectory of Lutterworth,
him the ashes cast into the shistory of the Reformarectory of the Reformation. Wickliffe was the author of and English, and her anks undoubtedly as
her the was the author of the Reformarectors, of the Reformarectory of the Reformation. Wickliffe was the author of the Reformarectory of the Reformarectory of the Reformarectory of E sent by the king to Bruges to confer with the nuncio of Gregory XI respecting the statutes of provisors and præmunire. Shortly before Edward gave him the valuable rectory of Lutterworth, in Leicestershire, which he held till his death. Here he labored zealously and unweariedly as a preacher and pastor, though he lived at times also in Oxford or London. In some of his utterances he is said to have styled the pope Antichrist, charging him with simony, covetousness, ambition, and tyranny. His opinions began to spread, and the church grew alarmed. Courtenay, bishop of London, summoned him to appear before a convocation at St. Paul's. Wickliffe appeared there on February 19, 1377, attended by his friends, John of Gaunt (then the virtual ruler of England), of the Danube. Ships can reach the Lord Percy, the earl-marshal, and others. Hot words passed between the bishop and the duke; blows followed; and the meeting broke up in confusion. In May following the pope addressed three bulls to the king, the primate, and the University of Oxford, commanding them to take proceedings against Wickliffe, who in answer to the prelate's summons Arctic regions, and is common in north-appeared in the chapel of Lambeth. Proceedings were, however, stopped by order of the queen-mother, and Wickliffe was dismissed with simply an injunction to refrain from preaching the obnoxious doctrines. About this time he was engaged in translating the Bible from the order of the queen-mother, and Wickliffe most abundant in the Carolinas and is was dismissed with simply an injunction of ten called bald-pate, from the white on the top of the head. doctrines. About this time he was engaged in translating the Bible from the Widnes (wid'nes), a thriving manufacturing town of England, county of Lancaster, on the Mersey (here lenged the doctrine of transubstantiabridge), 13 miles E. S. E. of Liverpool ton, and his heresies were condemned by yearl. There are extensive chemical works. the theologians of Oxford, as well as by a provincial council called by Arch-bishop Courtenay and held at the Black-friars, London, in 1382. Wickliffe was proclaimed a heretic, his works were condemned to be burned, and some of his followers were imprisoned; but he was allowed to retire unmolested to his rectory of Lutterworth. A stroke of paralysis terminated his life on the 31st of December. 1384. About thirty years after years afterwards went to Weimar as his death his doctrines were condemned teacher to the sons of Duchess Anna

and for some time held the living of by the Council of Constance, and in Ludgershall, in Buckinghamshire. Dis-putes existed at this period between Ed-and the ashes cast into the Swift. The

works, copper-smelting works, rolling-mills, iron-foundries, etc. Pop. 31,544. Widow-bird. See Whidah-bird. Widow-bird.

being a member of the circle to which Goethe, Schiller, and Herder belonged. The early period of his literary life was devoted to pletistic or at least serious poetry such as The Nature of Things (1752), Twelve Moral Letters in Verse Anti-Ovid (1752), The Trial of Abraham's Faith (1753); in the second period he produced the romances Agathon (1768) and Don Sulvinda Bestley (1766), and Don Sylvio de Rosalva (1764), the poem Musarion (1768), and (1764), the poem Musarion (1768), and a prose translation of Shakespeare in eight vols. (1762-66); while in the third and ripest period were written the romantic epic of Oberon (1781); History of the Abderites (1781); The Republic of Fools, London (1861); The Secret History of Peregrinus Proteus (1791), etc. He also published translations of Horace, Lucian, and the Letters of Ciocero. Cicero.

Wieliczka (vyel-ich'ka), a town in Austria, Galicia, situ-ated 8 miles southeast of Cracow, and noted for its extensive salt mines. Pop. 6012.

Wiener-Neustadt (vē-nėr-noi'stat), a town of Austria, 25 miles s. of Vienna. It was almost entirely destroyed by fire in 1834, but a number of interesting mediæval buildings yet remain. There are important man-ufactures of locomotives, machinery, pottery, leather, etc. Pop. 28 458.

Wiesbaden (vēs bā-den), a town in Prussia, province of Hesse-Nassau, finely situated at the foot of Mt. Taunus, in the valley of the Salzbach, about 2 miles from the Rhine. It is noted for its medicinal saline springs the temperature of the Kochbrunnen being 156° F.), and it attracts annually upwards of 60,000 visitors. The chief buildings are the Kursaal, a new town-house, an old and a new palace, library, museum, English church, and other churches, theater, etc. Pop. (1910) 109,033. Wife. See Marriage.

an artificial covering of hair for Wig, an artincial covering of the head, used generally to conceal baldness, but formerly worn as a fashionable means of decoration. Formally curled wigs are still worn pro-fessionally by judges and lawyers in Great Britain, and wigs are commonly used in making up for the stage.

Wigan (wig'an), a municipal and par-liamentary borough of Lanca-

Amalie. Here, or in the immediate tant, consist chiefly of calicoes, fustians, neighborhood, he resided till his death, and other cotton goods, linens, checks, being a member of the circle to which cotton twist, etc., besides iron-foundries, iron-forges, railway-wagon works, ironrolling mills, large breweries, chemical works, and corn and paper mills. Pop. (1911) 65,528.

Wiggin (wig'in), KATE DOUGLAS, author, was born at Philadelphia in 1857. The daughter of R. N. Smith, she married Mr. Wiggin in 1880, and in 1891, after his death, C. N. Riggs. She engaged in kindergarten work on the Pacific coast, and wrote a series of highly considerable and in the control of the contro highly popular juvenile tales, including Timothy's Quest, The Story of Pansy, The Birds' Christmas Carol, etc.

Wight (wit), ISLE OF, an island off the south coast of England, in the county of Hants, separated from the mainland by Spithead and the Solent; 23 miles in length, 13 miles broad; area, 147 sq. miles. A range of chalk downs, which cross the island from east to west and form excellent sheep-walks, separate it into two districts somewhat different in character. The general appearance is picturesque, and the geology of the island is interesting. The air is remarkably mild, and the district known as the Undercliff, lying along the south coast, and derollift, lying along the south coast, and completely sheltered from the north, has long been a resort for invalids. The chief towns are Newport (the capital), Ryde, Cowes, Ventnor, Bembridge, Freshwater, Yarmouth and the fashion-shla health resorts of Sandann and able health resorts of Sandown and Shankin. Near Cowes is Osborne House, a favorite residence of the late Queen Victoria. Carisbrooke Castle is

an interesting ruin. Pop. 88,193.
Wigtownshire (wig'tun-shire), the southwesternmost county of Scotland; area, 491 sq. miles. The coast is indented by numerous deep and spacious bays, of which Wigtown Bay, Luce Bay and Loch Ryan are the most important. The chief rivers are the Cree and Bladenoch, both partially navigable. It is mostly a dairying country.
Pop. 32.685. Strangaer is the largest town and Wigtown the capital.

Wigwam (wigwam), an Indian cabin or hut, so called in the United States and Canada. These huts are generally of a conical shape, formed of bark or mats laid over stakes planted in the ground and converging at top, where is an opening for the escape of the smoke.

Wilberforce (wilber-fors), SAMUEL, an English prelate, son shire, England, on the Douglas, 21 miles northeast of Liverpool. Wigan stands in the center of an extensive coal field, and its manufactures. which are imporgraduated from Oriel College, Oxford; was Wilberforce Wilkes

appointed curate of Checkendon (1828) and became dean of Westminster and



Wigwams of North American Indians.

Wilberforce, WILLIAM, a celebrated English philanthropist, was born at Hull in 1759; died in 1833. was born at Hull in 1759; died in 1833. After completing his education at St. John's College, Cambridge, he was, in 1780, elected member of parliament for his native town; and in 1784 was returned by the county of York. In 1786 he made the acquaintance of Clarkson (see Clarkson, Thomas), who gained his sympathies on behalf of the agitation against the slave trade. In 1791 he moved for leave to bring in a bill to prevent further importation of African negroes into the British colonies. Year after year he pressed this measure, but after year he pressed this measure, but was always defeated till 1807, when it was passed during the short admistration of Fox. He then devoted his energies to bring about the total abolition of slavery, and three days before his death he was informed that the House of Commons had passed a bill which extinguished slavery in the British colonies.

Wilcox, ELLA WHEELER, poetess, born at Johnstown Center, Wisconsin, in 1858. She has written much creditable verse, contributing to current periodicals, and publishing Poems of Passion, Poems of Pleasure, Drops of Water, etc.; also a number of novels.

medical subjects. His mother was a poetess. He was a pupil of Ruskin, and and became dean of Westminster and bishop of Oxford in 1845. He was the leader of the High Church party, and the author of Note-book of a Country Clergyman (1833), Eucharistica (1839), A History of the Protestant Episcopal Fan, a play, Dorian Gray, a novel, and Church in America (1844), a volume of University Sermons, and numerous other works. He was killed by a fall from his horse in 1873.

Wilhelmina (wilhel-mē'na), He-LENE PAULINE MARIE, Queen of the Netherlands, only child of William III by his second wife, was born at The Hague, August 31, 1880. Her mother was regent until August 31,

Her mother was regent until August 31, 1898, in which year she was crowned. In 1901 she married Duke Henry of Mecklenberg-Schwerin. The people of the Netherlands were very anxious for an heir to the throne, and this anxiety was satisfied by the birth of a daughter in 1909.

Wilhelmshaven (vil-helms-hä'ven), tion belonging to Germany, on the w. side of the Jade, an inlet of the North Sea. The entrances to the harbors are sheltered by long moles, the whole town is strongly fortified, and there are numerous docks, building-slips, etc. Pop. (1905) 26,012. See Jade.

See Cassel. Wilhelmshöhe.

Wilkes (wilks), CHARLES, naval offi-cer, born in New York City. April 3, 1798; entered the navy in 1816 and became a lieutenant in 1826. In 1838 he commanded an exploring expedition sent by the United States govern-ment to the Antarctic regions. Here he ment to the Antarctic regions. Here he discovered what he claimed to be an Antarctic continent, sailing far along its coast. He completed a voyage around the world, returning in 1842 and publishing an account of his explorations. In 1861, while in command of the San Jacinto, he intercepted the British steamer Trent and took as prisoners J. M. Mason and J. Slidell, Confederate commissioners to Europe, an event that produced a great sensation and threats of war in England. In 1862 he was promoted commodore, after which he commanded a squadron in the West Indies. manded commodore, after which he commanded a squadron in the West Indies. In July, 1866, he was made a rear-admiral. He died February 8, 1877.

Wilkes, JOHN, political agitator, born in London in 1727; died in 1797. He was the son of a rich distiller and was educated for some time at

Wilde (wild), Oscar, poet and dra-in 1856, son of Sir William Wilde, an as a member for Aylesbury (1757), and eminent Irish surgeon and writer on attained considerable notoriety by the ler, and was educated for some time at

publication of a paper entitled the North Briton, in No. 45 of which (1703) he commented severely on the king's speech to parliament. The home secretary in consequence issued a general warrant, upon which Wilkes, with others, was apprehended and committed to the Tower, but released by Chief Justice Pratt, who declared the prosecution illegal. On the next meeting of parliament, however, a special law was passed to sanction his prosecution, and in 1764 he was expelled from the House of Commons. As he had by this time withdrawn to France and did not appear to receive sentence, he was outlawed. He returned, however, to England at the election of 1768, and was sent to parliament as representative of Middlesex, but was expelled from the House and committed to prison. Three times after this he was reëlected within a few months by the same constituency, but the House of Commons persisted in keeping him out, giving rise to a formidable agitation in favor of 'Wilkes and liberty.' He was released from prison in 1770, having been elected alderman of London, and he was next appointed sheriff of Middlesex, lord-mayor of London, and again (1774) member of parliament for Middlesex. On this occasion he was allowed to take his seat, and in 1782 the resolutions respecting the Middlesex election were expunged from the journals of the House of Commons. He published many speeches and pamphlets, and his correspondence was published after his death.

Wilkes-Barre (wilks'ba-re), a city, capital of Luzerne Co., Pennsylvania, on the east bank of the north branch of the Susquehanna River, about 140 miles northwest of Philadelphia. It is the center of rich anthracite coal field, and has manufactures of machinery, locomotives, cars, mining engines and tools, iron castings, wire ropes, lace, silks, tinware, lumber, cutlery, brewery products, axles, springs, adding machines, tobacco, etc. Pop. 67,105; within 8-mile radius, 245,000.

Wilkie (wil'kē), SIR DAVID. one of the most famous painters of the British school, was son of the minister of Cults, near Cupar, Fifeshire, born there in 1785; died at sea off Gibraltar stories in 1811, while returning from a visit to Palestine. He received his early art training at the Trustees' Academy, Edinburgh; entered the schools of the Royal Freema Academy, London, in 1805; first exhibited there (1806) The Village Politicians, which at once established his reputation; was elected an associate of the Academy in 1809, and in 1811 became an 18,924.

publication of a paper entitled the North Briton, in No. 45 of which (1763) he commented severely on the king's speech to parliament. The home secretary in consequence issued a general warrant, upon which Wilkes, with others, was apprehended and committed to the Tower, but released by Chief Justice Pratt, who declared the prosecution illegal. On the health, he made an extended tour through term ter country his style as a painter underconsequence issued a general warrant, went a marked change when he came upon which Wilkes, with others, was apprehended and committed to the Tower, Murillo. Returning after three years to but released by Chief Justice Pratt, who declared the prosecution illegal. On the England, he was appointed (1830) declared the prosecution his painter in ordinary to the king, and was special law was passed to sanction his the Blind Fiddler, Rent Day, Cut Fingerosecution, and in 1764 he was exper, Rabbit on the Wall, Penny Wedding, Cotter's Saturday Night, Duncan Gray, Blind Man's Buff, Chelsea Pensioners Reading the Gazette of Waterloo, he was outlawed. He returned, how-love reaching before the Lords of ever, to England at the election of 1768,



Sir David Wilkie.

as engravings. These belong for the most part to his early and best period, when his method was characterized by subdued coloring and minute and spirited drawing. His later and less successful style is distinguishable by a breadth of treatment which sometimes shows looseness in drawing, and deals chiefly with historical subjects. It is represented by The Entrance of George IV into Holyrood, The Spanish Council of War, The Maid of Saragossa, Napoleon and Pius VII.

Wilkins, MARY ELEANOR, novelist, born at Randolph, Massachusetts, in 1862. She produced graphic stories of New England life, and published A Humble Romance, The Wind in the Rose Bush, Dr. Gordon, Pembroke, Jerome, etc. She married Dr. O. M. Freeman in 1902.

Wilkinsburg, a borough in Allevania, 7 miles E. of Pittsburgh, many of whose business people reside here. Pen. 18,004

Wilkinson (wil'kin-sun), SIR JOHN GARDNER, a distinguished in 1875. He was educated at Harrow and Exeter College, Oxford, and afterwards resided twelve years in Egypt. As number of works and lectured on her the result of his investigations there he the Ancient Egyptians (five vols. 1837-41). His other works are: A Handbook for Travelers in Modern of the Woman's Christian Temperance Union in 1879; founded the World's the Ancient Egyptians, Dalmatia and Montenegro (1848), and The Egyptians (1883 and was its president from 1888 under the Pharaohs (1857).

Will THE, is usually described as one

Willenhall (wil'ard), Frances Elizabelli (wil'ard), Frances Elizabel

Will, THE, is usually described as one of the three faculties by means of which the human mind finds expression, the other two being thought (or intellect) and feeling (or emotion). It is the faculty by which a choice is made between two courses of action, as distinct from the exercise of this power, which is more fitly described as volition. This as more ntly described as volition. This faculty of the will, in the maturity of its complex power, is usually conceived as having been educated by a process of sensation; pleasure and pain giving rise to the motives by which the active determining energy is set in motion. Yet the exact relation between will and motive the question whether the motives tive, the question whether the motive governs the will or the will determines the motive, has never been authoritatively settled. Thus the 'freedom' of the will has, until now, been maintained as a metaphysical and theological belief in opposition to the doctrine of necessity. Aristotle in his *Ethics* incidentally asserted the freedom of the will; with this the Stoics and Epicureans origen, and St. Augustine; while its later adherents were Reid, Stewart, Kant, and Hamilton. On the contrary, among the early Christians, the Gnostics denied the freedom of the human will; so also did Spinoza; while the more mod-ern advocates of the doctrine of 'neces-

ern advocates of the doctrine of 'necessity' were Hobbes, Hume, Jonathan Edwards, and John Stuart Mill.

Will, or Testament, in law, the legal declaration of a man's intentions as to what he wills to be performed after his death in relation to his property. In England, as also in its colonies and most of the United States, no will, whether of real or personal estate, is valid unless the in writing, and signed at the foot it be in writing, and signed at the foot or end by the testator, or by some person in his presence, and by his direction. Such signature must be made and the testator in the presence of two or more rection broke out in the north, and at witnesses at the same time, and such the same time the English resumed arms

temperance work, and for her active labors in this cause. She became president of the Woman's Christian Temperance Union in 1879; founded the World's Woman's Christian Temperance Union in 1883 and was its president from 1888 until her death, February 18, 1898.

Willenhall (wil'en-hal), a town of England, in West Staffordshire, 12 miles N. w. from Birmingham. There are brass and iron foundries, but the staple industry is in locks

ham. There are brass and from toundries, but the staple industry is in locks and padlocks. Pop. 18,858.

Willesden (wilz'dn), a parish in Middlesex and suburb of Londries and suburb o

don, 7 miles N. w. of St. Paul's. also a local government district and contains parts of Kilburn, Kensal Green, etc., and an important railway junction. Pop. 154,267.

Willet (wil'et; Symphemia semipal-mata), a bird of the snipe family found in America. It is a fine game bird, and its flesh and eggs are prized

for food. Called also stone curlew.

William I (wil'yam), surnamed the Conqueror, King of England and Duke of Normandy, born in 1027, was the natural son of Robert, duke of Normandy, by Arlotta, the daughter of a tanner of Falaise. His father having no legitimate son, William became the heir at his death, and ruled Normandy with great vigor and ability. The opportunity of gaining a wider dominion presented itself on the death of his second cousin, Edward the Confessor, king of England, whose crown he claimed. To enforce this claim he in-vaded England, and the victory of Hastvaded England, and the victory of Hastings, in which his rival Harold was killed, ensured his success (1066). On his return to Normandy, however, the English, being treated by the Norman leaders like a conquered people, broke out in revolt, but William speedily returned and suppressed the insurrection. The resistance of two powerful English nobles, Edwin and Morcar, who had formed an alliance with the kings of Scotland and Denmark, and with the prince of North Wales, soon after drew William to the north, where he obliged Malcolm, king of Scotland, to do homage document acknowledged as his will by the for Cumberland. In 1069 another insur-

in the eastern and southern counties, only, however, to be suppressed with mer-ciless rigor. He now established the administration of law and justice on a firm basis throughout England, conferred numerous grants of land on his own followers, and introduced the feudal constitution of Normandy in regard to tenure and services. He also expelled numbers of the English Church dignitanumbers of the English Church dignitaries and replaced them by Normans. Towards the end of his reign he instituted that general survey of the landed property of the kingdom, the record of which still exists under the title of Domesday Book. Although the English had been completely subdued, William had to suppress several formidable results by his own vessels while in 1080 volts by his own vassals, while in 1080 he was at open war with his son Robert. In 1087 he went to war with France, whose king had encouraged a rebellion whose king had encouraged a rebellion of Norman nobles. He entered the French territory, and committed great ravages, but, by a fall from his horse at Mantes, received an injury which caused his death at the abbey of St. Gervais, near Rouen (1087).

near Kouen (1087).

William II, surnamed Rufus, from his red hair, third son of the preceding, was born in Normandy in 1056, and crowned at Westminster in 1087 on the death of his father. The Norman barons were discontented with this arrangement, and sought to make his eldest brother, Robert, king of England, but this project was defeated by William, who secured the aid of Lanfranc, archbishop of Canterbury, and the English nobles. Having repressed the conspiracy, he forced the Norman barons to withdraw to Normandy and confiscated their English estates. On the death of Lanfranc he also seized the estates connected with the vacant bishoprics and connected with the vacant dishoprics and abbeys. In 1090 he sent an army into Normandy, while he himself crossed the Channel the following year. A reconciliation was effected between the two brothers, and in 1096 Robert mortgaged Normandy to his brother for a sum sufficient to enable him to join a crusade to the Holy Land. A characteristic incident in William's reign was his contention with Anselm, archbishop of Canterbury, regarding church property and the sovereignty of the pope. (See Anselm.)
In 1100 he met his death while hunting

prince of Orange, and Henrietta Mary Stuart, daughter of Charles I of Eng-land, was born at The Hague on the 4th of November, 1650. During his early life all power was in the hands of the grand pensionary John De Witt, but when France and England, in 1672, de-clared war against the Netherlands, there ciared war against the Netherlands, there was a popular revolt, in which Cornelius and John De Witt were murdered, while William was declared captain-general, grand-admiral, and stadtholder of the United Provinces. In the campaign which followed he opened the sluices in the days and invaded the country. which followed he opened the stukes in the dykes and inundated the country round Amsterdam, thus causing the French to retire, while peace was soon made with England. In subsequent campaigns he lost the battle of Seneffe (1674) and St. Omer (1677), but was still able to keep the enemy in check.



William III.

In 1677 he was married, and the Peace of Nijmegen followed in 1678. For some years subsequent to this the policy of William was directed to curb the power of Louis XIV, and to this end he brought about the League of Augsburg in 1686. As his wife was heir-presumptive to the English throne he had kept close watch upon the policy of his father-in-law, James II, and in 1688 he issued a declaration recapitulating the unconstitutional acts of the English king, and promising in the New Forest, by an arrow shot to secure a free parliament to the people. accidentally or otherwise from the bow Being invited over to England by some of a French gentleman named Walter of the leading men he arrived suddenly Tyrrel.

William III, Stadtholder of Holoff Soo sail, and with 14,000 troops.

land, son of William II of Nassau, declared in his favor, and in December

William II William IV

James fled with his family to France, duchies of Schleswig-Holstein; quarreled after which William made his entry into with Austria, and engaged in a campaign London. The throne was now declared vacant, the Declaration of Rights was passed, and on February 13, 1089, Mary was proclaimed queen and William king. Scotland soon afterwards followed England's example (with a partial resistance under Dundee); but in Ireland, whither Louis XIV sent James with an army, the majority of the Catholics maintained the cause of the deposed king, until they were defeated at the Boyne (1690) and at Aughrim (1691). In the war with France William was less successful; but although he was defeated at Steinkirk (1692) and Neerwinden (1693) Louis was finally compelled to acknowledge him king of England at the Peace of Ryswick in 1697. In 1701 James II died, and Louis XIV acknowledged his son as king of England. England, Holland, and the empire had already combined against Louis, and the war of the Spanish Succession was just on the point of com-mencing when William died, March 8, 1702, from the effects of a fall from his horse, his wife having already died childless in 1694.

in June, 1830, he succeeded his brother George IV to the throne. The great legislative events which render his reign memorable are the passage of the reform act, the abolition of slavery in the colonies, and the reform of the poor-laws. the married (1818) Adelaide, sister of the Duke of Saxe-Meiningen, by whom he had no surviving children, but by his

brother, in 1861, succeeded to the throne of Prussia. During his reign Prussia defeated Denmark (1864), annexing the defeated Denmark (1864), annexing the defeated Denmark (1864).

with Austria, and engaged in a campaign which ended in the victory of Sadowa (1866); and went with the rest of Germany to war with France in 1870 (see Germany and France). In this war the operations of the Prussian generals were under the preparal supervision of the under the personal supervision of the king. The results of this war were so king. king. The results of this war were so favorable for Germany that the German States combined in raising William to the imperial dignity, and he was proclaimed emperor of Germany at Versailles January 18, 1871, during the siege of Paris. He died March 4, 1888.

William II, and third emperor of Germany, was born at Berlin Isquary

Germany, was born at Berlin, January 27, 1859, eldest son of the crown prince (afterward emperor) Frederick and Princess Victoria of England. After a careful training at home, the education of the young prince was completed in the gymnasium at Cassel, and he also received a thorough military training and full instruction in the arts of government and administration. An accident at birth caused a weakening of his left arm which became permanent, and in addition he has a serious anection of the ear, which so far has defied treatment. Yet, despite these afflictions, his ardent temperament led him to become william IV, King of Great Britain addition he has a serious affection of the ear, which so far has defied treatment. Son of George III, born in 1765; died in 1837. He served in the navy, rising ardent temperament led him to become successively to all the grades of naval command, till in 1801 he was made admiral of the fleet. In 1789 he had received the title of Duke of Clarence, and in addition he has a serious affection of the successively to all the grades of naval as swilful horseman and a tireless hunter, ceived the title of Duke of Clarence, and in addition he has a serious affection of the ear, which so far has defied treatment. Yet, despite these afflictions, his ardent temperament had in addition he has a serious affection of the ear, which so far has defied treatment. Yet, despite these afflictions, his are the successively to all the grades of naval as well as an enthusiastic yachtsman, miral of the fleet. In 1789 he had received the title of Duke of Clarence, and of army evolution. He married Augusta of army evolution. He married Augusta victoria of Schleswig-Holstain-Augustin-Augus Victoria of Schleswig-Holstein-Augustan Victoria of Schleswig-Holstein-Augustin-burg in 1881, and, after the brief reign of his father, succeeded to the imperial dignity on June 15, 1888. Since his accession he has shown himself a ruler of exuberant energy and has made him-self felt as a vigorous power alike in his home government and in international the Duke of Saxe-Meiningen, by whom he had no surviving children, but by his connection with Mrs. Jordan, the actress, he had a large family.

William I, first German Emperor, and seventh king of his early rule, and the intense energy with which he pushed forward the orearly age he began the study of military apprehensions of warlike purposes, while affairs; took part in the campaigns of 1813-14 under Blücher: married in 1829 ricame heir-presumptive to the throne of Prussia on his father's death in 1840; was commander of the forces which suppressed the revolutionary movement (1849) in Baden; was created regent in 1858; and on the death of the king, his prother, in 1861, succeeded to the throne fiveness of the strong-willed young emapproved. This quickly led to the re-the parliament and a new election. He tirement of the able chancellor, and his opened himself to drastic parliamentary replacement by Count Caprivi, a man criticism in 1910, in a speech at Königsmore ready to yield to the emperor's views, or more in accord with them. Since that date several changes have taken place in the chancellorship. The The foreign policy of the new regime led to a strengthening of the triple alliance between Germany, Austria and Italy, a weakening of the older bond between Germany and Russia, and to a colonial Guinea region of that continent were won by Germany in consequence. In 1890 the island of Heligoland, in the German Sea, was ceded by England to Germany, in return for which England was granted certain advantages in Africa. In the negotiation of the treaty of peace between Turkey and Greece at the end of the war of 1897. William took a very prominent part, insisting that provision for payment of the defaulted interest due by Greece to foreign bondholders (mainly German) should form part of the terms of settlement. The treaty was made to accord with the emperor's views. In his internal administration, William In his internal administration, William has actively sought to establish a more pronounced personal government, a purpose in which he has met with strong parliamentary opposition. He has made himself a leader in European policies, and Germany, under his control, has advanced greatly in strength and political importance. He has also taken steps to placate the workingmen by establishing a system of old-age insurance under ing a system of old-age insurance under State auspices, and inaugurating other legislation in their favor. The great growth of Socialism has proved a dis-The great turbing element, and he has sought to repress it. William's plans for an increase of the army and navy, with the necessary additional taxation, on several occasions brought him into conflict with the Reichstag and long continued a source of alarm in Europe, especially in Great Britain. The result was a contest between these countries in the building of war vessels, the British government striving strenuously to maintain its supremacy and the German government increasing the strength of its navy at a disturbing rate. A conflict between William and the Reichstag took place in December, 1906, when that body opposed the emperor's the estates appointed the prince stadtviews of maintaining a large garrison in holder of Holland, Zealand, Friesland German Southwest Africa, the result and Utrecht, with power to prosecute the

socialism, of which Bismarck strongly dis- being that he ordered the dissolution of berg, in which he reminded his hearers that his grandfather, William I, believed himself the chosen instrument of God and in possession of the crown by God's grace alone. The following words, with which he concluded, indicated that he entertained a similar opinion: 'Considering myself as the instrument of the Master, regardless of passing views and expansion indicated by Germany's taking opinions, I go my way, which is solely an active part in the partition of Africa devoted to the prosperity and peaceful between the European powers. A large development of the Fatherland. These area of territory in the west, a second words were sharply controverted in the in the southeast, and a third in the press and by the Socialists in the Reichstag. William throughout showed that he was one of the ablest and most ener-getic of ruling monarchs and one ready to maintain the political and commercial interests of his country to the verge of war. This was shown in his contest with France in 1905, on the Morocco question, in which war seemed imminent. and the renewal of this contest in 1911, at which date the hostile feeling was abated through the cession by France of a large area in Africa to Germany. To what extent William is responsible for the great conflict in Europe which began in July, 1914, and continued with unabated fury and frightful loss of life and property for more than two years, it is far from easy to estimate. The Entente powers accuse him of plunging Europe into war to gratify his ambition and give supremacy to Germany, and this sentiment is widely entertained in the United States. The final decision upon this subject must await the calm inquiry and full investigation of the days to come.

William the Lion. See Scotland (History). Count of William the Silent. Nassau and Prince of Orange, eldest son of William count of Nassau, was born in 1533, and was educated in the Roman Catholic faith. He had large estates in the Netherlands, and held high offices under Charles V and his son Philip II; but the reckless persecution of the Protestants roused him against the Spaniards. and when the Duke of Alva with a Spanish force was sent to subdue the Netherlands (1567), he retired to Germany. He now declared himself a nany. He now uccuated himself Protestant, and personally led an army into Brabant against Alva, but failed to bring about an engagement. In 1572

war against Spain. In 1574 the prince's brothers, Louis and Henry, were defeated and killed in a battle at Mookerheide, but this disaster was to some extent compensated by the raising of the siege of Leyden. In 1576 the brutality of the Spanish soldiers was such that William was able to negotiate the pacification of Ghent, a treaty in which the provinces bound themselves to expel the Spaniards from the Netherlands. In the troublous from the Netherlands. In the troublous times which followed the prince acted with great discretion, and it was by his political prudence that the five northern provinces joined in the Union of Utrecht (1579), and thus laid the foundations of the republic of the United Netherlands. To check this growing power Philip set a price of 25,000 gold crowns upon the head of the prince, with the result that his life was attempted in 1582 at Antwerp, and he was ultimately assassinated at Delft in 1584 by a fanatic named Balthasar Gerard.

William and Mary College,

an educational, non-sectarian institution in Williamsburg, Virginia; founded in 1693. Thomas Jefferson and other em-1693. Thomas Jefferson and other einent Virginians were educated here.

Williams, FRANCIS HOWARD, an American dramatic writer, born in Philadelphia, in 1844. Among his plays are: The Princess Elizabeth, A Lyric Drama, A Reformer in Ruffles, At the Rise of the Curtain, etc.: also The Flute Player and Other Poems, The Burden Bearer, An Epic of Lincoln, etc.— His son, Francis Churchill. WILLIAMS, is the author of *The Captain*, a novel, and several other stories and sketches.

Williams, JOHN, missionary, was born near London in 1796, published the account of his h.bors in A Narrative of Missionary Enterprise in the South Sea Islands (1837). Returning to Polynesia in 1838 he was mur-1839.

Williams, John Sharp, senator, born at Memphis, Tennessee, in 1854. He engaged in law practice in 1877, was elected to Congress from on the Hoosac River, 5 miles n. w. of Mississippi in 1893, and was long the Democratic leader in the House. He noted for beautiful scenery, and is a was elected to the Senate in 1908 for summer resort. The town has bleaching the term 1911-17. the term 1911-17.

Williams, SIR MONIER. See Monier.

Williams, Rocker, a Baptist divine of Rhode Island, North America, was born of Welsh or Cornish parents about 1599; died in 1683. He was sent as a scholar to the Charter-house, afterwards he studied either at Oxford or Cambridge. He is said to have taken orders in the English Church, but because of his religious belief he emigrated in 1631 to New England. When his extreme views regarding the jurisdiction of the civil magistrate caused him to be banished from the colony of Massachusetts he rerom the colony of Massachusetts he repaired to Rhode Island and founded a settlement, which he called Providence. Here he proclaimed complete religious tolerance, thus making Rhode Island a haven for those persecuted by the Puritans. He was an earnest friend of the Indians. He was twice in England in connection with a charter for the colony. connection with a charter for the colony, and there made the acquaintance of Miland there made the acquaintance of Milton and other prominent Puritans. He published A Key into the Language of the Indians of America (1643); The Bloudy Tenent of Persecution for the Cause of Conscience (1644); The Bloudy Tenent yet More Bloudy (1652), etc.

Williams, TALCOTT, an American journalist, born of American parents in Turkey, July 20, 1849. From 1881 till 1912 he was on the staff of the Philadelphia Press. He then became head of the school of journalism

came head of the school of journalism founded by the late Joseph Pulitzer as an adjunct of Columbia University.

Williamsport (wil'yumz-port), a city, the county seat of Lycoming Co., Pennsylvania, on the west branch of the Susquehanna River, 94 miles N. by W. of Harrisburg. It is and served as an ironmonger's appren-tice. Having been ordained a minister in 1816, he sailed for the South Seas Masonic temple, cathedral, and other under the auspices of the London Mis-sionary Society; achieved a remarkable success in civilizing the islanders; and after his return to England, in 1834, he after his return to England, in 1834, he heavily timbered and there are rich coal representations. The mountains to the north are mines in the vicinity. There are large lumber mills, steel works, rubber facin the South Sea Islands (1837). Retories, furniture factories, machine shops, turning to Polynesia in 1838 he was murtanneries and a large silk mill. This city dered by the natives of Erromanga in is the seat of Dickinson Seminary. Pop. 31.860.

and finishing works and manufactures of

corduroy and cotton goods. Williams College, founded 1793, is situated here. Pop. 5000.

Williamstown, a seaport in Vicwest shore of Hobson Bay, immediately opposite Sandridge (Port Melbourne), and 9 miles by rail from Melbourne. The piers are commodious, and there are shipbuilding yards, patent slips, the Alfred graving dock, and government workshops. There is a lighthouse on the peninsula on which the town is built, and a lightship further down the bay. Pop. 14 (1922) 14,083.

Willimantic (wil-i-man'tik), a city of Windham Co., Connecticut, is on the Willimantic River, 16 miles N. W. of Norwich. It contains a State normal training school. The river texture, and is little used. State normal training school. The river tagget affords abundant water-power, and the manufactures are extensive, especially of cotton thread, of which it is the greatest producer in the country. There are also large silk, silk-twist, and cotton mills, plumbers' supplies and steam-heating works, etc. Pop. 11,230.

Willis (wil'is), NATHANIEL PARKER, author, born at Portland, Maine, in 1807; died in 1867. He was educated at Boston, Andover and Yale College: employed by S. P. Goodrich

Wilmersdorf, and is little used.

Willow-Wren, Sylvia trockilus, one most repeated to fit the warblers, and a summer visitant in Britain, with a pleasing song. The in Britain, with a pleasing song. The in Britain, with a pleasing song. The determined the warblers, and a summer visitant in Britain, with a pleasing song. The series of the warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The series of the warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The series of the warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The warblers, and a summer visitant in Britain, with a pleasing song. The summer visitant in Britain, with a pleasing song. The warblers, and a su

College; employed by S. P. Goodrich (Peter Parley) to edit The Legendary (1828) and The Token (1829); established the American Monthly Magazine, which was merged in the New York Mirror; traveled in France, Italy, Greece, ated on the Delaware River and Bran-European Turkey, Asia Minor and dywine and Christiana Creeks, 27 miles finally England; returned to America in s.w. of Philadelphia. It is the commer-1837, and afterwards edited The Home cial and manufacturing emporium of the Journal. His numerous published writ- State, and has large and flourishing inings include: Pencilings by the Way dustries, especially in powder-making, (1835), Inklings of Adventure (1836), vulcanized fiber and glazed kid. There Loiterings of Travel (1839), People I are also large shipyards, iron and steel bles and Adventures (1859).

Willow (wil'o), the common name of different species of plants be-

longing to the genus Salia, the type of built in 1698, marks the site of the oldest the natural order Salicacese. The species of willows are numerous, about 160 valley. Pop. 87,411. having been described, 35 belonging to the United States. They are either trees or bushes, and grow naturally in a moist soil. On account of the flexible nature ated on the east bank of Cape Fear River of their shoots, and the toughness of about 25 miles from its mouth, and is their woody fiber, willows have always the largest commercial town in the been used as materials for baskets, hoops, State. Its notable public buildings incrates, etc. The wood is soft, and is used clude a Federal building, city hall, union for wooden shoes, pegs, and the like; station, etc. The river has a depth of it is also much employed in the manu-26 feet at mean low water and extensive facture of charcoal, and the bark of all port facilities including 11 large term-

The Huntingdon or white willow (Saliz alba) and the Bedford willow (S. Rueselliana) are large trees, yielding a light soft timber, valuable for resisting the influence of moisture or damp. The weeping willow (S. Babylonica) is a native of China, and is a fine ornamental tree. The willow has for long been considered as symbolical of mourning.

Willow-herb. See Epilobium.

Willow-moth, a species of mouse-colored moth (Caradrina cubicularis), the hinder wings of which are pure white. The larvæ feed on grains of wheat.

Willow-oak, an American tree of the genus Quercus, the Q. Phellos. The wood is of loose, coarse

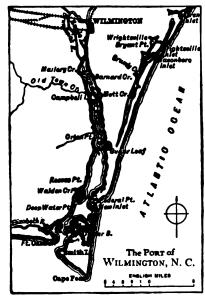
Wilmerding, a borough in Allevania, 13 m. e. s. e. of Pittsburgh. P. 6133.
Wilmersdorf, a town of Prussia, 3 m. s. w. of Berlin. Pop.

(1910) 102,716.

Wilmington (wil'ming-tun), a city and port of entry, capi-tal of Newcastle Co., Delaware, is situ-(1835), Inklings of Adventure (1836), vulcanized fiber and glazed kid. There Loiterings of Travel (1839), People I are also large shipyards, iron and steel Have Met (1850), Famous Persons and works, and manufactures of cars, car-Places (1845), Outdoors at Idlewild wheels, bridges, boilers, paper, leather, (1854), and The Convalencent, His Rameter. Among its institutions are a government of the convalence ment building, court-house, State insane asylum, normal school and other in-dustrial institutions. Old Swedes' Church built in 1698, marks the site of the oldest

facture of charcoal, and the bark of all port facilities including 11 large term-the species contains the tanning principle. inals erected during the past two years.

cotton and lumber. It has extensive at Kingsessing, near Philadelphia. Be-



mills, metal works, machine shops, veneer mills, handles and heading factories, turpentine distilleries, etc. Pop. 25,748. See Vilna. Wilna.

Wilmot Proviso. The war between Mexico and the United States terminated in the acquisition of a vast territory by the latter. Mr. Wilmot, of Pennsylvania, in 1846, offered in Congress what became historic as the 'Wilmot Proviso,' that 'No part of the territory thus acquired should be open to the introduction of slavery.' This proviso brought heated discussion

Rece's Cyclopædia; also worked at his etc.

Wilmington has a large export trade in trade as a weaver and taught a school cotton and lumber. It has extensive at Kingsessing, near ranaucipula. Demanufactures, including large lumber coming interested in ornithology, he resolved to write and illustrate a work on American birds, and for this purpose traveled on foot through Western New York, then a wilderness, observing its birds. He told the story of his accuration in a lively and graphic his excursion in a lively and graphic work called *The Foresters*. The result work called The Foresters. The result of his labor was the American Ornithology (seven vols., 1808-13), a work which was completed by Ord, with a continuation by Lucien Bonaparte. It was the pioneer of the magnificent works of Audubon and Charles Bonaparte. He died in 1813, worn out by his great labor on this work.

Willow Str. Danier Carbonicit.

Wilson, SIR DANIEL, archæologist, born at Edinburgh in 1816; educated at the university there; became secretary to the Royal Society of Actions of history and English literature Antiquaries; was appointed (1853) professor of history and English literature in University College, Toronto, Canada; and in 1880 was elected president. He wrote numerous works, including Prehistoric Man, Caliban, the Missing Link, The Lost Atlantis, Anthropology, Left-Handedness, etc. He died in 1892.

Wilson, Henry, statesman, was born in Farmington, New Hampshire, in 1812. In 1840, as the 'Natick cobbler,' he eddressed political meetings, being elected in that year to the Massa-

being elected in that year to the Massachusetts Legislature. In 1855 he was elected United States Senator. His speeches bear the impress of clear-sighted statesmanship. Mr. Wilson was an arstatesmanship. Mr. Wilson was an ardent antislavery man, and was the author of the bill by which slavery was abolished in the District of Columbia (1862). He was reflected to the Senate in 1865, and was chosen vice-president of the United States in Grant's second term (1862). He died in this office November 22, 1875.

Wilson, Horace Hayman, orientalist, was born at London, in 1786; died in 1860. He was educated for the medical profession, went out to Bengal as assistant-surgeon in the serv-This proviso brought heated discussion of the slave question, and civil war and a dissolution of the Union were threatened in consequence. The proviso failed of passage.

Wilson, a town, capital of Wilson Co., North Carolina, about 44 miles E. by s. of Raleigh. Cotton goods, cottonseed-oil, etc., are manufactured. Pop. 6717.

Wilson (wil'sun), Alexander, an afterwards became elected (1832) Boden professor of Sanskrit at Oxford University; and soon afterwards became librarian at the India American ornithologist, was House and director of the Royal Asiatic born at Paisley. Scotland, in 1766. He Society. His writings included a Sanborn at Paisley, Scotland, in 1766. He Society. His writings included a Sanemigrated to America in 1794; as-skrit-English Dictionary (1819), and nusisted in editing the American edition of merous translations of Sanskrit poems.

Wilson, James, American jurist and signer of the Declaration of Independence, was born in Scotland in 1742; came to America in 1763 and made his home in Philadelphia; delegate to Congress, 1775-77, 1782-83 and 1785-87; was appointed a justice of the Supreme Court in 1789. Died 1798.

Wilson, JAMES, ex-Secretary of Agriculture, was born in Scotland in 1835. He was a member of Congress, 1873-77 and 1883-85. Appointed to the cabinet office by President McKinley, he held that position during the Taft and Roosevelt administrations.

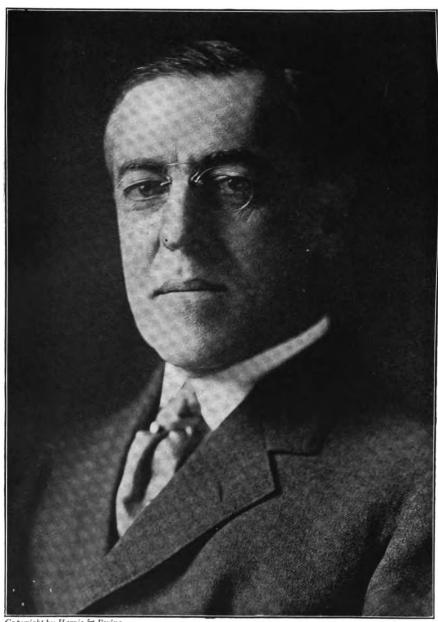
and settled in Edinburgh. He was one of the original contributors to Black-wood's Magazine, established in 1817, and three years afterwards was appointed to the chair of moral philosophy in Edinburgh University, a position which he held until 1851. Besides his numerous magazine articles, the most characteristic of which were some of the Noctes Ambrosianæ and those published subsequently as the Recreations of Christopher North (1842), he wrote other tales.

Wilson, Woodbow, twenty-eighth presi-dent of the United States, edu-McKinley, he held that position during the Taft and Roosevelt administrations.

Wilson, in New York city in 1832, praduated from Princeton in 1879; studserved in the Civil War. Besides numerous addresses, essays, and articles in periodicals, he published: Biographical received law in Atlanta (1882–83); reperiodicals, he published: Biographical of History of the United States: Thackeray in the United States; at Wesleyan, 1888–Witson, the Was the editor of Applebatates, etc. He was the editor of Applebatates, etc. He was the editor of Applebatates, etc. He was the editor of Applebatates, etc. Died May 2, 1914.

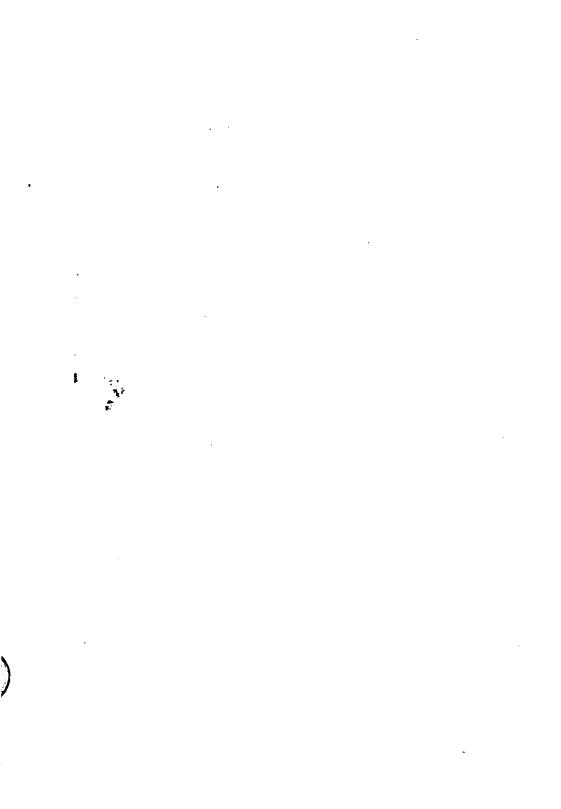
Wilson, James Harrison, American elected governor of New Jersey in 1910. In 1902 he came prominent as a reformer. He was Wilson, soldier and author, born in He was chosen on the strength of his irreproachable character and his scientical thirties. Wilson, soldier and author, born in He was chosen on the strength of his lillinois in 1837. His conduct throughout the Civil War was such as to win for him the title of brevet major-general ment, and during his first year in office a of volunteers for gallant and meritorious ment, and during his first year in office a number of important reform measures inservice during the war. In 1865 he commanded a cavalry expedition into Georgia and Alabama during which he captu. A successful record as governor brought him and Alabama during which he captu. A successful record as governor brought him army at the close of the war with the term of office was marked by international questions rarely equalled in importance in 1870. Served in the Spantance, including the revolutionary outland the China expedition of breaks in Mexico and the great European 1800; represented the United States war, both of these involving the lives and Army at the Coronation of King Edward interests of American citizens. President VII; in 1901 was placed on the retired Wilson handled these momentous questilet as a brigadier-general United States the Mexico and the great European 1800; represented the United States of American citizens. President Wilson, A Life of General Middle Kingdom, A Life of General Grant, etc.

Wilson, John, better known in literative as 'Christopher North,' was born in Paisley, Scotland, in 1785; he was a second term on March 4, 1917. Although a lover of peace and the gow University and Magdalen College, affray to defend the honor of the country Oxford, where he gained the Newdigate prize for an English poem, as also a on the high seas who were being murdered great reputation for athletics. Leaving by Germany's undersea navy. Too, there Oxford he bought the estate of Elleray, may the holy cause of invaded Belgium. President Wilson's notes to Germany acquaintance with Wordsworth. Southey, and his messages to Congress were acand Coleridge; contributed to Coleridee's claimed among all the Allied peoples, who Friend, and publi



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WOODROW WILSON



lations with Germany and suggested similar action on the part of other nations. The machinations of the agents of Germany in America, as well as other parts of the world, were rapidly bringing that late flourishing empire to scorn and con-

President Wilson had settled the diffidebate on the question was protracted by a few pacifists whom the President styled 'a group of wilful men.' The second session of the 64th Congress ended without passing the bill. President Wilson took matters into his own hands, declared he had full power and went ahead with his nad full power and went anead with his program of arming merchant ships. To guard against filibustering in future the Senate, in special session on March 8, passed the famous Cloture rule. See Cloture. The great railroad dispute, which threatened a nation-wide strike in March, was settled by President Wilson, who insited that the derends of the way. who insisted that the demands of the men for a basic eight-hour day must go into effect. Later he took over control of the railroads.

On the assembling of the 65th Congress, summoned by the President in extra ses-sion, he called for a declaration of war on Germany and provision for full co-opera-tion with the Allies. The Senate passed the war resolution by a vote of 82 to 6; the House by a vote of 373 to 50. The great peace President became a great war He ordered the immediate expansion of the army and navy to full war strength and advocated an Army Draft Bill, which was passed by Congress in May. (See Conscription.) Although determined to bring all the resources of the country to bear on the struggle, if need be, he kept in view the possibility of peace and refrained from war with Austra-Hungary in the hope that through the transfer the result of that country he might reach the people of Germany and persuade them to overthrow the war lords. But the dual monarchy was plainly under the thumb of the Prussian militarists and on December 3, 1917, President Wilson asked Congress for a declaration of war on Austria-Hungary. As indicating the unanimity of the nation, the House of Representatives passed the war resolution with but one dissenting vote, registered by London, a New York Socialist. The Senate adopted the resolution unanimously.

February, 1917, he severed diplomatic re- deavored to help in the upbuilding of the new republic, first sending a special diplomatic mission headed by Elihu Root, and later, when the Bolsheviki had taken control, assuring the Soviet of American sympathy in the crucial days of March, 1918.

In one of his speeches he declared, 'The peace we make must deliver Belgium and Northern France from the Prussian conquest and the Prussian menresident whison had settled the dim-cult Mexican situation, and the with-drawal of American troops from that country was completed by February 5. of Austria-Hungary, the peoples of the The torpedoing of American ships con-finuing, he asked Congress to authorize in Europe and in Asia from the impudent him to arm merchant ships. The Senate and alien domination of the Prussian mil-debate on the question was protrested by iters and commercial authorized. In his and anien domination of the Prussian military and commercial autocracy.' In his speech of February 11, 1918, President Wilson presented four principles which he said must be accepted by the military and annexationist party of Germany as they had been accepted by all other peoples. 'The tragic circumstance,' he said, is that this one party in Germany is is that this one party in Germany is apparently willing and able to send millions of men to their death to prevent what all the world now sees to be just. These are the four principles:

First—That each part of the final set-tlement must be based upon the essential justice of that particular case and upon

such adjustments as are most likely to bring a peace that will be permanent. Second—That peoples and provinces are not to be bartered about from sovereignty to sovereignty as if they were mere chattels and pawns in a game, even the great game, now forever discredited, of the balance of power; but that,

Third—Every territorial settlement involved in this war must be made in the interest and for the benefit of the populations concerned, and not as a part of

any mere adjustment or compromise of claims among rival states; and, Fourth—That all well-defined national aspirations shall be accorded the utmost satisfaction that can be accorded them without introducing new or perpetuating old elements of discord and antagonism that would be likely in time to break the peace of Europe, and consequently of the world.

or WILTSHIRE, a southwestern Wilts, W11ts, or WILTSHIRE, a southwestern county of England, bounded by the counties of Gloucester, Somerset, Dorset, Hants, and Berks; area 1350 sq. miles. The north is flat and fertile, the south is Salisbury Plain, an elevated tableland, chiefly uncultivated. The strata of the county are principally cretaceous, belonging to the great central chalk district of England. chalk district of England; and the chief rivers are the Kennet and the Upper and Lower Avon. The larger proportion Through the Russian debacle he en- of the surface is in pasture, devoted

chiefly in the south division to the rearing of sheep, and in the north to cattle-grazing and the dairy, Wiltshire bacon and cheese being famous. The manufactures comprise woolen goods, for which the principal localities are Wilton, Brad-

There are remains of an ancient British earthwork. Pop. 54,876.

Wimborne Minster (wim'burn), Dorsetshire, England, on the river Allen, near its confluence with the Stour. The principal building is the minster, a fine cruciform structure in various styles. Pop. 3711.

Wincey (win'si), a strong and dura-able cloth, plain or twilled, composed of a cotton warp and a woolen weft.

Winch, a kind of hoisting machine or windlass, in which an axis is turned by means of a crank-handle, and a rope or chain is thus wound round it so as to raise a weight.

Winchell (winch'el), ALEXANDER, geologist, born at North East, New York, in 1824; died in 1891. He held professorships in the University of Michigan and elsewhere and for a number of years served as State geologist of Michigan. He wrote Sketches of Creation, Geology of the Stars, Preadamites, World-Life, and various other works.

Winchendon a town (township) in Worcester Co., Massachusetts. It contains several villages, with manufactures of cottons, toys, woodenware, hardware, leather, etc. Pop. of town, 5678.

Winchester (win'ches-ter), an ancient city of England, in Hampshire, on the Itchen, 12 miles N. E. of Southampton. The most important edifice is the cathedral, which was built in the latter half of the eleventh century, but has since been much added to and altered. It is in the form of a cross; length from east to west, 545 feet, width of the transepts 208 feet. Besides being in itself of great architectural importance, it contains numerous thus that the sea-breeze is produced every monuments of historical interest; as the afternoon at places near the coast,

tombs of William Rufus, of Edmund, son of King Alfred, and of Izaak Walton; the golden shrine of St. Swithin; bronze figures of James I and Charles I, etc. The other important buildings and institutions are St. Mary's College, founded in 1387, the town hall, the old castle, a corn exchange. In the fourteenth century Winchester was the principal seat of the woolen manufactures in England the principal localities are Wilton, Bradford, Trowbridge, Westbury, etc., excellent cutlery and steel goods at Salisbury, ropes and sacking at Marlborough, ironfounding at Devizes, and there is a colfege of agriculture at Downton. Capital, Salisbury. Pop. (1911) 288,876.

Wimbledon (wimbledon), a town of England, county of Surrey, 7 miles southwest of London, at the northeast extremity of Wimbledon of Kentucky. 18 miles E. of Lexington. It is the seat the northeast extremity of Wimbledon of Kentucky Wesleyan College. The Common. Up to 1889 it was well known in connection with the shooting competitude of the college. The industries are stock-raising, farming planing and flour mills, etc. Pop. 9743.

Winchester. a city, county seat of industries are stock-raising, farming planing and flour mills, etc. Pop. 9743.

Winchester. a city, county seat of Erederick Co., Va., 32

planing and flour mills, etc. Pop. 5743. Winchester, a city, county seat of Frederick Co., Va., 32 miles s. w. of Harper's Ferry. It lies in the Valley of Virginia and has several educational institutions, also extensive manufactures of gloves, leather, woolen goods, paper, lumber, flour, etc. National and Confederate cemeteries are located here. During the Civil war in its vicinity were fought several battles, it being repeatedly occupied by both contestants. peatedly occupied by both contestants. Pop. 5864.

Winchester, a village and township of Middlesex Co., Massachusetts, 8 miles N. N. w. of Boston. It has a State aviary, a home for aged people, etc., and manufactures of leather. machinery and watch hands. George Bancroft and Theodore Parker were born

bere. Pop. of town, 9309.

Winckelmann (vink'el-man), JoHANN JOACHIM, critic and historian of ancient classical art, was born at Stendal, Prussia, in 1717. He was educated at Berlin and Halle; became a Roman Catholic, received a pension from the papal nuncio at Dresden (1755), and visited Rome, where he was appointed librarian to Cardinal Alban. In 1768 he was murdered and robbed in an inn at Trieste. His chief work is Anmerkungen über die Baukunst der Alten (1762).

Wind, a current in the atmosphere, as coming from a particular point. The principal cause of currents of air is the disturbance of the equilibrium of the atmosphere by the unequal distribution of heat. When one part of the earth's surface is more heated than another, the heat is communicated to the air above that part, in consequence of which the air expands, becomes lighter, and rises up, while colder air rushes in to supply its place and thus produces wind. It is place and thus produces wind. its place, and thus produces wind. It is

especially in intertropical countries, the ground having been heated by the sun's rays to a higher temperature than the sea; while about twelve hours later, the reverse effect—a land-breeze—occurs, the ground having fallen at night to a lower temperature than the sea. As the heat of the sun is greatest in the equatorial regions, the general tendency there is for the heavier columns of air to displace the lighter, and for the air at the earth's surface to move from the poles toward the equator. The only supply for the air thus constantly abstracted from the higher latitudes must be produced by a counter-current in the upper duced by a counter-current in the upper regions of the atmosphere, carrying back the air from the equator towards the poles. These are known respectively as the *Trade* and the *Anti-Trade* winds. Besides the unequal distribution of heat already mentioned, there are various other which give rise to currents of air in the atmosphere, such as the condensation of the aqueous vapors which are constantly rising from the surfaces of rivers and seas, and the agency of electricity. Winds have been divided into fixed or constant, as the trade-winds; periodical, as the monsoons; and variable (See Trade-winds, Monsoon.) There are also local winds, which receive particular names; as, the etesian wind, the sirocco, the simoom, the harmattan, the mistral, typhon, etc. The velocity and force of the wind vary considerably, as shown by the anemometer. Thus a light wind traveling at the rate of 5 miles an hour exercises a pressure of 2 oz. on the square foot; a light breeze oz. on the square foot; a light breeze
of 10 miles an hour has a pressure of
8 oz.; a good steady breeze of 20 miles,
2 lbs.; a storm of 60 miles, 18 lbs.; a
violent hurricane of 100 miles, 50 lbs.,
a pressure which sweeps everything before it. Whirling winds, known in the United States as tornadoes, are at times of enormous violence, the air movement being at the speed of many hundreds of

miles an hour. See Cyclone.

Windber, a borough of Somerset Co., Pennsylvania, 21 miles

N. E. of Somerset. It has coal-mining
and other industries. Pop. 8013.

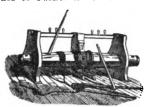
Windermere (win'der-mer), or Win-ANDERMERE, the largest sheet of water in England, and renowned sneet of water in England, and renowned on account of the beauty of its scenery, is partly in Westmoreland and partly in Lancashire. It is about 11 miles long, and averages 1 mile in breadth; its principal feeders are the Brathay and the Rothay, and it has numerous islets.

lock joints of animals, especially the horse, a result of over-work on hard roads. They are not accompanied with pain or lameness and cause no serious trouble. A long rest may cure them in young horses.

Windham (wind'am), WILLIAM, an English statesman, born in London in 1750; died in 1810. After being educated at Eton, Glasgow, and Oxford, he was returned to parliament (1784) as member for Norwich. Opposed at first to Pitt's administration he joined in Burke's condemnation of the French Revolution, and advocated the war against France; became secretary of war in 1794, and remained in this position until the retirement of Pitt in 1801; took office again in the Grenville 1801; took office again in the Grenville administration (1806), and brought forward a bill to limit the term of service in the army, as also to increase the pay and pensions of officers and men; retired from office (1807), and strenuously opposed the Copenhagen and Walcheren expeditions. He was the friend of Dr. Johnson and Cobbett, and combined the varied qualities of scholar, orator, statesman, athlete, and sportsman.

Wind-instrument, an instrument of music, played by means of artificially-produced currents of wind, as the organ, harmonium, etc., or by the human breath, as the flute, horn, etc. See Instrument and Instrumental Music.

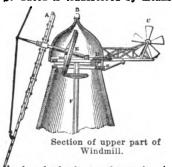
Windlass (wind'las), a modification of the wheel and axle used for raising weights. The simple form of the windlass used in ships, for raising the anchors, consists of a strong beam of wood placed horizontally, and supported at its ends by iron spindles, which turn ir collars or bushes inserted in what are



Ship's Windlass.

termed the windlass bitts. This large axle is pierced with holes directed to-ward its center, in which long levers or handspikes are inserted for turning it round when the anchor is to be weighed Windgalls (windgalz), are puffy or any purchase is required. It is fur-swellings about the fet-nished with pauls to prevent it from turning backwards when the pressure on the handspikes is intermitted.

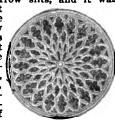
Windmill, a mill which receives its motion from the impact of wind upon sails, and which is used for grinding corn, pumping water, etc. In structure the windmill is a conical the windmill is a conical to the windmill windmill is a conical to the wi shaft it is described as either vertical or Aorisontal. In the former, a section of which is here given, the wind is made to act upon sails or vanes AA attached by means of rectangular frames to the axle or windshaft of the mill. This axle is placed nearly horizontal, so that the sails by the pressure of the wind revolve in a nearly vertical plane, thus giving a rotary motion to the driving wheel E fixed in the wind-shaft. rotary motion to the driving wheel E fixed in the wind-shaft. The movement thus produced is transferred by means of



bevel-wheels to the main shaft F, which is connected with the specific machinery of the mill. As the sails to be effective must always face the wind, this is accomplished in modern mills by a self-adjusting cap B, moved by a fan er flyer c attached to the projecting frame-work at the back of the cap. By means of a pinion on its axis, motion is given to the inclined shaft and to the wheel p on the vertical spindle of the pinion a; this latter pinion engages the cogs on the outside of the fixed rim of the cap, and by these means the sails are kept constantly to the wind, when the wind causes the fan C to revolve. In the horizontal windmill, which is considered inferior to the other, the wind-shaft is vertical, so that the sails revolve on a horizontal plane. In most of the wind-mills used in America the sails consist of narrow boards arranged in a circular framework at a constant angle to catch the wind. Windmills, while widely re-placed by the steam engine, are still largely used in the United States and Holland.

Windom, William, statesman, born in Belmont Co., Ohio, in 1827; died in 1891. He was elected to Congress from Minnesota in 1858 and to the senate in 1870; was Secretary of the Navy under Garfield, in 1881, and Secretary of the Treasury under Har-rison, in 1889.

used to any great extent in private houses in England. Windows, properly so called, were almost unknown in the religious edifices of the Greeks, and Romans, the light



Egyptians, West Window, Evreux Cathedral.

being admitted at the roof, but they constitute an essential and distinguishing feature of the Gothic style. In modern houses windows are made capable of because of the constitution of t nouses windows are made capable of being opened and shut by means of casements or sashes. In Britain a window tax was imposed in 1695, and in 1851, when the tax was abolished, each house having more than seven windows was taxed. No such tax was ever imposed in the United States.

Windpipe. See Trachea.

Windpipe.

Windsor (win'zur), or New Windsor sor, a municipal and parliamentary borough in England, county of Berks, beautifully situated on the Thames, 22 miles w. from London, and connected by a bridge with Eton. There are several churches and chapels, barracks, an infirmary, etc. The only manufacture of importance is that of tapestry. Pop. 19,840. Windsor owes its chief importance to its castle, which stands east of the town on a height overstands east of the town on a height overlooking the river Thames, and is the principal royal residence in the kingdom. It was begun, or at least enlarged, by Henry I, and has been altered and added to by almost every sovereign since. The castle stands in the Home Park or Little Park, which is 4 miles in circumference, and this again is connected with the Great Park, which is 18 miles in circuit, and contains an avenue of trees 3 miles in length. The chief features of interest in the castle are the

state apartments; St. Chapel, where the Knights of the Garter changed a fruity wine is the result. If are installed, and the vaults of which the process, however, is completed, and contain the remains of Henry VI, Edward all the sugar converted into alcohol, a IV, Henry VIII, Charles I, George III, dry wine is obtained. When an efferves-Chapel, where the kinghts of the Garter changed a fruity while is the result. It are installed, and the vaults of which the process, however, is completed, and contain the remains of Henry VI, Edward all the sugar converted into alcohol, a IV, Henry VIII, Charles I, George III, dry wine is obtained. When an efferves-George IV, and William IV; the Round cing wine, like champagne, is desired Tower or ancient keep; and the present the fermenting liquid is bottled, and the

and has salt, chemical, and other important industries. Pop. 20,000.

Windward Islands (wind/ward), one of the di-

visions of the Lesser Antilles in the West Indies, so called in opposition to another division of the same, called the Leeward Islands. The term is vaguely used, but generally includes Martinique, St. Lucia, St. Vincent, Grenada, Barbados, and Tobago.

Wine (win), the term specifically applied to the fermented juice of the grape or fruit of the vine, though it may also be applied to the fermented juice of any fruit. (See Vine.) Wines are distinguished. distinguished practically by their color, hardness or softness on the palate, their flavor, and their being still or effervescing. The differences in the quality of wines depend partly upon differences in the vines, but more on the differences of the soils in which they are planted, in the exposure of the vineyards, in the treatment of the grapes, and the mode of manufacturing the wines. When the grapes are fully ripe, they generally yield the most perfect wine as to strength and flavor. The juice is expressed from the grapes by means of presses of all varieties of construction, from the simple lever and wedge press to the machine with hydraulic power. It is usual to separate the juice as it is expressed into first, second, and third 'runs,' the first pressing being the best quality, and the amount of all the juice is usually about 70 per cent. of the weight of the grapes. pend partly upon differences in the vines, 70 per cent. of the weight of the grapes. The juice of the grape when newly expressed, and before it has begun to fer-The juice of the grape when newly expressed, and before it has begun to ferment, is of a sweet taste, and is called which was adopted as the heraldic demust. The fermenting process requires which was adopted as the heraldic demust time and attention, and if it has bread here of the Ventian Republic. A celement of the ventian Republic of the ventian Republic of the ventian Republic.

George's arrested while part of the sugar is unwindsor, a town and port of entry, capital of Hants Co., Nova quality. When the wine is red in color Scotia, on an arm of Minas Bay, 45 miles N. W. of Halifax. It is the seat remained in the value of King's College, founded in 1788. There are here extensive mines of limestone, gypsum and other useful minerals. while in white wines the skins have been removed before that process is begun. Stone, gypsum and other useful minerals. Windsor was settled about 1745 and incorporated in 1878. Pop. 3398.

Windsor, a city in Ontario, Canada, powers principally depend. The amount of alcohol in the stronger ports and sher-grand Trunk, Canadian Pacific, and other railways. It is in a fruit region, and has salt, chemical, and other important industries. Pop. 3398. 12 per cent. Wine containing more than 13 per cent. of alcohol may be assumed to be fortified with brandy or other spirit. The most celebrated ancient wines were those of Lesbos and Chios among the Greeks, and the Falernian and Cecuban among the Romans. The principal modern wines are Port, Sherry, Claret, Champagne, Madeira, Hock, Marsala, etc. The varieties of wine produced are almost endless and differ in every conaimost endiess and differ in every constituent according to the locality, season, and age. The principal wine-producing countries are France, Germany, Spain, Portugal, Italy, Sicily, Greece, Cape Colony, Australia, and the United States. Much the greater quantity of wine consumed in the United States is the product of that country chiefly of California. of that country, chiefly of California.

Wine-measure, an old English measure by which wines and other spirits were sold. In this measure the gallon contained 231

physical powers.

must. The fermenting process requires vice of the Venetian Republic. A celemuch time and attention, and if it be brated bronze figure of the winged lion.

Winnipeg, capital of the province of Manitoba, Canada, stands at the confluence of the Assiniboine and Winnipes, Capital of the province of after traversed the city and several at the confluence of the Assiniboine and the Red rivers, 40 miles S. of Lake Winnipeg. It occupies a central position on the Canadian Pacific Railway, 1424 miles by rail w. N. w. of Montreal, and 512 is largely owing its rapid development. Miles N. N. w. of Montreal, and 512 is largely owing its rapid development. Ocality of the city is that of the old Red and in 1901 of 42,340, but since the River colony of Lord Selkirk, founded in 1812. In fact, five fur traders' forts have stood within the city limits: Fort Rouge, a French outpost (1736); Fort Gibraltar, built by Montreal traders (1804-15); city is handsomely laid out, with numer-hold (1813-16); Old Fort Garry, of the Hudson Bay Company (1821-35), and Fort Garry (1835-82). The transhouse, the founding of the Manitoba province, and at that date Winnipeg began as a village, half a mile north of Fort Garry. It owes its sudden expansion on the Canadian Pacific, while Company's stores stands preëmient. The site of the city is on a prairie, postition on the Canadian Pacific, while Company's stores stands preëmient. The site of the city is on a prairie, part of it being originally swampy, though tit is now well drained. It extends on both sides of the Assiniboine, and on the west side of which is occupied by its modelies of the Assiniboine, and on the west side of the Red River, the seast side of which is occupied by its grain-shipping points in the United States and by several other railways which radiate from this development. The site of the city is on a prairie, part of it being originally swampy, though tit is now well drained. It extends on both sides of the Assiniboine, and on the west side of which is occupied by its grain-shipping points in the United States and by seven remarkably rapid. In 1871, the population of the village was only 241, the populatio

of St. Mark surmounting a magnificent canadian Pacific now gave it a great red granite column, formed out of a boom, wild land speculation setting in, single block, stands in the piaxsetta of St. Mark at Venice.

Wing-shell. See Pinns.

Winnipeg (win'i-peg), a lake of loss and rapidly diminished the population doubling in a few months. This boom', however, checked the development of the city, a business collapse following, which caused much loss and rapidly diminished the population. Winnipes (win'i-peg), a lake of loss and rapidly diminished the population. But prosperity soon returned and toba; length, about 250 miles; breadth, from 5 to 70 miles. It receives the surplus waters of lakes Winnipegos and manitoba, besides the river Winnipeg, to the Rocky Mountains, and lying west-but its chief tributaries are the Saskatch-ward and the Red River. Its surplus water is discharged by the Nelson River into Hudson Bay. The river of the same the name, which flows into Lake Winnipeg, rises in the Lake of the Woods, and has a length of about 250 miles. Its navigation is interrupted by falls.

Winnipag capital of the province of after traversed the city and several ward of the Canadian Pacific main line soon Winnipag capital of the province of after traversed the city and several railway system of the United States.
The Canadian Pacific main line soon after traversed the city and several branches radiated from this center. These advantages and its location on navi-

winslow (winz'lō), Edward, governor of Plymouth colony, Massachusetts, was born in 1595 at 10 long Lake, 28 miles N. W. of Hertford. Ony, Massachusetts, was born in 1595 at 11 has a county hospital, children's home, Droitwich, England, sailed in the Mayflower, was governor or assistant governor after 1624, and returned on three occasions to England to further the interests of the colony. In doing this he published graduated at Haverford College in 1881; Good News From New England (1624), entered the publishing business in Phila-Hyprocrisie Unmasked (1646), and New delphia, and in 1884 organized and be-England's Salamander (1647), all these came president of The John C. Winston being valuable descriptions of the young Company. He was appointed by Cromwell in reform politics in Philadelphia. chief commissioner of an expedition against the West Indies and died at sea in 1655.—Josiah, his son, born in 1629; County, North Carolina. Winston and died in 1680; was assistant governor from Salem were formerly separate, but were died in 1630; was assistant governor from 1657 to 1673, and afterwards governor until his death. He was appointed gen-eral-in-chief of the United Colonies in 1675, and in the same year the first public school was founded under his auspices. —John, Josiah's grandson, born in 1702; died in 1774; carried out, under orders from the British authorities, the removal

to watch the Confederate cruisers. Here on June 19, 1864, he met the privateer Alabama, and sunk it after a short fight, its crew being rescued. He was appointed commodore in 1865 and rearadmiral in 1870.

Winsor, Justin, historian, born at Winter (win'ter), the coldest season of the year, in the northern hemisphere comprising the months of becember, January and February. The astronomical winter begins on the shortest day (December 22) and ends with the vernal equinox (March 21).

Winter, good March 221.

Winter, good March 221.

Winsor, Boston, Massachusetts, in Winter, John Strango. See Stan1831; died in 1897. He was superintendent of the Boston Public Library,
and librarian of Harvard University.

Winter, Milliam, author and dramortal History on the
early history of North America. His studied law, but soon forsook it for a
works are Memorial History of Roston, career in literature, which he had begun works are Memorial History of Boston, career in literature, which he had begun and The Narrative and Critical History in early life. In 1854 appeared his first of America.

for skirtings, light winseys for men's Winsted (win'sted), a borough and shirts.

Salem were formerly separate, but were consolidated into one city in 1913. Salem was established in 1766; Winston in 1849. The city is located within fifty miles of the main range of the Blue Ridge Mountains and is an important railroad and industrial center, with varied manufactures. It is the principal trading center of a wide area. Pop. 30,000.

of the Acadians.

Winslow, Forbes Benignus. physician, born at London in 1810; died in 1874. He was educated from a Dutch family settled in New in Scotland and Manchester; studied work, studied Mezzotint engraving, but medicine at New York and London Universities passed the College of Surgeons ing. He became notable for his beautiful in 1835; and in 1849 was graduated water-color illustrations of English land-M.D. from Aberdeen. He devoted him-scape, architecture and country life His M.D. from Aberdeen. He devoted him- scape, architecture and country life. His M.D. from Aberdeen. He devoted himself chiefly to the investigation of mental disease, and published Anatomy of Swioide (1840), Insanity in Criminal painted scenes on the Thames and the Cases (1843). Obscure Diseases of the Brain (1860), etc.

Winslow, John, naval officer, born color Society. He is well represented both in the National Gallery and at Olina, in 1811; died in 1873. He entered the navy about 1827, and in 1862 brated pictures are The Cricketers, Linserved under Captain Foote on the Mississippi River. In 1863 was put in command of the Kearsage, a 7-gun steamer, and sent to the coast of Europe to watch the Confederate cruisers. Here

Winter (win'ter), the coldest season

Winter, John Strango.

dramatic criticism, a field in which he

has since continued, gaining high reputation as a critic. He has written much under his own and other names, largely in poetry and on stage subjects, and has edited many of Shakespeare's and other plays, also the Poems of George Arnold, the Poems and Stories of John Brougham, etc. He died June 30, 1917.

Winter-cress, the common name of two cruciferous plants of the genus Barbarea. Barbarea vul-garis, called also yellow rocket, grows on the banks of ditches and rivers, and about hedges and walls. It is bitter and sharp to the taste, and is sometimes used as a salad.

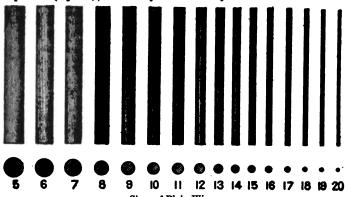
Wintergreen, a name of several plants, one of them being the partridge-berry (which see). The name is also given to a genus of perennial plants (*Pyrōla*), order Pyro-

northeast of Zürich. The principal industries are cotton spinning, silk weaving, iron foundries, machine making, etc. Pop. 22,335.

Winthrop, a town (township) of Suffolk Co., Massachusetts, 5 miles N. E. of Boston. It forms a peninsula in Massachusetts Bay, and is a favorite summer resort. Pop. 10,132.

Winton, a borough of Lackawanna Co., Pennsylvania, 18 miles N. E. of Scranton. It is in a coal minimum. N. E. of Scranton. It is in a coal-mining district. Pop. 5280.

Wire, any metallic substance drawn to an even thread or slender rod of uniform diameter by being passed between grooved rollers or drawn through holes in a plate of steel, etc. Wire is usually cylindrical, but it is also made of various other forms. The metals most commonly drawn into wire are gold,



Sizes of Plain Wire.

or pink flowers. P. rotundifolia pos-

Winter-moth, a is brumata), the

aromatic taste, and tonic properties. See Solstice. Winter Solstice.

Winterthur (vin'ter-tör), a busy in some instances.

Winterthur (vin'ter-tör), a busy in some instances.

Wire-glass, window glass in which a screen of woven wire

lacese, having short stems, broad ever-silver, copper, aluminum, iron and steel; green leaves, and usually racemose white but the finest wire is made from platinum. Copper and iron wire is extensively used besses astringent properties and was forfor telegraph and telephone. For fences
merly used in medicine.

Winter-moth a moth (Cheimonoare produced. During the European war barbed wire was extensively employed as larvæ of which are exceedingly injurious a protection against infantry attack by to apple, pear, cherry, and plum trees. The moths appear in their perfect state in the beginning of winter.

Winter's-bark (Drimys Winteri), a plant of the nat. order Magnoliaceæ, a native of South America. It is an evergreen shrub, the bark of which has an agreeable, pungent, aromatic taste, and tonic properties. for hoisting machines, telegraph cables, ship's hawsers, etc. Endless wire ropes or cables are employed on traction railways

is imbedded. The molten glass is poured dicated and they are taken up in suffion an iron platform and the netted wire, cient strength to repeat their pulsations heated red hot, is pressed into it. The and in this way reproduce the signals result is an unbreakable sheet of glass.

Wireless Telegraphy, the send-ulty hitherto has been that a message seraphic messages through open space, instruments in all directions, thus pre-without the use of conducting wires, venting secrecy. Many efforts have been Three different methods have been made to overcome this defect, but as yet use of in wireless telegraphy, which may with only partial success. The distance be classed as conduction, induction and to which messages can be sent has so far wave methods. In the first method currents are sent through the earth from the wires extend above the earth's suran electrode to another at the sending face, lofty poles being erected at the station. In induction, use is made of stations. The height of these has been the property which alternating currents gradually increased until the Eiffel Tower possess of exciting similar currents in at Paris has been utilized as a sending station. In induction, use is made of stations. The height of these has been the property which alternating currents gradually increased until the Eiffel Tower possess of exciting similar currents in at Paris has been untilized as a sending neighboring conductors, the aim being to get as intense a current as possible in waves has been similarly increased to the secondary circuit. Mr. W. H. Preece, add to their space-pentrating capacity. England, by combining the two, signaled in this way as far as 40 miles. The third and the only method which has proved practically available is by the use of electro-magnetic waves. Guglielmo of tuning the instruments have been Marconi, an Italian, after long experisional and the interpretation of the ment, patented in 1897 a method entirely independent of wires, the electric waves being sent, presumably, through attained. Though the honor of inventing the ether, by the aid of a transmitting the art of wireless telegraphy is generapparatus, and being detected by a ally ascribed to Marconi, this is to give coherer, a glass tube filled with metallic fillings into the end of which the terminals of a relay circuit enter. The others and the utmost done by him was wave falls on conducting material and, to invent a practical method of applythe spark gap being replaced by a ing them. There are other systems of coherer, the metallic fillings magnetic vireless telegraphy of later inventionally cling together, closing the relay time the Marconi, through a different circuit, so that a signal is made. On application of the same principles, but breaking the current, a slight tap on the others and including and the relay time the Marconi process. Messages have been hesion of tipe flow the South Foreland in the Marconi conducted in England an a distance of 5600 miles. Under exceptants, sending messages across the England an adistance of 5600 miles. Under exceptants, sending messages across the England and exceptants and the United to the French coast near Boulogne, and States was established in world's astonishment, signals were sent wireless apparatus, by means of which across the Atlantic and, finally, commer-almost constant communication can be cial messages were transmitted over this kept up between passing vessels and distance.

The efficiency Marconi's system is based on the propof the wireless process as a very useful
erty supposed to be exerted by the vibrations or waves of electric currents quently demonstrated by indicating the
passing through a wire of setting up locality of sinking ships and calling
similar vibrations in the ether of space.

These waves extend in every direction brought in this way to vessels in distress
from the point of departure and by inand many lives saved. An important even from the point of departure and by in- and many lives saved. An important exgenious and very delicate receiving in- ample is that of the sinking of the struments, their presence in space is in- Titanic in 1912. By means of wireless

messages from ship to ship the width by the Anti-Masonic party and received of the Pacific has been practically cov- the electorial vote of Vermont. He died ered, as ships enroute from America to February 28, 1834. Australia or Asia can be kept in touch with Honolulu through almost the entire journey. Law in the United States now requires that all ocean passages teamers carrying 50 or more passengers on fely, 40 miles n. of Cambridges, Vessels carrying 50 or more passengers on of nearly 500 tons can ascend to Nene, routes of 200 miles or over, must be and the place has some trade and manuequipped with efficient wireless apparatus factures. It was long famous for its and operators. The distance reached woad and this is still made here for dyemust be at least 100 miles. The Canadian law provides that every sea-going and continuous factures. dian law provides that every sea-going and coasting passenger ship of over 400 tons gross, registered in Canada, and every sea-going and coasting freight ship of over 1200 tons gross, shall be equipped with a wireless apparatus. Wireless messages have been successfully sent from holm. It was one of the most important aeroplanes, balloons and submarine vescommercial cities in Europe during the seroplanes, palloons and submarine vessual critics in Europe during the sels, and the naval vessels of all nations tenth and eleventh centuries and a prinare kept in easy communication by this cipal factor of the Hanseatic League in method. Wireless press messages bethe fourteenth and fifteenth. It was tween America and Europe are also matcaptured and plundered by Valdimar III ters of daily performances. Great Britain of Denmark, in 1361, and this proved proposes to send wireless messages a ound the world by a system of relays.

Wireless Telephony. The system of electrons are the system of the

vention of suitable apparatus, and it is Prairie-du-Chien possible to telephone many miles with 600 miles. It out wires. Distances reached in this rapids and falls.

liam the Conqueror in 1071, was several times rebuilt, but was demolished in 1816. Pop. (1911) 10.828.

fatal to its prosperity. Its remains attest its early grandeur. Pop. 6666.

Wisconsin (wis-kon'sin), a river which rises on the northtrical transmission employed in wireless ern border of Wisconsin, runs southward, telegraphy has recently been applied successfully in telephony, through the invention of suitable apparatus, and it is Prairie-du-Chien after a course of nearly possible to telephone many miles with-

out wires. Distances reached in this manner have rapidly and remarkably increased, and in September, 1915, a message sent from Arlington, Va., to Calimornia was distinctly heard in Hawaii.

Wire-worms, the name given the grubs of the click beetle (Elater or Agriotes). They are perhaps the most injurious of farm pests, destroying root, grain and fodder crops. Their name is given from their likeness in shape and toughness to a piece of wire. They are of yellowish color, ¼ to ¼ inch fied with prairie and woodland. Besides in length, with three pairs of legs and a suctorial appendage below the tail. Among the natural enemies of these worms, moles, plovers, pheasants and rooks are the most important.

Wirt, WILLIAM, lawyer, born at Blaver of the search of the search of the whole the climate is dry and healthy. The northern part of the State is heavily was admitted to the bar in 1792, and in the search of the search of the search of the whole the climate is dry and healthy. Wirt, William, lawyer, born at Blathe whole the climate is dry and healthy. Welliam, lawyer, born at Blathe whole the climate is dry and healthy. The northern part of the State is heavily was admitted to the bar in 1792, and in 1806 settled in Richmond, Va., where the became a prominent lawyer. He distinguished himself at the trial of Aaron country being good and producing large Burr, in 1807, as one of the counsel for country being good and producing large Burr, in 1807, as one of the counsel for country being good and producing large Burr, in 1807, as one of the counsel for crop, such as wheat, corn, rye, oats, the prosecution. He held many State barley, potatoes, hay and beet sugar. Fruit growing is an important industry, and cheese and butter making have very General in 1817, holding the latter office greatly increased. So has tobacco-growtill 1829, through three administrations. He was nominated for President in 1832 50015

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In the north the lumber business is large. Horses are kept in large numbers and sheep are numerous, the wool clip being valuable. The mineral wealth is great, especially of iron ore, of which the yield is enormous. An excellent hydraulic cement comes from the vicinity of Milwaukee. Galena, limestone, lead and zinc are mined. The lakes and streams abound with fish, especially trout and black bass. The manufactures in the cities are chiefly furniture, agricultural implements confidence and discovered to the cities are chiefly furniture, agricultural implements. implements, carriages, saddlery, woolen goods, leather, brooms, nails, paper, steel rails, etc. At Milwaukee are some of the largest beer brewing corporations in the largest beer brewing corporations in the world. There are a number of universities and colleges, the Wisconsin University, Madisen, being liberally subsidized by the State. Wisconsin was admitted to the Union in 1848. The inhabitants to a large extent are German in origin. Milwaukee is the chief town, and Madison the capital. Pop. (1910) 2,333.860. Wisconsin, University Of, a State of Madison, Wisconsin, widely wisconsin, widely located at Madison, Wisconsin, widely known throughout the country because of its active extension work in all parts of the State. The University comprises a College of Letters and Science, Graduate, Engineering, Law, Agriculture, Medicine and Library Schools; and a flourishing Summer School is maintained. The extension division consists of the department of correspondence study, instruction by lectures, debating and public discussion, and general information and wel-fare work. For the purposes of this extension study the State is divided into fourteen districts, with university head-quarters in each. The College of Agri-culture maintains an experiment station, long and short courses in agriculture, farmers' institutes, and courses in home economics. The campus of the University at Madison covers 926 acres on Lake Mendota and contain some 26 buildings. The students in 1912 numbered 5748.

Wisdom (wiz'dum), Book of, called by the Septuagint the Wisdom of Solomon, one of the apocryphal books of the Old Testament.

trines; returned to Scotland and began to teach, but was prosecuted for heresy; fled to England in 1538, and remained in Cambridge for six years; returned to campringe for six years; returned to Scotland in 1543, and preached in the chief towns, for which offense, at the order of Cardinal Beaton, he was arrested in the house of Cockburn of Ormiston, tried by a clerical assembly in St. Andrews, and burned at the stake there in 1546.

Wishaw (wish'a), a police burgh, Scotland, Lanarkshire, 15 miles s. E. of Glasgow. It has several large coal-mines, iron, steel, and nail works, fireclay brick-works, railway-wagon works, and a distillery. Pop. wagon 20,873.

Wismar (vēs'mār), a seaport town in Mecklenburg-Schwerin, North Germany, situated at the head of a bay in the Baltic, 18 miles N. E. of Schwerin. It has some manufactures, an excellent harbor, and a considerable trade in coal, timber, iron, etc. Pop. (1905) 21,902.

Wissembourg. See Weissenburg.

(wis-tă'ri-a), a genus of plants, nat. order Legu-Wistaria minosæ. The species are deciduous, twining, and climbing shrubs, natives of Japan, China and North America. When in flower, they form some of the hand-somest ornaments of the garden. W. frutescens is a species belonging to the United States.

Wister, Annis Lee (Furness), born at Philadelphia in 1830, married Dr. Caspar Wister. She translated into English numerous novels from the German of E. Marlitt and others, which became very popular. She died in 1908.

Wister, Owen, novelist, born at Philadelphia in 1860. He was graduated from Harvard, became a law-yer, and gained wide repute by The Vir-ginian, a novel of cowboy life. Lady Baltimore gained equal popularity. He has written various other stories and sketches.

(wich'kraft), a super-Witchcraft Wise (wiz), Henry A., statesman, persons were formerly supposed to obtain by entering into compact with the devil, Virginia in 1808, and died in 1876. He who engaged that they should want for was sent as Minister to Brazil in 1844, nothing, and be able to assume whatever and was elected Governor of Virginia in 1855, after a most energetic campaign. Herr enemies, and accomplish their in-Wishart (wish'art), George, one of the first martyrs to the was concluded the devil was said to deleast religion in Scotland, was liver to the witch an imp or familiar born in Kincardineshire early in the six-spirit, to be ready at call, and to do teenth century; traveled in Europe whatever it was directed. By the aid where he accepted the Reformed docnatural power which

witch, who was almost always an old came president of Princeton College. He woman, was enabled to transport herself identified himself with the cause of the through the air on a broomstick, and to colonists and was elected to the Contransform herself into various shapes, tinental Congress. His patriotic work particularly those of cats and hares; to was arduous and of supreme importance. inflict diseases on whomsoever she pleased, He died in 1794. particularly those of cats and hares; to inflict diseases on whomsoever she pleased, and to punish her enemies in a variety of ways. The belief in witchcraft is very common belief in ancient. It was a common belief in Europe till the sixteenth century, and maintained its ground with tolerable firmness till the middle of the seventeenth century. Indeed it is not altogether extinct even at the present day. Numbers of reputed witches were condemned to be burned, so that in England alone it of them suffered at the stake. The last victim was executed in 1722 in Scotland, victim was executed in 1722 in Scotland, and in the United Kingdom prosecution for witchcraft was abolished in 1736 by act of parliament. In the United States a few executions for witchcraft took place in the early colonial period, the Salem witchcraft delusion becoming historical. In France executions for witchcraft were prohibited by an edict of Louis XIV as early as 1670.

Witch-hazel. See Wych-hazel.

parliament, consisting of athelings or princes, nobles or ealdormen, the large landholders, the principal ecclesiastics, frequent; they formed the highest court of judicature in the kingdom; they were summoned by the king in any political emergency; their concurrence was necessary to give validity to laws, and treaties with foreign states were submitted to their approval. They had even power to elect the king. See Anglo-Sawons.

elect the king. See Anglo-Saxons.

Wither (with'er), George, an English poet, was born in Hampshire in 1588; died in 1667. He was educated at Magdalen College, Oxford; afterwards entered himself a student of Lincoln's Inn; and in 1613 published his satires entitled Abuses Stript and Whipt, the severity of which led to his confinement in the Marshalses. Having been ment in the Marshalsea. Having been released he took an active part on the side of the Parliament when the Civil war broke out, and sold an estate to raise a troop of horse. Under the Long Parlia-ment he enjoyed various lucrative employments.

Witherspoon (with'er-spon), John, signer of the Declaration of Independence, was born in Gifford, Scotland, in 1722. In 1768 he be-

Witness (witnes), in law, (a) one who signs his name as evidence of the genuineness of another signature; (b) a person who gives testimony or evidence under oath or affirmation in a judicial proceeding. See Evidence.

Witt, Dr. See De Witt.

Witte, SEEGEI YULIEVITCH, a Russian statesman, was born in 1840 at Tiffis, his father being a government official of German extraction and his mother a member of one of the oldest Russian noble families. After leaving the Odessa University he devoted some time to journalism, but in 1877 entered the railroad service, in which he showed the highest efficiency during the war with Turkey (1877-78). In 1879 he was called to St. Petersburg to be made railway manager, and was promoted rapidly until in 1892 he became Minister of Communications and soon afterwards of Finance. In the latter charge he intro-Witenagemot (wit'e-na-ge-mot'; literally, 'meeting of revenue, negotiated large loans abroad,
the wise men'), among the AngloSaxons, the great national council or
parliament, consisting of athelings or of the Committee of Ministers and a
princes, nobles or ealdormen, the large member of that of the empire. In 1905 he was the chief Russian plenipotentiary in the negotiations at Portsmouth, New Hampshire, yielding the treaty of peace between Russia and Japan. Died in 1915. Witten (vit'en), a town of Prussia, in the province of Westphalia, 32 miles w. N. w. of Arnsberg, on the Ruhr. The chief industries are connected with iron and steel, lead, chemicals, plateglass, fire-brick, etc. Pop. 35,841.

Wittenberg (vit'en-burg), a town in Prussia, province of Saxony, on the right bank of the Elbe, 45 miles southeast of Magdeburg. It was while Luther was a professor in Wittenberg that he nailed his ninety-five theses to the door of the Schlosskirche. The university of which he was professor was united to Halle in 1817. The principal buildings are the Schlosskirche, in which both Luther and Melanchthon are buried; the Stadtkirche, where Luther ouried; the Stadtkirche, where Luther and Melanchthon preached; the remains of the Augustine monastery, with Luther's apartments; the houses of Melanchthon and Cranack, the town hall, the gymnasium, etc. Pop. 20,332.

Wittenberge (vit'en ber-ge), an industrial town of Prus-

Witwatersrand (wit-wa'terz-rant; White Water Range'), a ridge of land in the Transvaal, South Africa, about 100 miles long E. to w., in lat. 26° s. This is the greatest gold-yielding region in the world. Gold was discovered here in 1886, and was the proximate cause of the Boer war. The output has increased until it is nearly double that of the United States. Woad (wod), a cruciferous plant of the genus Isātis, the I. tinotoria, formerly cultivated to a great extent in Britain on account of the blue tent in Britain on account of the blue dye extracted from its pulped and fermented leaves. It is now, however, nearly superseded by indigo, which gives a stronger and finer blue. The ancient Britons are said to have colored their bodies with the dye procured from the woad plant. Wild woad, weld, or wold is the Reseda Luteola, a British plant, which yields a beautiful yellow dye. See Duer's weed. Duer's-weed.

Woburn (wö'burn), a city of Middlesex Co., Massachusetts, 10 miles N. w. of Boston. It has the largest leather-making establishments in New England; also has large manufactures of shoes, glue, chemicals. Pop. 15,308.

Wodan, or Woden (wo'den), the Anglo-Saxon form of the name of the deity called by the Norse Odin. Wednesday derives its name from him and his name is also seen in several him, and his name is also seen in several place-names, as Wednesbury, etc. See Odin.

Woiwode, WAYWODE (wa'wod) an old Slavonic name for a general, afterwards used as a title of civil rank and authority. The princes of Wallachia and Moldavia were called Woiwodes, and this title was also applied at an early period to the Polish kings.

Wolcott (wol'kot), John, an English writer, generally known by his nom de plume of 'Peter Pindar,' was born in 1738; died in 1819. He studied medicine; resided some time in Jamaica, where he took clerical orders, and afterwards certablished himself is and afterwards established himself in Cornwall, where he discovered the artistic genius of the painter Opie. He published a number of satirical poems, and in particular turned his humor upon George III. Between 1778 and 1808 he is said to have put forth some sixty satirical productions in verse, most of them now forgotten.

Wold, or Weld. See Dyer's-weed.

sia district of Potsdam, at the junction Wolf (wulf), a quadruped belonging of the Stepenitz with the Elbe. Pop. to the digitigrade carnivora, and 18,501. very closely related to the dog. The common European wolf (Canis lupus) is yellowish or fulvous gray; the hair is harsh and strong, the ears erect and pointed, the tail straight, or nearly so, and there is a blackish band or streak on the fore-legs about the carpus. The height at the shoulder is from 27 to 29 inches. The wolf is swift of foot, crafty, and rapa-cious; a destructive enemy to the sheep-cote and farm-yard; it associates in packs to hunt the larger quadrupeds, such as the to hunt the larger quadrupeds, such as the deer, the elk, etc. When hard pressed with hunger these packs have been known to attack isolated travelers, and even to enter villages and carry off children. In general, however, wolves are cowardly and stealthy. Wolves are still plentiful in stealthy. Wolves are still plentiful in the state of Europe as in districts of some parts of Europe, as in districts of



Common Wolf (Canis lupus).

France, Spain, Italy, Germany, Turkey and Russia; they probably ceased to exist in England about the end of the fifteenth century; the last of them in Scotland is said to have been killed by Cameron of Lochiel in 1680, while in Ireland they are heavy to be the said to have been sai land they are known to have existed until at least the beginning of the eighteenth century. The wolf of North America is generally considered to be the same species as the European wolf, though individuals vary much in color and otherwise. The little prairie-wolf or coyote (C. ochropus), abounding on the plains of the western part of the United States, is a burrowing animal. The Tasmanian wolf is a marsupial.

Wolf (volf), FRIEDRICH AUGUST, a German critic and scholar, born German critic and scholar, born in 1759; died in 1824. His fame as a critic rests upon his Prolegomena to Homer (1795), in which he endeavors to show that the Odyssey and Iliad in their present form are not the work of one hand, but of several. This opinion he further defended in his Letters to Heyne (1797). (1797). See Homer.

Wolfe (wulf), CHARLES, the author of the Ode on the Burial of Sir John Moore, was born in Dublin in 1791; died in 1823. He was educated at Trin-ity College, Dublin, and it was while there that the poem which has secured his fame was published in the Newry Telegraph (1817). He was also the author of several other poems, and his Remains were published at Dublin (two vols., 1825).

in 1727; entered the army and proceeded with his regiment to the Low Countries; took part in the battles of Dettingen, Fontenoy, Falkirk, Culloden and Laffeldt, being wounded in the last. After distinguished service against the French in America he was entrusted (1759) with distinguished service against the distinguished service against the distinguished service against the distinguished service against the sault Quebec. During the night this small force scaled the Heights of Abraham, which commanded the town, and in the battle which took place next day the British were victorious; but General Wolfe was wounded in the engagement, and died in the moment of victory, and died in the moment of victory wounded; served with distinction in the moment of victory, and died in the moment of victory wounded; served with distinction in the moment of victory, and died in the moment of victory wounded; served with distinction in the moment of victory.

Wolfram (wulf'ram), a native tungstate of iron and manga-nese. Its color is generally a brownish the metal tungsten is usually obtained.

Wolfram von Eschenbach.

See Eschenbach.

Wolf's-bane, a poisonous plant of the genus Aconitum (A. Napellus). It is a native of Alpine pastures in Switzerland, and found in a wild state in one or two parts of England. See Aconits.

Wollaston (wul'as - tun), WILLIAM HYDE, a distinguished chemist, born in London in 1776; died in 1828. He was educated at Cambridge, took the degree of M.D., practiced as a physician in London, but finally devoted himself to scientific research. He was the inventor of the goniometer, an in-strument for measuring the angles of crystals, and the discoverer of palladium Wolfe, JAMES, an English general, and rhodium, and of the malleability of was born at Westerham, Kent, platinum.

Wollin (vol'in), an island of Prussia at the mouth of the Oder, on the north side of the Great Haff; length, 20 miles; breadth, from 3 to 10 miles. Fishing and cattle rearing are the chief employments of the people. Pop. about 15,000.

wounded. (vol'fén-but-l), a town and capture of Lucknow during the Inmany, on the Oker, 7 miles south of Brunswick. It has a castle, town house, a library of about 300,000 volagain in 1867, having received command of the siege of Sebastopol; engaged in the siege and capture of Lucknow during the Inmany, on the Oker, 7 miles south of ployed in 1860 in the Chinese war. He Brunswick. It has a castle, town house, was despatched to Canada in 1861, and arsenal; a library of about 300,000 volagain in 1867, having received command of the bad player are delivered. umes, pesides MSS.; a statue of Lessing, of the Red River expedition, which he who was long librarian to the duke; a gymnasium, etc. Pop. 17,873.

Wolffian Bodies (wul'fi-an; after Wolff, the discoverer), in physiology, a term analysis of the Red River expedition, which he acried to a successful issue. Three years afterwards Wolseley (now K.C.M.G. and major-general) was appointed to the command of an expedition to punish the Kinner of the Red River expedition, which he was a successful issue. coverer), in physiology, a term applied to certain bodies in the vertebrate embryo, preceding the two kidneys, whose received the submission of the king, being functions they perform. As the fœtus rewarded by a grant of £25,000 and the advances they gradually disappear, their place being supplied by the true kidneys, British force by the Zulus in South Africa, in 1879, he was despatched as high commissioner, but before his arrival the Zulus had been defeated at Ulundi, and little remained for him to do. His next command was in Egypt, in 1882, where his forces successfully stormed the lines of Tel-el-Kebir and captured Arabi Pasha. For this he received the thanks or grayish black. It occurs massive and Pasha. For this he received the thanks crystallized, and in concentric lamellar of parliament and was created a baron, concretions, and is the ore from which his army rank being also raised to that of general. His next appointment was as adjutant-general of the forces. When the Mahdi subdued the Soudan, and held General Gordon prisoner in Khartoum, Wolseley was despatched in 1884 with a relief expedition. He concentrated his forces at Korti, and sent a column across the desert to Khartoum, but before its arrival the place had fallen. On his return to England he was created a vis-

count. In 1888 he was made ranger of Greenwich Park. From 1895 to 1900 he Wolstonecraft, win, Mary. was commander-in-chief, being succeeded in the latter year by Lord Roberts. He is the author of the Soldier's Pocket Book (1869), etc.

Wolsey (wul'si), Thomas, Cardi-NAL, said to have been the son of a butcher, was born at Ipswich, England, in 1471. He was educated at Mondaler College Order where he took England, in 1471. He was educated at ate church of St. Peter, a Roman Catholic Magdalen College, Oxford, where he took chapel designed by Pugin, an exchange, a his degrees as a scholar of distinction. After quitting the university he was appointed to the parish of Lymington, in Somerset. Then he became a private and ironstone in its vicinity, is the larg-chaplain to the Archbishop of Canterbury, one of the governors of Calais, is known as the capital of the Black chaplain to Henry VII, and latterly Dean Country. The chief industries are the of Lincoln. When Henry VIII became smelting of iron ore, and manufactures king the advancement of Wolsey was in brass, tin, steel papier-maché, iron, rapid. Successively he was appointed galvanized iron, and chemicals. Pop. Canon of Windsor, Dean of York, Bishop 95,333.

Woman's Christian Tempernomination as cardinal in 1515 and pope's legate in 1518 completed his ecclesiastical ance Union. See Temperance Socie-dignities. In 1515 he was also appointed legate in 1018 completed his ecclesiastical dignities. In 1515 he was also appointed lord-chancellor of the kingdom. He was twice a candidate for the papacy, and his power in England, as also his revenues, were only equaled by those of the crown. Part of his immense revenues he expended in dealer and part more laudably for rart or his immense revenues he expended in display, and part more laudably for the advancement of learning. He projected on a magnificent scale the College of Christ Church, at Oxford; founded several lectures, and built the palace at Hampton Court, which he presented to the king. This rapid preferment by the king was largely the result of a remarkable series of diplomatic victories, in which Wolsey had been the means of errors. which Wolsey had been the means of en-abling Henry to hold the balance between Francis I and the Emperor Charles V. His success in the region of politics terminated in the splendors of the Field of the Cloth of Gold (1520). In his ambitious career the cardinal had made many bitious career the cardinal had made many enemies, who were held in check so long as he retained the favor of his royal master. This favor Wolsey lost when he failed to obtain from Pope Clement a decision granting the king's divorce from Catharine of Aragon. Thenceforth the enemies of the fallen prelate harried him unmercifully. He was banished from court, stripped of his dignities, found guilty of a præmunire, and sentenced to imprisonment. Finally, after a brief respite, during which he was restored to some of his offices, and had returned to his see of York, he was arrested at Cahis see of York, he was arrested at Cawood Castle on a charge of high treason, and on his way to London as a prisoner be died in 1530 of dysentery at Leicester Abbey.

See God-See Glutton. Wolverene.

Wolverhampton (wnl-ver-hamp'-tun), a municipal and parliamentary borough of England, county of Stafford, 13 miles N. W. of Birmingham. It contains the collegiate church of St. Peter, a Roman Catholic

Woman Suffrage. See Rights. Women's

Wombat (wombat: Phascolomys soombat), a marsupial animal, a native of Australia and Tasmania. It is about 3 feet in length, and has coarse, almost bristly fur, of a gen-



Wombat (Phascolomys wombat).

eral gray tint, mottled with black and white. It burrows, feeds on roots, and its flesh is said in fatness and flavor to resemble pork.

Women's Rights, the term applied to the demand made, on behalf of women, for a legal, political educational and social status equal to that of men on the basis of natural right and also of the right to a voice in public affairs as property holders and tarpayers. The first distinctively claim for equality in the employment education and political liberty of women

was that made in 192 by Mary Wolf-been successful in a number of countries, stonecraft, in her Vindication of the These include Australia and New Zealand, Rights of Women. For the pioneers in where full suffrage exists, also Norway, a public movement in that direction, we Finland, Iceland, Denmark and Isle of must seek the United States, where a Man. In Great Britain women can vote band of resolute women met in 1848 at for all public officials except members of Seneca Falls, New York, the first Woparliament.

men's Rights Convention ever held, at Suffrage for women exists in all the public of the second second of the States. men's Rights Convention ever held, at Suffrage for women exists in all the which the claim of suffrage for woman provinces of Canada except Quebec. They on equal terms with man was first defalso have municipal suffrage on the same initely made, Elizabeth Cady Stanton beterms as men in the British Isles and in ing the prime mover in the demand. The Sweden. In some other countries women movement was not confined to suffrage, suffrage has made progress. In Great but covered other fields of inequality beBritain, before the European war, the detween man and woman, and since that mand for full suffrage took a new stage, date the fight has gone on all along the proceeding from quiet demand to militant line. The demand for property and eduinsistence. The House of Commons was cational rights has made more rapid prograssailed by bands of suffragists, many of ress than that for suffrage and in these whom willingly suffered imprisonment as directions there is little left to gain. At martyrs to the cause. Punishment for ress than that for suffrage and in these whom willingly suffered imprisonment as directions there is little left to gain. At martyrs to the cause. Punishment for present, many colleges and universities their acts only inspired them to more vigadmit women to a full course of instruction or all departments, most of those liament being succeeded by attacks on prifounded since 1840 receiving women on vate property, the assailants resorting to equal terms with men. Women have also window breaking, etc. Many thinking colleges of their own, where full courses women defended these methods on the of instruction may be had, and also medi-ground that the struggle amounted to cal colleges as advanced in their courses actual warfare and was due to the fact as those confined to men. Full courses of that women had been insulted and brustudy in legal science may also be obtally treated while seeking the vote by tained and courses in medicine have for peaceful measures. During the European years been open to women. In most of war militant methods were desisted from the States the legal profession is open to and in 1917 the suffragists won a notable women, though few have as yet embarked victory, 330 members of the House of women, though few have as yet embarked victory, 330 members of the House of in it. In regard to property rights, the Commons, out of 440 present, voting in same equality has been widely estab-their favor. lished, women retaining the control of In the United States milder methods their own property after marriage, in-were adopted, yet more effective ones as stead of letting it fall to their husbands, the above record shows. The suffrage as under the older system. In this re-parades and conventions held in large spect there is now little distinction be-cities have been dignified and impressive. tween the rights of men and women. For In 1917, however, a method of picketing many years past the fight for equal rights the White House at Washington was many years past the ight for equal rights the winter house at washington was of suffrage has been vigowously waged, adopted by a small party of extremists and the progress of women in this di-and gave such annoyance that those tak-rection has become notable, especiallying part in it were imprisoned. The within the present century. In the Uni-method was deemed unwarranted by the within the present century. In the Uni-method was deemed unwarranted by the ted States, women now possess the right eaders in the movement. of suffrage in thirteen States: in Wyo- A meeting of the National Woman Sufming (1869), Colorado (1893), Utah frage Association was held at Washington (1896), Idaho (1896), Washington in 1910, it being addressed by President (1910), California (1911), Arizona, Kan-Taft, this being the first occasion in which sas and Oregon (1912), Illinois (1913), this body had been addressed by a Presi-Montana and Nevada (1914), New York dent of the United States. A monster pe- (1917). Also Alaska Territory (1913), tition, with 500,000 signatures, was at the In 1917 Indiana, Ohio and Rhode Island same time presented to Congress, calling gave women the right to vote for Presi- for the reference of the suffrage question dential electors and North Dakota gave to popular vote. This has developed into them municipal suffrage, this to be ex- a demand for an amendment to the contended to Presidential electors in 1920, stitution establishing a national right of School suffrage for women prevails in woman suffrage and in response to a mes-School suffrage for women prevails in woman suffrage and in response to a measure form in thirty-one States, tax-paying sage from President Wilson the Susan B. suffrage for women tax-payers in Mon-Anthony Amendment was passed by the tana, Louisiana and Michigan. Outside House in January, 1918. the United States woman suffrage has The industrial rights of women have

was that made in 1792 by Mary Woll- been successful in a number of countries.

been the subject of legislative enactment in many of the States during recent years, one of the latest notable events in this direction being a decision of the Supreme Court of Illinois in April, 1911, in which was upheld the law of 1900, which limited the employment of women in laundries, factories, etc., to ten hours in any one day. This decision, in connection with that of the Supreme Court of the United States upholding the Oregon nection with that of the Supreme Court of the United States upholding the Oregon ten-hour law, clearly establishes the right of a State to use its police power in restricting the freedom of contract, to their injury, of adult women. The Southern Conference on Women and Child Labor formed a permanent organ-ization at Memphis, Tenn., in April, 1911, its purpose being to secure uni-form legislation on hours and conditions of labor. Such legislation is generally of labor. Such legislation is generally demanded and is likely to take place. In an-

Wonders of the World. cient times seven of these were enumerated. These were the Pyramids of Egypt, the Mausoleum of Artemisia, the temple of Diana at Ephesus, the Hanging Gardens of Babylon, the Colossus of Rhodes, the Statue of Jupiter Olympus and the Pharos of Alexandria.

Woo-Chang (wo-chang), a city of China, province of Hu-Pé, on the Yang-tse-kiang, opposite the city of Hankow. Pop. estimated at over 500,000.

See Timber. Wood.

Wood (wud), Anthony, antiquary, born at Oxford in 1632; died in born at Oxford in 1632; died in 1695. He was educated at Merton College, Oxford, where he took his degrees, and spent his life in examining and sifting the records of the university. The result of his laborious researches was published as Historia et Antiquitates Universitatis Oxoniensis (1674), this being a Latin translation of Wood's English treatise under the authority of the unitreatise under the authority of the uni-

Henry Wood, born at Worcester in 1820; died in 1887. Among her many novels may be noted East Lynne, which has had ar enormous success both as a book and a drama; The Channings, St. Martin's Eve. A Life's Secret, Roland Yorke, Dene Helles and the Johnnie Ludley Stories. Hollow and the Johnnie Ludlow Stories,

been the subject of legislative enactment Democrats in 1841, and in 1854 was in many of the States during recent elected mayor of New York, where he years, one of the latest notable events in introduced various reforms. In 1861, when the southern states were seceding, seede and become a free city. He was reëlected to Congress in 1868, and remained a member until his death, February 1901 ary 13, 1881.

Wood, George B., an eminent physician, was born at Greenwich, New Jersey, in 1797; died in 1879. He was graduated in medicine from the University of Pennsylvania in 1818, became a professor in the Philadelphia College of Pharmacy, and in 1835 in the University of Pennsylvania, where he remained the interest of Philadelphia College of Philadelphia College of Pennsylvania, where he remained the interest of the college o 1860. He did much to advance the interests of the University, and in 1865 endowed there an auxiliary faculty of medicine. His medical works included a Treatise on the Practice of Medicine, a Treatise on Therapeutics and Pharma-cology, a Pharmacopæia, and great part of the United States Dispensatory. All

these were admirable works and highly useful in the study of medicine.

Wood, HORATIO C., physician, was born at Philadelphia in 1841. He was graduated from the University of Pennsylvania in 1862, and was appointed to professorships of medical botany and to professorships of medical botany and nervous diseases. He wrote much on medical and other subjects, his writings being Essay on Thermic Fever, or Sunstroke; The Fresh Water Algo of North America, A Study of Fever, A Treatise in Therapeutics, and many papers on medicine, botany, and other branches of science.

Wood, JAMES FREDERIC, an American archbishop, was born in Philadelphia in 1813, educated in England, and became a bank cashier in Cincinnati. He joined the Roman Catholic Church in 1836, studied at Rome and became a priest, was made bishop of Philadelphia in 1860, and archbishop in 1875. He died June 20, 1883.

wersity. He was also the author of Wood, Rev. John George, naturalist, Athenæ Ozonienses (1691-92).

Wood, ELLEN, or PRICE, an English suddenly at Coventry in 1889. He was novelist, better known as Mrs. an enthusiast in natural history, and published a large number of books on zoology and kindred subjects, which had great popularity.

Wood, LEONARD, physician and soldier, was born at Winchester, New Hampshire, in 1860. He was graduated from Harvard Medical School in Wood, FERNANDO, congressman, was geon in 1884, and was appointed Assistant Sur-Wood, born at Philadelphia about 1891. He received a medal of honor for 1812. He became a merchant in New services against Geronimo in 1888. In York, was elected to Congress by the 1898 he became colonel of Roosevelt's

'Rough Rider' regiment and took part in the Spanish war, in which he was promoted brigadier-general. In 1899 he was appointed governor of Cuba, in which island he hal much to do with stamping out yellow fever. He was made brigadierout yellow lever. He was made brigadergeneral in the regular army in 1901,
major-general in 1903; commanded in the
Philippines 1906-08, and in Dec., 1909,
was appointed chief of staff of the army.
Wood Ant, a common species of
ants, found in woods,
where it makes a great heap of vegetable where it makes a great heap of vegetable

fragments, beneath which it has numerous chambers and passages. It has the power of ejecting an acid secretion as a

defense against enemies.

Woodbine (wud'bin), a name given sects of the genus Endryss.

Wood-oil a balsamic s some other climbers, such as some kinds of ivy, the Virginia creeper, etc. Specially applied to Cissus quinquefolia, a vigorous climbing plant, supporting itself

Woodbury, DANIEL R., statesman, New Hampshire, in 1789; died in 1851. He was admitted to the bar in 1812, was appointed judge of the Superior Court in 1817, and was elected governor of New Hampshire in 1823. He was a member of the United States Senate 1825-31, was appointed secretary of the navy by President Jackson in 1831 and secretary of the tensor of the tensor in 1834 holds secretary of the treasury in 1834, holding that position until 1841, when he was reelected senator. In 1845 he succeeded Joseph Strong as a justice of the Supreme Court of the United States. A collection of his Political, Judicial and Literary Writings was published in 1852.

Woodchuck, the popular name of a rodent mammal, a

species of the marmot tribe, the Arctomys monax, or ground-hog, common in the United States and Canada. It is of a heavy form, from 15 to 18 inches long, blackish or grizzled above and chestnutred below. It excavates burrows in which it passes the winter in a dormant state.

Woodcock, a bird of the genus rusticolla, same genus as the snipe. It is widely distributed, being found in all parts of Europe, the north of Asia, and as far east as Japan. The bird is about 13 inches in length, the female being somewhat larger than the male. Its food is chiefly worms. The American wood-cock (Soolopas or Philoheles minor) is a smaller bird, but very similar in plumage and habits.

Wood Engraving. See Engraving.

Wood-grouse. See Caperoailzie. Woodhouselee. See Tytler.

Wood-lark, a small species of lark, the Alanda arborea, not unfrequent in some parts of England, but rare in Scotland. Its song is more melodious than that of the skylark, but it does not consist of so great a variety of notes, nor is it so loud.

Woodlice. See Slater.

Wood-nymph, in ancient mythology a goddess of the wood, a dryad. In zoology this name is given to the beautiful lepidopterous in-

Wood-oil, a balsamic substance (an oleo-resin) obtained from several species of Dipterocarpus growing in Pegu, Assam, and some of the islands of the Indian Archipelago. It is used medicinally, as a varnish, in lithographic integration graphic ink, etc.

Woodpecker, a name for the birds belonging to the fam-ily Picidæ, and the order Scansores or climbers. They are characterized by their long, straight, angular beak, adapted for splitting the bark of trees; by their slen-der tongue, with its spines at the tip curved backwards to enable them to extract insects from crevices; and by their stiff tail, which acts as a prop to sup-port them while climbing. The noise they make in tapping the bark of a tree to discover where an insect is lodged can be heard at a considerable distance. Pious major, medius, minor, and viridis, the green woodpecker, are European species. In America the most characteristic species are P. principālis or the ivorybilled woodpecker, P. auratus or gold-winged woodpecker, and the Californian woodpecker (Melanerpes formicivõrus).
Wood-niceon See Ring-dove. Wood-pigeon.

Wood-pulp, the fibrous product of ground-up wood from which paper is made. This branch of manufacture has grown to enormous manufacture has grown to enormous proportions, to supply the great demand for printing paper of recent years. Spruce, hemlock, and poplar are commonly employed and other trees and plants are coming into use, such as white fir, balsam, pine, cottonwood, etc., the wood being simply ground up finely and made into paper or treated with chemmade into paper, or treated with chemical substances to yield a better product suitable for book purposes. The total use of wood for this purpose in the United States in 1910 was over 4,000,000 cords. The great consumption of pulp wood in

the United States has led to a large demand from the extensive coniferous forests of Canada, to facilitate which the tariff has been taken off from Canadian wood-pulp. Wood-pulp has been applied to other purposes than papermaking, bricks, and even car-wheels, being made from it, while among its other products artificial silk may be named, the fine pulp being forced through minute holes in a plate and yielding threads of a smooth, silk-like finish and considerable strength. It can be woven into silk-like fabrics.

Woodruff (wyd'ruf), Woodboor, the common name of plants of the genus Asperāla, nat. order Rubiaceæ. The sweet woodruff (A. odorāta), with its whorled leaves and white blossom, is found plentifully in Britain in woods and shady places. The dried leaves are used to scent clothes and also to preserve them from the attacks of insects. The root of the dyer's woodruff (A. tinctoria) is used instead of madder.

Woods, Lake of the. See Lake of the Woods.

Woods, KATHARINE PEARSON, novelist, born at Wheeling, West Virginia, in 1850. Her socialist novel, Metzerott Shoemaker, attracted much attention; others were The Mark of the Beast, From Dusk to Dawn, etc.

Woodsia (wud'si-a), a widely distributed genus of polypodiaceous ferns. W. hyperborea, the flower-cup fern, is a very small species, much resembling W. Perriniana, forming tufts on rocks.

Wood-sorrel, the common name of Oxdis Acctosella, well known for the acidity of its leaves, and formerly used in medical practice as an antiscorbutic and a refrigerant.

Woodstock, a city and port of entry of Ontario, Cannada, county seat of Oxford Co., on the Thames River, 30 miles E. N. E. of London. It is a place of considerable trade, and has various manufactures. Is a favorite summer resort. Pop. 9321.

Wood-swallow, a name given in Australia to a ge-

Wood-swallow, a name given in nus of birds (Artāmus), family Ampelidæ or chatterers. One species (A. sordidus) is remarkable for its habit of hanging suspended from dead branches in clusters resembling swarms of bees.

Woodworth, SAMUEL, journalist and poet, born at Scituate, Massachusetts, in 1785; died in 1842. He was an editor on various journals, wrote The Champions of Freedom and several dramatic works, but is chiefly known for his popular poem, The Old Oaken Buckets.

Woo-Hoo, or Wuhu (wö-hö), a ince of Ngan-Hoei, on the Yang-tsekiang, about 50 miles above Nanking. Opened to trade in 1887 it has recently become of considerable commercial importance, the chief exports being rice, silk, feathers, hides and tea, and the chief import is opium. Pop. about 115,000.

Wool (wul), that soft species of hair which are the albace, some species.

Wool (wul), that soft species of hair which growe on sheep and some other animals, as the alpaca, some species of goats, etc., which in fineness sometimes approaches to fur. Wool is divided into two classes—short or carding wool, seldom reaching over a length of 3 or 4 inches, and long or combing wool, varying in length from 4 to 8 inches, each class being subdivided into a variety of sorts, according to their fineness and soundness of the staple. Wools which unite a high degree of fineness and softness with considerable length of staple, bear a high price. English-bred sheep produce a good, strong, combing wool, that of the Scotch breeds being somewhat harsher and coarser. The finest carding wools were formerly exclusively obtained from Spain, the native country of the merino sheep, and at a later period extensively from Germany, where that breed had been successfully introduced and cultivated. Immense flocks of merinoes are now reared in the United States, Australia, South America, and Europe, the annual wool product of the United States, Russia and Argentina being about 325,000,000 pounds for each country, while that of Australia is about 750,000,000 pounds. The total European product is about 800,000,000 pounds. The use of woolen Manufacture.

article of clothing dates from the earliest times, and no doubt it was made into cloth earlier than either flax or cotton. Among the ancient Jews wool was the staple material of clothing; and the woolen fabrics of ancient Greece and Rome attained special excellence. In time the Roman manufactures were carried to the countries in which Roman colonies had been established. In England the making of woolen cloth seems to have been introduced by the Romans, but it did not rise into importance as a national employment until much later. The woolen cloths of England were for a considerable time confined to the coarser fabrics of domestic manufacture, finer cloths being imported from the Continent, particularly from Brabant. At various times also the trade was

regulation, for prohibiting exportation, etc. In the early part of the eighteenth century Yorkshire began to assume an important position in woolen manufactures, and that county is now the chief seat of both the English worsteds and woolens. Scotland, especially the south, is famous for the sort of cloth called tweeds. The industry was introduced into the United States in the early colonial and the Charlest tweeds. nial period as a household manufacture. It has now grown into one of the leading textile industries.

In making woolen cloth the essential processes, as carried on in modern factories, are:—(1) the stapling of the raw tories, are: —(1) the stapling of the raw wool. In this process the stapler or sorter works at a table covered with wire netting, through which the dirt falls while the various qualities of wool are being separated. The wool is then ready to be put through the (2) scowing machine where it passes on an endless machine, where it passes on an endless apron into an oblong vat, which contains a steaming soapy solution. Here it is carried forward gently by means of rakes until it is thoroughly soaked and cleansed. After this it is taken to the (3) drying framework of wire netting, under which are situated steam-heated pipes. A fan-blast drives the heated air upwards through the wet wool, which lies on the wire netting, until it is all equally dried. When necessary this is the point in the process when it is 'dyed in the wool.' It is then ready for the (4) willeying or teasing machine, which consists of a readying drum furnished. consists of a revolving drum furnished with hooked teeth, close above which are set cylinders with hooked teeth moving in a contrary direction. The wool is fed in upon the drum, which whirls with great speed; and between the two sets great speed; and between the two sets of teeth working in opposite directions it is disentangled, torn, and cast out in fine, free fibers. With some classes of wool it is also necessary, at this stage, to remove suds and burrs by steeping them in a solution of sulphuric acid, or passing them through a burring machine, by which the burrs are extracted. The wool is now dry and brittle; and before submitting it to the process (5) of carding, it is sprinkled with oil and well

hampered by many illiberal laws for its the finisher in a continuous flat lap. is then cut into strips and passed (6) to the condensing machine, which rubs the strip into a soft, loose cord or sliver technically called a 'slubbing.' The wool is now ready for (7) spinning into wool is now ready for (7) spinning into yarn, and this is accomplished in a woolspinning mule, which draws and twists the sliver into the required thinness, the process being essentially the same as in cotton-spinning. (See Cotton-spinning.) The wool, which has thus been brought into the form of yarn, is now fit for (8) weaving into woolen cloth. (See Weaving.) When it is taken out of the loom the cloth is washed to free it from oil ing.) When it is taken out of the loom the cloth is washed, to free it from oil and other impurities, and also beaten while it lies in the water by wooden hammers moved by machinery, while it is again dyed if found necessary. After it has been scoured in water mixed with fuller's earth, the cloth undergoes a process of (9) teaseling and shearing (see Teasel), in which the pile or nap is first raised, and then cut to the proper length by machines. When this is done it is (10) steamed and pressed between polished iron plates in a hydraulic press. In the manufacture of worsted yarn In the manufacture of worsted yarn the long-staple wool fibers are brought as far as possible into a parallel condition by processes called gilling and combing. The wool, in a damp condition, is passed through a series of 'gill boxes,' in which steel gills or combs separate and straighten the fibers until, from the last box, it issues in a long sliver. In this condition it is run through a delicate combing machine: after a process cate combing machine; after a process of roving the thread is spun into yarn. Merinos, Thibets, empress and Henri-etta cloths, alpacas and other kinds of dress goods are made from worsted yarns. The camel hair, cow hair and calf hair goods are of cheaper grades: most of these contain a considerable proportion of shoddy, the lower grades of wool and woolen waste. These belong

Woolner (wul'ner), Thomas, sculptor, was born at Hadleigh, Suffolk, in 1825; educated at Ipswich; placed at the age of thirteen in the studio of William Behnes; exhibited his carding, it is sprinkled with oil and well dio of William Behnes; exhibited his beaten with staves in order to give it first notable life-size group, The Death suppleness. This process of carding is of Boadicea (1844); and followed up accomplished by a series of three delicate this success with Puck, Titania, and and complex machines called a scribbler, Eros and Euphrosyne. Besides his well-an intermediate, and a finisher. These known statues of Carlyle, Tennyson, machines have various intricate cylin-Gladstone, Newman, Darwin, Kingsley, ders and rollers, studded with teeth and etc., his more celebrated works are: working in opposite directions, over Elaine with the Shield of Sir Lancelot which the wool is passed until it is torn, Ophelia, In Memoriam, Virgilla Beinterblended, and finally delivered from wailing the Banishment of Coriolanus,

more to the woolen than the worsted

trade.

and Achilles and Pallas Shouting from the Trenches. He was elected an A.R.A. 1871; R.A. in 1876. He has the Trenches. He was elected an Plows, whips, furniture, coach-pads, A.R.A. 1871; R.A. in 1876. He has foundry and lumber products are manualso achieved considerable success as a factured. Pop. 6136. poet in the volumes entitled My Beautiful Lady (1863), Pygmalion (1884),
Silenus (1884), and Tiresias (1886). Europe and America for making the finHe died in 1892.

WOULZ
the East Indies, imported into
Europe and America for making the finest classes of edge-tools.

Woolsack (wul'sak), a large square bag of wool, without back or arms, covered with red cloth, which forms the seat of the lord chancellor of England in his capacity of speaker of the

House of Lords.

Woolsey, THEODORE DWIGHT, an eminent scholar, born at New York, October 31, 1801; died July 1, 1889. He was graduated from Yale College in

See Curari. Woorali Poison.

Ohio Agricultural Experiment Station.

Wootz (wötz), a superior steel from the East Indies, imported into

Worcester (wus'ter), capital of Worcestershire, and one of the most ancient cities in England, lies on the eastern bank of the Severn, 114 miles N. w. of London. Its most notable building is a Gothic cathedral, originally built in 680 and rebuilt in the beginning of the thirteenth century. Constructed in the form of a double cross, with a central tower, it has been added to He was graduated from Yale College in with a central tower, it has been added to 1820, studied law and theology, and was at various periods, and a very complete professor of Greek at Yale 1831-46, and restoration was made in 1857. Among then its president until 1871. From other buildings are the shire hall, the 1871 to 1881 he was president of the guildhall, corn exchange, museum of American revisers of the New Testanatural history, etc. Worcester is the ment. He prepared editions of several chief seat of the English leather glove of the Greek classic authors, and wrote trade, has celebrated porcelain works, Introduction to the Study of International Law, The Religion of the Past and tother works. Pop. 47,987. The county the Future, and other works.

WOOLSON, CONSTANCE FENIMORE, fordshire, E. by Warwickshire, s. by Gloucestershire and W. by Herefordshire. Woolson, Constance Fenimore, and other works.

Bounded N. by Shrupshire and Statfordshire, E. by Warwickshire, S. by Claremont, New Hampshire, in 1838; area, 751 sq. miles, about half of which died in 1894. Her works embrace Castle Nowhere, Rodman the Keeper, Jupiter Lights, For the Major, etc.

Wool-tree.

Bounded N. by Shrupshire and Statfordshire, E. by Warwickshire, S. by Warwick Wool-tree. See Eriodendron.

Which the Severn is the most notable, and having as its chief rivers the Severn, Stour, Teme and Avon. Wheat is extensively grown, while hop gardens are tensively grown, while hop gardens are numerous. Coal and iron are worked; there are large manufactures of iron, It stretches about 3 miles along the river, and owes its importance to the great abundantly from the salt springs at arsenal, which has a circumference of 4 Droitwich. The carpets of Kidderminmiles, and consists of gun and carriage ster are famous, as are also gloves and factories, laboratory, barracks, ordnance porcelain of Worcester, and there are departments, etc. At North Woolwich, on the opposite side of the river, many

on the opposite side of the river, many houses and extensive factories have recently sprung up. Pop. 121,408.

Woonsocket (wön-sok'et), a city of Providence Co., Rhode Island, on the Blackstone River, about is the second city of the State, and has 40 miles s.w. of Boston. It is claimed to be the largest producer of woolen goods of any city in the United States, and hall, public library, State armory, Clark University Polytechnic Institute, Holy and has extensive cotton mills, employing Cross College, American Antiquarian over 4000 hands. There are also rubber shoe, yarn and machinery works, etc.

Woorsoli Doison See Currer. wire works being the largest in the world. Wooster (wös'tèr), a manufacturing works, woolen and envelope city, capital of Wayne Co., carpet works, boot and shoe factories, Ohio. It is the seat of the University and many other industries. Worcester of Wooster, founded in 1870, and of the was permanently settled in 1713; incorporated as a city in 1848. Pop. (1913) don and

a movement for the treatment of nervous diseases which attracted widespread interest. His books include Religion and Medicine (1907), and The Living Word

(1908).

Worcester, JOSEPH EMERSON, a distinguished lexicographer, born at Bedford, New Hampshire, in

raphy and other works.

elsewhere. He crossed Worcester, Edward Somerser, Manguest inventors of a steam engine, was return, disregarding all entreaties to enhorm about 1601; died in 1667. He was ter upon a professional career, he published description of his steam engine.

Worcester, Worcester, Manguest in the Tower from 1652-55. He afterwards published descriptions, in which he gave a description of his steam engine.

Worcester, Manguest Ma France in 1791, and exhibited vehement Racedown in Dorset, where the poet, among other experiments, began his tragedy of *The Borderers*. In this retreat they were visited (1797) by Coleridge, who had already recognized an original poetic genius in the author of *Descriptive Sketches*. Coleridge was at this time living at Nether Stowey, in Somerset, and during this visit he induced the Wordsworths to go into residence at Alborn at Bedford. New Hampshire, in set, and during this visit he induced the 1784. His first work was a Geographi-Wordsworths to go into residence at Alcal Diotionary, or Universal Gasetteer. foxden, in his immediate neighborhood. It was followed by Gasetteer of the Here the two poets held daily inter-United States, Elements of Geography, Course, and after a twelvemonth they Sketches of the Earth and its Inhabit-published Lyrical Ballads (1798) in ants and Elements of History. In 1830 he published a Comprehensive Pronouncing and Esplanatory English Dictionary. plete public indifference, yet Wordsworth In 1860 he published the great quarto felt that he had found his mission, and Dictionary of the English Language (illustrated). He died October 27, 1865.

Worden John, naval officer born at where he proposed to write a great philo-Worden, John, naval officer born at where he proposed to write a great philosatte, died in 1897. He entered the ciety. Thenceforth his life was marked navy as a midshipman in 1834, and at the beginning of the Civil war was taken are his marriage in 1802 with his cousing prisoner by the Confederates, being exthe beginning of the Civil war was taken prisoner by the Confederates, being exchanged after seven months. His most mere to Allan Bank in 1808; his appeninent service in the war was as cappointment in 1813 to an inspectorship of tain of the Montor in its famous 19th with the Morrimac in Hampton Roads. He comanded the iron-clad Montauk in its operations against Fort Sumter, and to the continent; his acceptance of in its operations against Fort Sumter, and to the continent; his acceptance of in 1872, and retired in 1886.

Wordsworth (wards wurth), Christian and to the Continent; his acceptance of a D.C.L. degree conferred upon him in was made commodore in 1888 and rearadmiral in 1872, and retired in 1886.

Wordsworth (wards wurth), Christian and to the Continent; his acceptance of in 1839 by the University of Oxford; and his accession in 1843 to the laureateship on the death of Southey. Wordsworth's great philosophic poem, which, in his own phrase, was to be the Gothic cathedral of his labor, received only a fragmentary accomplishment in The Prelude, Taphy and other works. The Excursion, and The Recluse. Yet enough was achieved in his smaller poems to justify his own conception of himself Wordsworth, William, a celebrated enough was achieved in his smaller poems an attorney, was born at Cockermouth, as a 'dedicated spirit,' and to set him Cumberland, April 7, 1770; died April apart among the greatest of England's 23, 1850. In 1787 he was sent to St. poets. A complete edition of his poetical John's College, Cambridge. He left the works has been published by Professor university after taking his degree. but Knight, his prose writings have been colwithout having otherwise distinguished himself, and lived aimlessly in Lon-Memoirs were published in 1851 by his

nephew, and an interesting account of the poet and his sister Dorothy is found in her Diary of a Tour in the Highlands.

Work (wurk), in mechanics, the act
of producing a change of configuration in a system in opposition to a force which resists that change. According to physicists a unit of work is taken as a weight of one pound lifted one foot. See Foot-pound, Unit, Energy.

Workhouse, a house in which pau-pers are maintained at the public expense, those who are able-bodied being compelled to work. Under the old poor-laws of England, there was a workhouse in each parish, partaking of the character of a bridewell, where in-digent, vagrant, and idle people were set to work, and supplied with food and clothing, or what is termed indoor relief. These workhouses were described as, generally speaking, nurseries of idleness, ignorance, and vice; but a new system was introduced in 1834, parishes being now united for the better management of workhouses, which gave rise to the poor-law unions, with their workhouses. In these establishments the pauper inmates are employed according to their capacity and ability. Religious and secular instruction is supplied, while habits of industry, cleanliness, and order are en-forced. Similar institutions exist in the United States. See Poor.

(wur'king-tun), a Workington market-town and seaport of England, county of Cumberland, near the mouth of the Derwent, about 6 miles N. of Whitehaven. Its industrial establishments comprise large iron-smelting works and works for steel rails, ironplates, ship-building, etc. Pop. 25,099.

Workmen's Compensation

Laws. Laws relating to the compensa-tion of workmen for injuries sustained have been passed by many states. In nearly all the states of the Union the laws of employers' liability have been modernized, but only in a few states do these acts apply to all servants and are therefore 'compensation acts.'

World Scouts, an outgrowth from the Boy Scouts idea, the chief difference being that it is divested of all military significance, and based on the principle that all mankind constitute one family, and that in a strict sense there are no foreigners. It originated with Sir Francis Vane, who was concerned with General Baden-Powell in organizing the Boy Scouts. Not relishing the military aspect of the latter, he devised this new idea. It has had wonderful success, its membership going up derful success, its membership going up to 50,000 in a few months, and spread-ing over Europe, though not yet to the United States. The rules of helpfulness, etc., are similar to those of the Boy Scouts (which see). The American Boy Scouts are essentially non-military.

Worms (wurms), a term loosely applied to many small longish creeping animals, entirely wanting feet or having but very short ones, including such various forms as the earthworm, the larvæ or grubs of certain insects, intestinal parasites, as the tape-worm, thread-worm, etc. In zoölogical classifications it is used as equivalent to Vermes or to Annelida. In medicine it is applied to the parasitic animals which exist chiefly in the intestines, and to the disease due to the presence of such parasites. Several kinds of worms may infest the human body, but those with which children are so commonly annoyed are the small worms known as threadworms. Vermifuges or anthelmintics are names given to medicines that cure worms, such as extract of male-fern root for tapeworms, santonin for thread-worms. See Wormseed, Wormwood, Wormwood, Tapeworm and Nematelmia.

Worms, (vorms), one of the most ancient cities of Germany, is in the Grand-duchy of Hesse, on the Rhine, 25 miles s. of Mainz, and 20 miles N. w. of Heidelberg. The chief buildings of interest are the Romanesque cathedral (twelfth century), a magnificent structure with four round towers and two large domes; the Liebfrauenkirche and church of St. Martin; the town house; and the monument to Luther, consisting worksop (wurk'sup), a market town and the monument to Luther, consisting of England, in Nottingham. It shire, 26 miles N. of Nottingham. It form surrounded by figures of precursors has a beautiful Norman church, ironfoundries and saw-mills. Pop. 20,387.

World (wurld), in its widest sense signifies the universe, the total of all existing things. In its narrower peror Charles and an august assemblage. Pop. (1910) 46,819.

Wormseed, a seed which has the It is often spoken of also as the total of human beings, 'the world of man'; also worms from the intestinal tube or other of a specific group, as 'the literary world.'

which is a native of Tartary and Persia. used in water-works; erected a large In the United States the name is generally given to the seed of Chenopodium machinery; invented the duplex pump, and the common mane of several plants of the genus Artemisia. Common wormwood (A. Absinthium), a well-known plant, is celebrated for its intensely bitter tonic and stimulating qualities, which have caused it to be an ingredient in various medicinal preparaployed as secretary to Essex. On the fall of that nobleman from power (1600) liqueurs. It is also useful in destroying worms in children. worms in children.

Worsted (wur'sted), a variety of woolen yarn or thread, spun from long-staple wool which has been combed, and which in the spinning is twisted harder than ordinary. It is knit or woven into stockings, carpets, etc. The name is derived from Worsted, a village in Norfolk where it is supposed to have been first manufactured. See to have been first manufactured. See Woolen Manufacture.

See Brewing. Wort.

Worth, WILLIAM JENKINS, soldier, born at Hudson, New York, in 1794; died in 1849. He entered the army as a private in the war of 1812, became aid-de-camp to Generals Lewis became aid-de-camp to Generals Lewis and Scott, and fought at Chippewa and Lundy's Lane, being severely wounded at the latter battle. Promoted major in 1832 and colonel in 1838. He took command of the Florida war in 1841 and brought it to a successful termination. He served under General Taylor in the Mexican war, and distinguished himself Mexican war, and distinguished himself at the storming of Monterey. He was afterwards placed in command of the Southwest.

Worthing (wur'thing), a watering-place in England, county of Sussex, about 10 miles west of Brighof Sussex, about 10 miles west of Brighton. It is a fashionable resort, having an esplanade, libraries, a literary institution, reading-room, etc. There is also an extensive mackerel fishery. Pop. 30,308. Worthington, Henry Rossiter, inventor, born at New who taught him the rudiments of the art. York in 1817. He engaged in mercantile who taught him the rudiments of the art. The subjects in which he excelled were business, but in 1840 began a series of buntings, hawkings, encampments of experiments with steam for the propuls armise ferriery shows and all such York in 1817. He engaged in mercantile The subjects in which he excelled were business, but in 1840 began a series of experiments with steam for the propulsion of canal boats. Soon afterward he devised a small steam pump to be used horses and other animals.

In the maintenance of the water supply in the engine boiler, and in 1841 patented are independent feed nump which described the severe by the waves but the waves but the waves but the series of the series are severed cast as the severe by the waves but the waves but the series of the series of the series of the subjects in which he excelled were business; hawkings, encampenents of the art. Who take the subjects in which he excelled were business, hawkings, encampenents of experiments of the art. an independent feed pump which de-veloped into the direct-acting steam plied specifically to the genus Fucus. pump that he patented in 1849. Subse- See Fucaceæ.

from the Levant, and is the produce of a quently he built, in Savannah, Ga., the species of Artomisia (A. Santonica), first direct-acting compound engine ever which is a native of Tartary and Persia. used in water-works; erected a large

Wotton fied to Florence, where he was employed by the grand-duke to reveal to King James of Scotland a plot against his life. When the Scottish king ascended the throne of England he showed his gratitude by making Wotton a knight, employing him abroad as an ambassador, and ultimately (1625) appointing him provost of Eton. His ability as a writer is shown in Reliquiæ Wottonanæ, published in 1651, with Izaak Walton's Life of Wotton.

Worm de in surgical phrase, a break or

Wound, in surgical phrase, a break or loss of continuity in any of the soft parts of the body occasioned by external violence, and attended with a greater or less amount of bleeding. Wounds have been classified as follows: Wounds have been classified as follows:
(a) Cuts, incisions, or incised wounds, which are produced by sharp-edged instruments. (b) Stabs or punctured wounds, made by the thrusts of pointed weapons. (c) Contused wounds, produced by the violent application of hard, blunt, obtuse bodies to the soft parts.
(d) Lacorated wounds, in which there is tearing or lacertion, as by some rough instrument. (e) All those common injuries called gunshot wounds. (f) Poisoned wounds, those complicated with the introduction of some poison or venom into the part. Recent success in accel-erating the growth of tissues seems likely

Wrangler (rang'gler), in Cambridge 1708 surveyor of the royal works, and University, the name from 1685 to 1700 represented various given to those who have attained the boroughs in parliament. Over the north first class in the public examination for honors in mathematics, commonly called the mathematical tripos. The student taking absolutely the first place is called the senior wrangler.

Wrasse (ras), the name of various species of fish belonging to the family Labridse. They are pricklyspined, hard-boned fishes, with large double and fleshy lips. Several species are natives of the British seas, as the ballan wrasse, or old wife (Labrus tinca or maculatus), which attains a length of about 18 inches.

Wren (ren), a name given to certain birds closely allied to the warbbirds closely allied to the warb-lers, distinguished by their small size, slender beak, short, rounded wings, mot-tled plumage, and the habit of holding the tail erect. The wren proper (Trog-lodytes vulgaris) is, with the exception of the golden-crested wren, the smallest bird in Europe, averaging about 4 inches in length. It is a well-known bird, and has rather a bold loud song. The Amer-ican house-wren (T. domesticus) is a ican house-wren (T. domesticus) is a very familiar bird, and a general favorite

wren, Sir Christopher, an English architect, born in 1631; died in 1732. He was educated at Wadham College, Oxford; became a fellow of All Souls in 1653; was appointed professor of astronomy at Gresham College in 1657, and three wore afterwards was of astronomy at Gresnam Conege in 1657, and three years afterwards was elected Savilian professor of astronomy at Oxford. He had been appointed by Charles II to restore old St. Paul's, but offer the great fire (1666) it become after the great fire (1666) it became necessary to rebuild the cathedral. In preparing his plans he was considerably hampered by the ecclesiastical authority, but with the king's permission he modified and improved the design as the building proceeded. Thus, the division of the exterior into two orders of columns, and the present dome and drum on which it stands were alterations on the original plan. The cathedral was begun in 1675, and the architect saw the last stone laid by his son thirty-five years afterwards. Among the other notable buildings which Wren designed are: the modern part of the palace at Hampton Court, the library of Trinity College, Cambridge, the hospitals of Chelsea and Greenwich, the churches of St. Stephen's, Walbrook; St. Mary-le-bow; St. Michael, Cornhill; St. Bride. Fleet Street; as also the campanile of Christ Church, Oxford. In 1680 he was chosen president of the Royal Society, appointed in 1884,

boroughs in parliament. Over the north doorway of St. Paul's is a memorial tablet on which are the well-known words: Si monumentum requiris, circumspice. See Paul's, St.

Wrench, an instrument consisting essentially of a bar of metal having jaws adapted to catch upon the head of a bolt or a nut to turn it; a screw-key. Some wrenches have a va-



1, Screw wrench. 2, Tap-wrench. 3, An-e-wrench. 4, Tube-wrench. 5, Monkeygle-wrench. 4, Tube-wrench. 5, Mcwrench for hexagonal and square nuts.

riety of jaws to suit different sizes and shapes of nuts and bolts, and others, as the monkey-wrench, have an adjustable inner jaw.

Wrexham (reks'am), a municipal and parliamentary borough of North Wales, county of Denbigh, 12 miles south of Chester. Its church of St. Giles, built about 1470, is one of the finest old Gothic buildings in North Weles. North Wales. The town has large breweries, tanneries, paper-mills, etc., and the district has numerous coal, lead, and

wright, Carrott Davidson, statistician, New Hampshire, in 1840. He served in the Civil war, rising from private to colonel, was chief of the Massachusetts bureau of statistics 1873-88, and United States Commissioner of Labor after 1885. In 1902 he became president of Clark College. He published Industrial Evolu-tion of the United States, Outline of Practical Sociology, etc. He died in 1909.

Wright (rit), HORATIO GOUVERNEUR, general, born at Clinton, Connecticut, in 1820; died in 1899. He was graduated from West Point in 1841, and after some service in the army was promoted major in 1861. He served through the Civil war, was made brigadier-general of volunteers, commanded a division at the Wilderness and a corps at Spotsylvania and Cold Harbor, and was promoted major-general in the United States army in 1865. He was chief of engineers at the time of his retirement in

in inventing heavier-than-air flying machines capable of bearing the weight of a man in the air. The earliest successful test of their machines was made at Kitty Hawk, North Carolina, in 1903, and the first successful long distance flight near Dayton in 1905. After that might near Dayton in 1905. After that top to bottom, the Mexican picture time they made numerous flights in the writing from bottom to top, the Hebrew United States and Europe, and were writing from right to left, and Latin, awarded gold medals by the French Greek, and all European languages as Academy of Sciences and many other institutions. In 1909 they took charge of the Government aviation school at of the Government aviation school at College Park, Maryland, but in 1910 returned to Dayton to manufacture aeroplanes under their Wright died in 1912. Wrist, See Hand. patent.

Writ (rit), in law, a mandatory precept, issued by the authority and in the name of the sovereign or the State, for the purpose of compelling the defendant to do something therein mentioned. It is issued by a court or other competent jurisdiction, and is returnable to the same. It is to be under seal, and attested by the proper officer, and is directed to the sheriff, or other seals described to the sheriff. officer legally authorized to execute the same.

Writer's Cramp, a spasmodic affection in which the patient loses complete control over the muscles of the thumb and the fore and middle fingers, so that all attempts to write regularly, and in the severer cases even legibly, are unsuccessful. It is a tetanic contraction of the muscles of the hand and forearm. It may be due to cold, rheumatism, exhaustion of the muscles by long-continued strain, or infection by bacteria. It is treated differently, according to its cause, such as by heat, antirheumatic remedies, rest, bacterial vaccines, massage, etc. Called also Scrivener's Palsy.

Writers to the Signet. See Signet.

Writing (ri'ting), one of the oldest arts, is usually divided into ideographic writing, in which signs repideographic writing, in which signs represent ideas, and into phonetic writing, in which signs represent sounds. Ideographic writing, in its earliest form, is supposed to have been an attempt to cuneiform writing, another ancient system of the Egyptian. The supposed to have been an attempt to cuneiform writing, another ancient system of the Egyptian. The cuneiform nature, and this form of it has thus itants of Chaldea, was also adapted to acquired the name of picture-writing, several languages, as the Assyrian, the After this came symbolical writing, in Persian, etc., in a variety of ways, ideowhich abbreviated pictures were used graphic, syllabic, and alphabetic (see

Wright, Orville, born at Dayton, as arbitrary symbols, first of things, and Ohio, in 1871, and Wilbur, still later of sounds and words. This born near Millville, Indiana, in 1867, indicates the transition into phonetic brother aeronauts, the first to succeed writing, in which the signs may either in the still the signs may either the signs may represent a whole syllable (syllabic writing), or only a single sound, in which case they are called alphabetic. These signs differ in form and use in the various alphabets. Thus the Chinese signs are read in columns from



Wood Writing Tablet.

(See Alphabet.) In the Chinese system of writing there is no alphabet, the characters being syllabic and strictly ideographic.

Cunciform Writing). Also of independent origin is the Chinese system. From the thirteenth to the fifteenth centre Egyptians had three distinct kinds turies, and were employed in church of writing, the hieroglyphic, the hieratic, books from the time of St. Louis. In and the enchorial or demotic (see Hiero-glyphic), and it was from the second that the Phænician and other Semitic mixed style was formed of a combinasystems of writing are thought to have tion of Roman, Lombardic and Saxon been derived. The leading Semitic characters: the Norman style came in forms are the Samaritan or ancient Hebrew, the Chaldee or East Aramaic, English court hand, an adaptation of the Syriac or West Aramaic, the Kufic Saxon, prevailed from the sixteenth centre or early Arabic, and the Neshki or modern Arabic. At what time writing was have been various attempts made to inintroduced into ancient Greece is not troduce systems of phonetic writing, in



known with certainty, but probably be- which each sound should be represented known with certainty, but probably be-which each sound should be represented tween the tenth and the seventh century by one invariable sign. Systems of B. C. From Greece it passed to Sicily shorthand writing are generally phonetic. and Italy, and thence it was spread as Christianity spread. Like the Semites, Wryneck (ri'nek), a bird allied to the Greeks originally wrote from right to left. In mediseval manuscripts a peckers. One species, the common wryvariety of styles were adopted in different epochs and countries. Capitals itant of the north of Europe. It is were not then used as now to distinguish remarkable for its long to give its nown. seventh to the tenth centuries, were rest of rounded capitals with few hair-strokes, insects. Gothic characters, which were merely fanciful deviations from the Roman

were not then used as now to distinguish remarkable for its long tongue, its power prominent words, but whole manuscripts of protruding and retracting it, and the were written in large or small capitals. writhing, snake-like motion which it can Uncial letters, which prevailed from the impart to its neck without moving the seventh to the tenth centuries, were rest of the body. It feeds chiefly on

Wuhu. See Woo-Hoo.

Wundt (vönt), Wilhielm Max, a German physiologist and psychologist, born at Neckarau in Baden, on the Main, 60 miles s. E. of Frankfort. August 16, 1832. The list of his works lts old fortifications have been demolis long and comprehensive, including physiology, psychology, logic and ethics. He ades, but it is still overlooked by the believes that the straight road to ethics fortress of Marienberg, on a lofty hill lies through studying the history of the outside the city. The most important edirace and its psychology. His comprehensices are the Romanesque cathedral, sive System der Philosophie is widely erected in the tenth century, with an interior highly enriched but much deterior highly enriched but much deterior

sive System der Philosophie is widely erected in the tenth century, with an inknown.

Württemberg (vur-tem-berh), or rated by plaster decoration of the eightenth with the number of the German Empire, between ous new buildings; the Julius hospital Bavaria, Baden, Hohenzollern, and the and school of medicine, and the royal Lake of Constance, which separates it palace (1720-44). The university, with variform Switzerland; area, 7531 sq. miles; has 200,000 volumes, and in other respects pop. 2,435,000. Except a few tracts in the university, especially in the medical the south, the surface is hilly and even faculty, is well equipped. The manufactor mountainous. In the west the Schwarztures are varied in character. Pop. wald, or Black Forest (which see), forms part of the boundary, and the Alb or Rauhe Alp, forming part of the Franconian Jura, covers an extensive tract. The country belongs in large part to the basin of the Rhine, being drained northwards into that river by the Neckar, while the Danube flows across the southern districts. A part of the Lake of Constance is also included in Württemberg. The climate is decidedly temperate. In the lower and more favorable districts the fig and melon ripen in the open air the fig and melon ripen in the open air, and the vine, cultivated on an extensive scale, produces several first-class wines; maize, wheat, hops, tobacco, and apples, which are employed in cider making, are largely cultivated. About a third of the country is under forests which consist chiefly of oaks, beeches, and pine. Of minerals, by far the most valuable are iron and salt, both of which are worked by the government; the others are limestone, gypsum, alabaster, slate, mill-stones, and potter's clay. The manufactures consist chiefly of cotton, woolen, and linen goods, paper, wooden clocks, toys, musical instruments, and chemical ister of Justice in the cabinet of the proand the vine, cultivated on an extensive scale, produces several first-class wines; maize, wheat, hops, tobacco, and apples, which are employed in cider making, are largely cultivated. About a third of the country is under forests which consist chiefly of oaks, beeches, and pine. Of minerals, by far the most valuable are iron and salt, both of which are worked by the government; the others are limestone, gypsum, alabaster, slate, millstones, and potter's clay. The manufactures consist chiefly of cotton, woolen. factures consist chiefly of cotton, woolen, and linen goods, paper, wooden clocks, toys, musical instruments, and chemical products. The government is an hereditary constitutional monarchy, the executive power being lodged in the sovereign, and the legislative jointly in the sovereign and a parliament, composed of an upper and a lower chamber. In the Bundesrath Württemberg is represented by four members, and in the Reichstag by seventeen. Education is generally diffused, and the center of the educational system is the University of Tübingen, Essides Stuttgart (the capital), the chief towns are Ulm, Heilbronn, and Esslingen, The history of the state is of little general interest. In the war of 1868 Württemberg sided with Austria against Prussides St. He was active in the revolution in China of 1911-12, and was appointed Minister to the Unived States in 1912.

Wyandots (wi'an-dotz; in Canada called Hurons), an Indian Iroquois family. In the beginning of the seventeenth century they were settled on the eastern shore of Lake Huron, persed tribe settled at Ancien Lorette in Lower Canada, where their descendants towns are Ulm, Heilbronn, and Esslingen, The history of the state is of little general interest. In the war of 1868 Württemberg sided with Austria against Prusside in the revolution in China of 1911-12, and was appointed Minister to the United States in 1912.

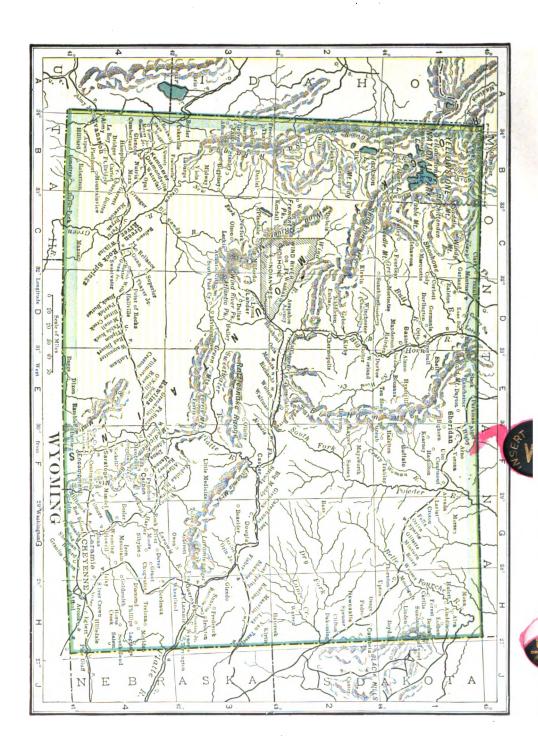
Wyandots (wi'an-dotz; in Canada called Hurons), an Indian Iroquois family. In the beginning of the seventeenth century they were settled on the eastern shore of Lake Huron, persented by the called Hurons, and the center of the growing government, and re-appointed minister to the United States in 1912.

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in London, being admitted to the English bar. He returned to China in 1877, and practiced law at Hong-Kong till 1882,

temberg sided with Austria against Pruson the Detroit River, 12 miles s. s. w.
sia. It became a member of the Gerof Detroit. It has ship and boat yards,
man Empire on its foundation in 1871.







trunks, fur-robes, coats, malt liquors, auto trucks, stoves, etc. Pop. 8287.

Wyandotte, Kansas, is a part of Kansas City.

Wyandotte Cave, situated 5 miles worth, Indiana, has been explored for over 20 miles, and rivals the Mammoth Cave in the size of some of its chambers and in its statement and in its statement and in its statement.

Wyant (wl'ant), ALEXANDER H., landscape painter, was born at Port Washington, Ohio, in 1836. He H., studied at Carlsruhe, Germany, under Hans Gude, and made attractive studies in Ireland of the lakes of Killarney. His studies of autumn effects in American forests, and views of nature in the Adirondacks and along the Ohio river, have made his fame more than continental. He died November 29, 1892.

Wycherley (wich'er-ii), WILLIAM, dramatist,

dramatist. born about 1640 at Clive, near Shrews-bury; died in 1715. His early years were spent in France, afterwards he was at the Temple; while in 1670 he became known as a fashionable man about town and the author of Love in a Wood. This comedy was followed by the Gentleman Dancing Master, the Country Wife, and the Plain Dealer. In 1680 he married the Countess of Drogheda, a young, rich widow, who at her death left him a lawsuit, the expenses connected with which brought him to the Fleet Prison. Here he remained for seven years, until released and pensioned by James II. Wycherley is the typical dramatist of the Restoration group, in which all the brilliancy and dissoluteness of that school are very prominent.

Wych-hazel (wich'hā-zl), the common name of plants of the genus Hamamelidaces. They are small rees, with alternate leaves on short petiknown as a fashionable man about town

rees, with alternate leaves on short petiples, and yellow flowers disposed in clusters in the axils of the leaves, and surrounded by a three-leaved involucrum.

They are natives of North America, Persistence of North America, P sia, or China, and are very different from the true hazel. The Virginian wych-hazel is medicinally important. See Hazeline.

Wycliffe. See Wiokliffe.

Wycombe (wik'um), HIGH or CHIPPING, a municipal borough of England, in Buckinghamshire, on the Wye, 34 miles N. w. of London. Its chief building in the Chamber of All Scients building is the Church of All Saints, built about 1273 A.D., and its chief manufactures are paper and lace. Pop. 24.558.

Wye (wi), a river of South Wales, which rises on Plynlimmon, in Cave in the size of some of its chambers

wye (wi), a river of south Wales,
in its stalagnites and stalactites,
which rises on Plynlimmon, in
surpassing the Mammoth Cave in the
number and beauty of these. It is notsable for its large chambers.

Wyatt (wi'at), Sir Thomas, the first
writer of sonnets in the English language, born in 1503; died in
1542. His poetical works were published in 1557.

Wykeham (wik'am), William of,
lished in 1557.

Wykeham (wik'am), William of,
lished in 1524. died in 1324 died in 1324 died in 1324.

wonmoutnaire. Above the latter place it is only navigable by barges.

Wykeham (wik'am), WILLIAM OF, was born at Wykeham, Hampshire, in 1324; died in 1404. He received a liberal education from the lord of the manor of Wykeham, and was afterwards accommended by him to the neticonal was accommended by him to the neticonal was accommended. wards recommended by him to the notice of Edward III. Having taken holy orders he was elevated to the rich see of Winchester, and in 1367 was appointed to the chancellorship of England. He founded (1373) a grammar school at Winchester, which still exists; and about the seme time founded a college at Oxthe same time founded a college at Oxford, now called New College. In the last years of his life he rebuilt Winchester Cathedral.

Wyntoun (win'tun), Andrew, an ancient rhyming chronicler educated at Oxford, and entered himself of Scotland, who lived in the early part of the fifteenth century, was a canon regular of St. Andrew's, as also prior of St. Serf's Inch, in Lochleven. His Chronicle, which is in the Scottish vernacular, and is called the Orygynale Cronykii of Scotland, begins with the creation of the world, and is brought down to the death of Robert III in 1406. The first five books contain an outline of general history and geography; the four remaining books dealing with the history of Scotland.

Wyoming (wi-o'ming), one of the June, 1890). It is almost rectangular in shape, bounded s. by Utah and Colorado, N. by Montana; E. by Nebraska and South Dakota, and w. by Utah, Idaho and Montana; area, 97,575 square miles. The surface is to a large extent mountainers the main chain of the Rocky. (wi-o'ming), one of the tainous, the main chain of the Rocky Mountains extending from northwest to southeast. It is broken by deep river cafions and flat topped hills or buttes, which rise from the plain or valley like walled cities or mounds. Near are large elevated plateaus or parks, of which the principal is the great Yellowstone Park. The river system includes the Platte River with its tributaries in the south-

Wythe

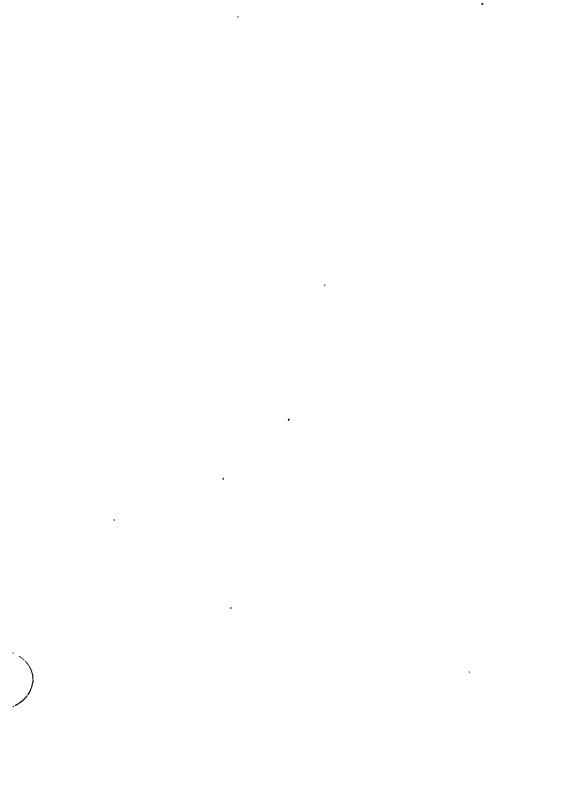
east, the Green River in the southwest, and the Yellowstone, Big Horn and Powder rivers in the north. The mountainous districts abound in forests, and the soil of the valleys is a fertile loam the soil of the valleys is a fertile loam very suitable for agriculture, but needing irrigation in great part of the State. It is claimed that 10,000,000 acres may be reclaimed in this way, and irrigation is being actively applied, there being more than 4500 miles of irrigating ditches. Wheat, oats and barley are the chief crops, and large tracts are used for stock-raiging, which is the chief industry crops, and large tracts are used for stock-raising, which is the chief industry. Wyoming is rich in mineral resources Good coal is abundant and there are vast beds of iron ore, while gold and silver are plentiful. Other minerals are gypsum, salt, soda, sulphur, copper, lead and tin. Petroleum seems abundant in the central and southern sections. Of the larger animals grizzly and black bears and several species of deer are still abundant, but the buffalo, of which there used to be immense herds on the plains, have become extinct. The manufactures consist of the sawing of lumber and railroad ties, milling of quarts, and railroad towns. Acquired as part of the Louisiana Purchase, this as part of the Louisiana Purchase, this territory was organized in 1868, and is now being slowly developed, chiefly through means of the Union Pacific Railthrough means of the Union Facinc Kan-way, by which it is traversed. In the northwest the Yellowstone district has been set apart by the government as a great national park. See Yellowstone National Park. The capital is Cheyenne City. The State is rapidly increasing in population. Pop. (1910) 145,965.

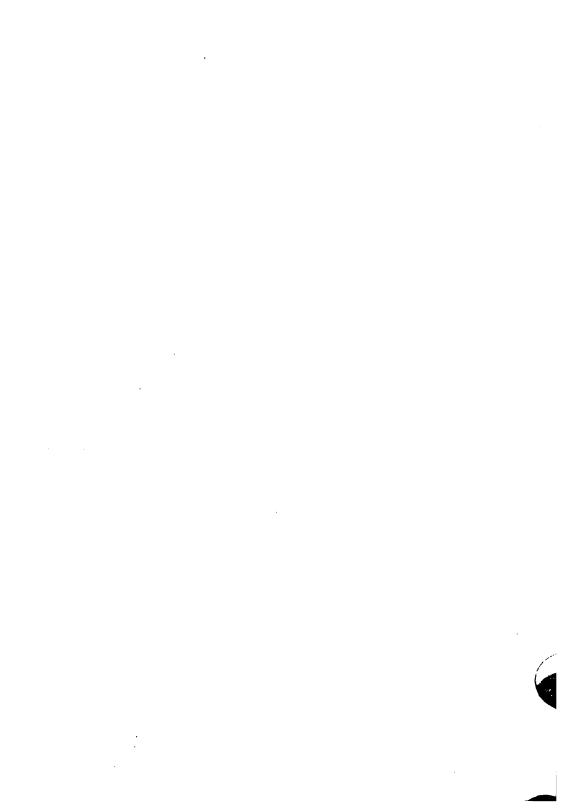
Wyville Thomson Ridge. See Atlantic Ocean.

Wyoming Valley, in Luzerne Pennsylvania, famous as the scene of a massacre of the American settlers by a band of Tories and Indians July 4, 1778. Nearly all the American Solution all the American fighting men were away in the Continental army and after a brief resistance the remaining men took refuge in Forty Fort, where most of the fam-ilies of the valley had gathered. The Tories, under Colonel Butler, offered unexpectedly easy terms of surrender, and the settlers went back to their homes, the settlers went back to their homes, while the invaders were supposed to be leaving the valley. Against the commands of their white leaders the Indians remained, and, on the night of July 4, began massacring the inhabitants and burning the houses. All who could escape made their way into the Wilkes-Barre Mountains and the swampy land beyond where many of the women and beyond, where many of the women and children died. When peace was estab-lished the surviving settlers returned. A memorial marble monument is erected in the valley.

Wythe (with), GEORGE, an American patriot, born in Elizabeth City Co., Virginia, in 1726; died in 1806. He was elected to the Continental Congress in 1775, signed the Declaration of Independence in 1776, became in 1777 a

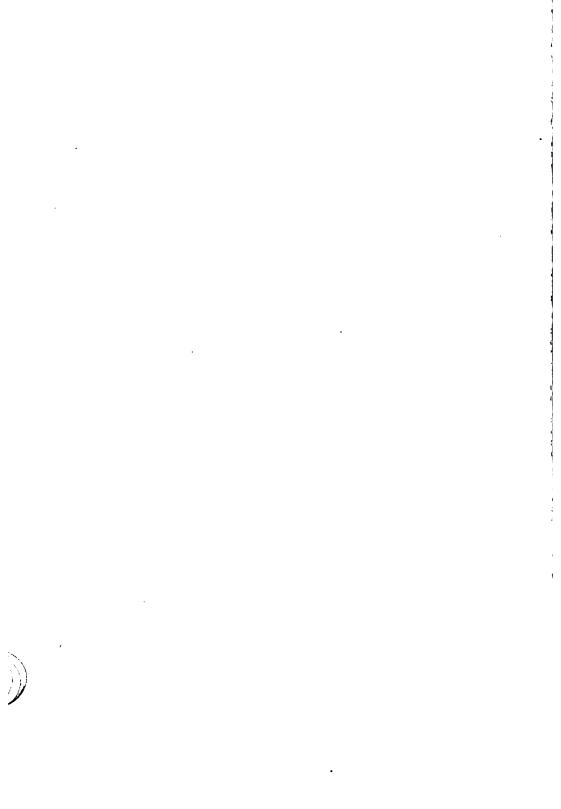


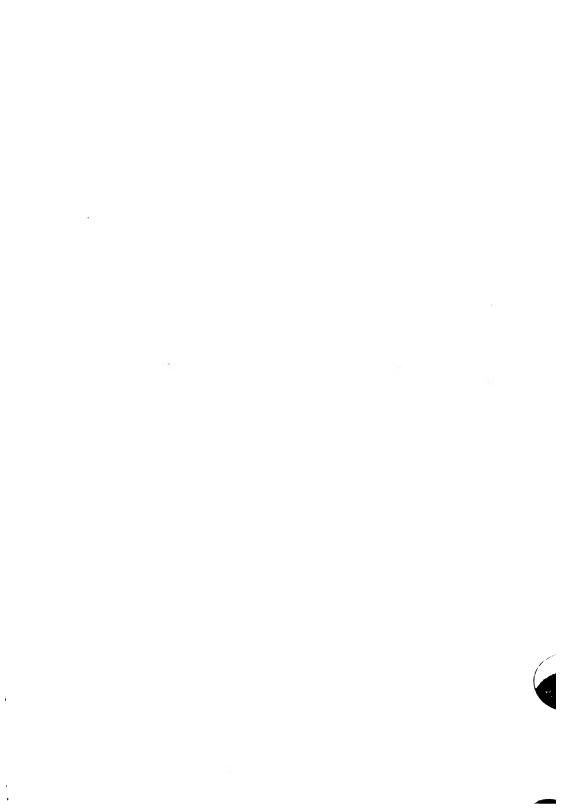










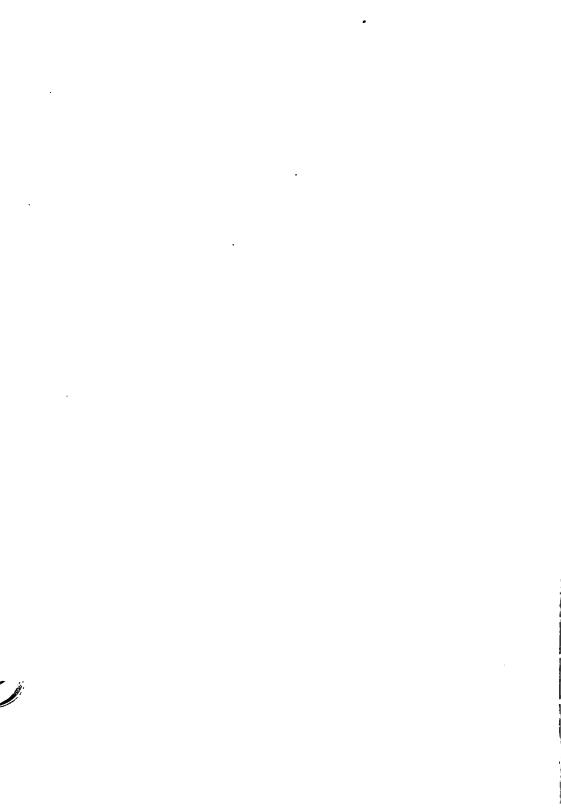


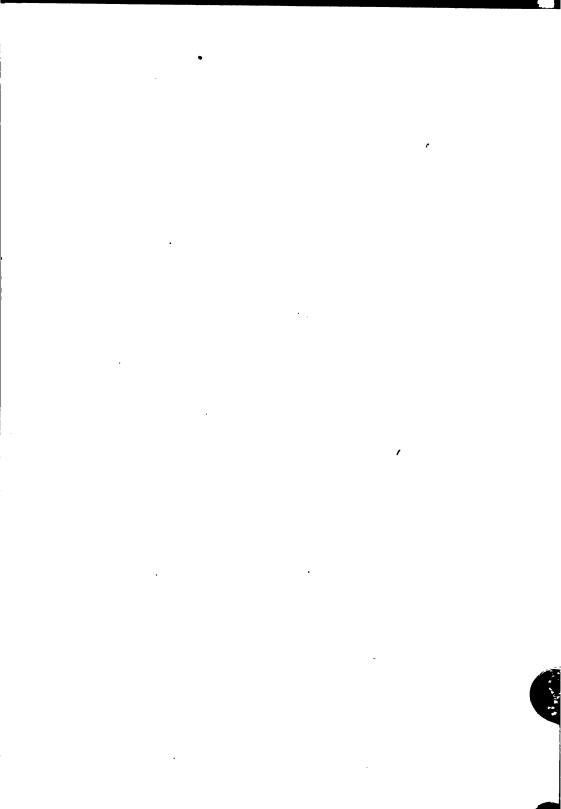


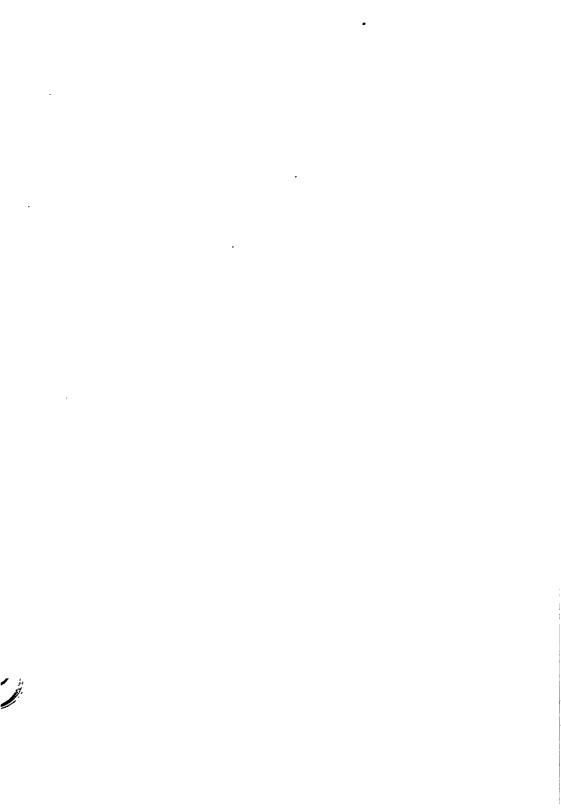
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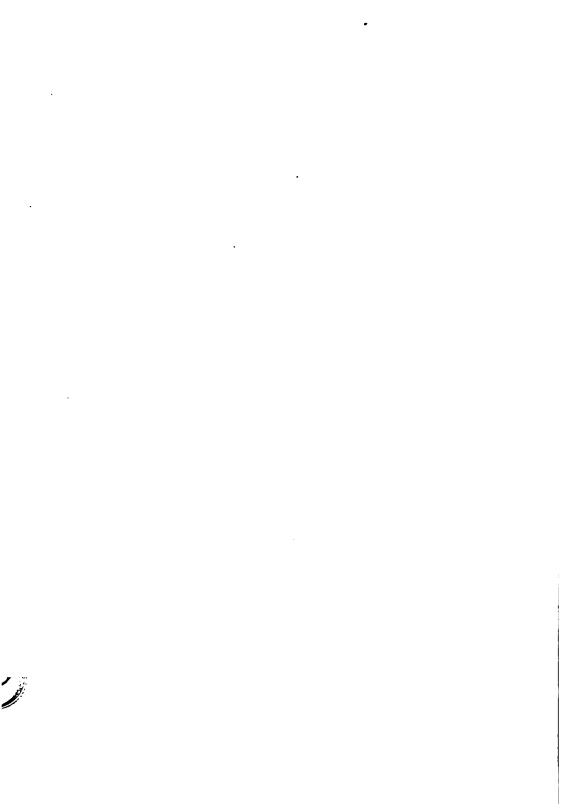
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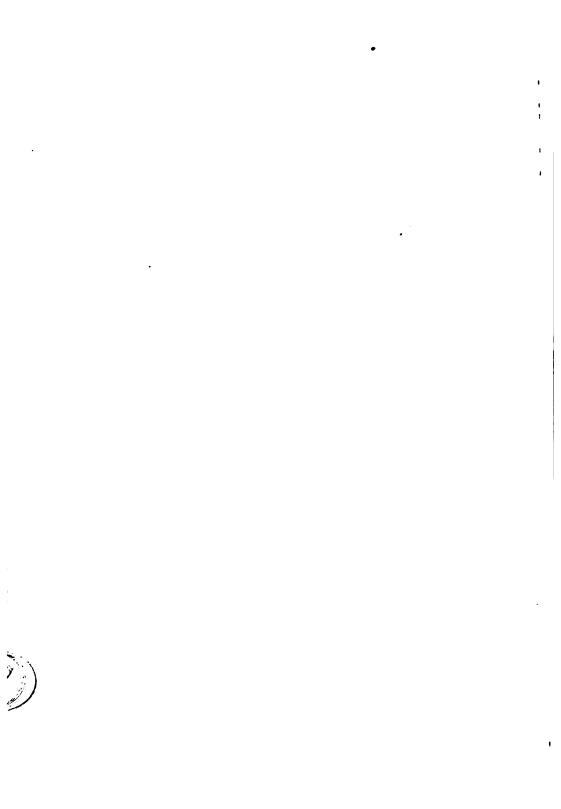




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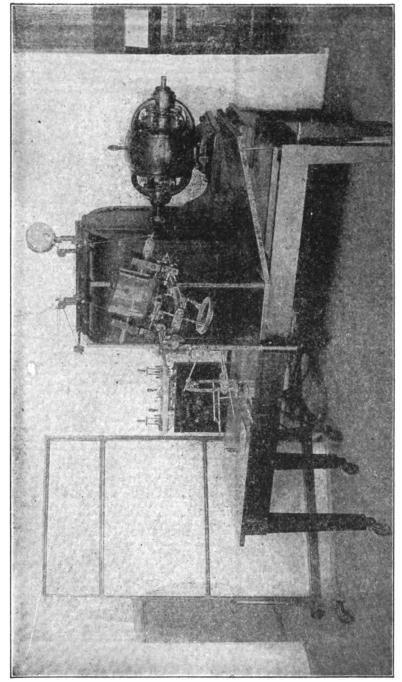
The twenty-fourth letter of the English alphabet. Except when used at which focus spot the Roentgen Rays
the beginning of a word, a in English is radiate in all directions according to the
a double consonant, and has usually the
sound of ks, as in was, las, axis, etc.; in medicine and surgery to photograph
but when terminating a syllable, espethe skeleton and all the internal organs
cially an initial syllable, if the syllable of the human body as an aid in diagnosis,
following it is one or accented it often also as a thereportic accent to destroy disfollowing it is open or accented, it often also as a therapeutic agent to destroy distakes the sound of gs, as in luxury, escased tissue with and without the aid of houst, exalt, exotic, etc. At the begin-surgery. Cancers and tumors of certain ning of a word it has precisely the sound kinds and a number of skin diseases are of z. X-Rays or Roentgen Rays (rent'ken) or Roentgen Radiation, discovered by Wilhelm Conrad Rontgen of the University of Würtzburg, Germany, and announced by him in December, 1895. Prof. Röntgen named them X-Rays ('unknown quantity'), since their exact nature was unknown, when they were disknown quantity'), since their exact nature was unknown when they were discovered. They are invisible rays transmitted through the ether in a manner is multiple that the consist of very lass by Sir C. Fellows; and have yielded short, irregular, non-harmonic, electromagnetic pulses in the ether and are capable of passing through all substances in a remarkable manner, approximately in inverse proportion to the atomic mass of the material. They produce fluorescence and phosphorescence in many crystalline substances such as barium-platinocyanide, calcium tungstate, willemite, calc spar, He fell under the personal influence of fluorspar, rock salt, calcium sulphide, etc., if gnatius Loyola, and became one of the giving a method of making their presence visible. They reduce the silver haloids Jesus. Under the auspices of John, King of photographic emulsions; color crystals, gems and glasses; ionize air and other gases; excite secondary Roentgen Rays in all substances absorbing them; precipitate mercurous chloride from aqueous he died in 1552. Canonized in 1621.

Solutions of mercuric chloride and ammercural capable. They capital of cell went or the Little Graena Co. Ohio on the Little Capable. They capital of China, when cipitate mercurous chloride from aqueous he died in 1552. Canonized in 1621. solutions of mercuric chloride and am-monium oxalate; reduce vitality of cell life (and in large amounts destroy it); and increase the velocity of a few chemical It is the seat of Zenia Theological Semuni-directional, electric current of from twenty to one hundred thousand volts pressure through a specially constructed high vacuum tube, within which, cathode away. It has saw, planing and paper wills. rays radiating from the surface of a con- mills, marble and granite works; cordcave cathode are focussed upon and bom- age, twine, shoes and other industries. bard a target of refractory material such Pop. 8706.

26-10

made to disappear by their use. Xanthippe (zan-thip'e). See Soc-(zan-tho-rê'a). Grass-tree. See Xanthorrhœa Xanthoxylum (zan - thoks'i - lum). See Prickly Ash.

Xanthus (zan'thus), an ancient city of Asia Minor, in Lycia, on the river Xanthus, about 8 miles above its mouth. Its ruins were discovered in 1838 by Sir C. Fellows; and have yielded a large collection of mathles, now in the (ze'ni-a), a city, capital of Greene Co., Ohio, on the Little Xenia Miami River, 65 miles N. E. of Cincinnati.



MODERN X-RAY APPARATUS

This is the most up-to-date development of the Roentgen Ray machine. The subject is placed on the long table in the foreground and the X-Ray tube in its lead has shield container brought, by means of its adjustable carriage, over the part to which the ray are to be applied. The cabinet in the background contains the high-tension transformer and rectifier, the machine at the right is a rotary converter which drives the restifier, and which, deriving power from the direct-current electric activers alternating current to the high-tension transformer. The controlling switches are seen at the left of the cabinet.

Xenocrates (ze-nok'ra-tez), of Chalcedon, a Greek philosopher, and disciple of Plato, born 396 B.C.; and from 339 until his death, 314 Athens. Metaphysics and ethics were his son of Darius and of Atossa, daughter of chief subjects, but of his numerous works only the titles are now known.

Xenophanes (ze-nok'ra-tez), of Colomanother Persian invasion of Greece. The army which he collected is estimated to

only the titles are now known.

Xenophanes (ze-nof'a-nēz), of Colophon, a Greek philosophon, a Greek philosopher, born probably about 330 B.C.; for some time settled at Elea, and regarded as the founder of the Eleatic school of philosophy. The character of his teaching has been much debated. He must have been at least seventy-two when he died. See Eleatic School.

Xenophon (zen'o-fon), a Greek historian and essayist, born at Athens about 430 B.C.; became early a disciple of Socrates. In 401 B.C., partly from curiosity, and in no military capacity, he joined the Greek mercenaries attached to the force led by Cyrus the Younger against his brother Artaxerxes 1I. After the defeat and death of Cyrus on the field of Cunaxa, the chief Greek officers were treacherously assassinated by the victorious satrap. Xenophon now came to the front, and mainly con-ducted the famous retreat of the 10,000 by the victorious satrap.
came to the front, and mainly
ducted the famous retreat of the 10,000
through wild and mountainous regions,
often harassed by the guerrilla attacks
of barbarous tribes, until after a five
months' march they reached Trebizond
on the Black Sea, February, 400 B.C.
The expedition and its sequel form the
subject of his best-known work, the
Anabasis. Xenophon fought on the side
of the Lacedemonians in the subsequent
war between Sparta and Persia, and rose

Xingu (shing-gö'), a river of Brazil.
one of the chief tributarles of
the Amazon, rises near lat 15° s., lon. With Agesilaus, under whom he had already served, he fought at Coroneia (394) B.C.) against his own countrymen, and was on this account formally banished from Athens. For more than twenty years he seems to have lived the life of years he seems to have lived the life of a country gentleman at Scyllus in Elis, where he is supposed to have written most of his works. After the defeat of the Spartans at Leuctra (371 B.C.), Xenophon was driven from Elis, and is said to have retired to Corinth. He was certainly alive in 357 B.C. Xenophon's principal works, besides the Anabasis, are his Cyropædia, a political and educational romance based on the history of Cyrus the Great; the Hellenica, a history of Greece where Thucydides leaves off, including the period from 411 to 362 ering new woods with properties and structural characters similar to certainly alive in 362 ering new woods with properties and structural characters similar to certain hinds which are being rapidly exhausted. of Socrates.

army which he collected is estimated to have exceeded a million of men, with a fleet of 1200 sail. Xerxes crossed the Hellespont on a bridge of boats (480 B.C.), and met with no resistance until he reached the Pass of Thermopylæ. After Leonidas had fallen there with his Spartans (see Leonidas), Xerxes pressed forward and burned Athens, which had been forsaken by almost all its inhabitants. He watched from the mainland the naval battle of Salamis (September, 480 B.C.), and fied ignominiously after the overwhelming defeat of his fleet. Xerxes was assassinated 465 B.C. He has been supposed to be the Ahasuerus of the Replace of Extern the Book of Esther.

Ximenes (hi-mā'nes), Francisco, a Spanish cardinal, born in 1437; died in 1517. In 1492 he was appointed confessor to Queen Isabella of Castile, and in 1495 Archbishop of To-

the Amazon, rises near lat. 15° s., lon. 59° w., and after flowing north for 1300 miles joins the Amazon 240 miles w. of Para. It is navigable for 100 miles.

Xiphias. See Sword-fish.

Xiphodon (zif'o-don), a genus of fos-sil mammals closely allied

of the xylologist at present is in discovering new woods with properties and structural characters similar to certain kinds which are being rapidly exhausted.

Y the twenty-fifth letter of the English cylindric horns, curving outward, long alphabet, was taken from the Latin, pendent silky hair fringing its sides, a the Latin having borrowed it from the bushy mane of fine hair, and long, silky, Greek T or upsilon. In modern English horse-like tail; inhabiting, both in the dle and at the end of words it is a vowel. its very peculiar voice, which sounds, Y, or IJ (both pronounced I), the west-ern arm of the Zuider Zee on which Amsterdam is situated.

Yablonoi. See Stanovoi Mountains.

Yacht (yot), a light and elegantly fitted up vessel, used either for pleasure trips or racing, or as a vessel of state to convey kings, princes, etc., from one place to another by sea. There are two distinct species of yacht: the mere racer, with enormous spars and sails and deally shallosted hall sails and deeply-ballasted hull, with fine lines, but sacrificing everything to speed; and the elegant, commodious, well-proportioned traveling yacht, often with steam-propelling machinery, fit for a voyage round the world. A type of yacht much used in America is that with a center-board or movelle keel (See Centersort of movable keel. (See Center-board.) The practice of yachting as well as the word yacht was derived from the Dutch. The word yacht is found in use in English in Elizabeth's time, and James I had a yacht built for his son Henry early in the seventeenth century, but it was not till long after that yachting became a favorite pastime with the rich. The first yachting club in the British Kingdom was organized at Cork Harbor in 1720. The first yacht club in the United States was established at Nam York in 1844. New York in 1844. In each country the yachts are now numbered by the thousand. In 1851 the America, built in New York, carried off a cup given by the Yacht Squadron at Cowes, and her victory led to considerable modifications of the build of British yachts. In subse-quent international contests the American yachts have held their own, and the

a the Latin having borrowed it from the Latin, pendent silky hair fringing its sides, a the Latin having borrowed it from the bushy mane of fine hair, and long, silky, Greek T or upsilon. In modern English horse-like tail; inhabiting, both in the it is both a consonant and a vowel. At wild and the domesticated state, Tibet the beginning of syllables and followed and the higher plateaus of the Himaby a vowel it is a consonant; in the mid-layas; called grunniens (grunting) from the property of the provider of the provider



Yak (Bos grunniens).

much like the grunt of a pig. It is the ordinary domestic animal of the inhabitants of those regions, supplying milk, food, and raiment, as well as being used as a beast of burden and to draw the plow. The tail of the yak is in great request for various ornamental purposes, and forms an article of commerce.

Yakub Khan (ya-köb'), Ma-HOMED, Amir of Afghanistan. See Afghanistan. Yakutsk (ya-kötsk'), a province of Eastern Siberia, includes nearly the whole of the basin of the Lena, between which river and its tributary, the Vitim, rich gold mines are worked. Area, 1,533,397 sq. miles. Pop. 261,731. YAKUTSK, capital of the province of the same name, stands on a branch of the Lena, and is the principal trade-center of Eastern Siberia. It was founded by the Cossacks in 1632. Pop. about 7000.

quent international contests the American yachts have held their own, and the cup has never recrossed the Atlantic.

Yale (yāl), ELIHU, philanthropist, was born at Boston, Massachusetts, in 1648; died in 1721. He went to Yak, a fine large species of ox, with cated there, and never returned to the

United States, becoming an East India scend. The tubers of *D. alāta*, the West merchant and acquiring great wealth. Indian yam, one of the species most He gave books and money valued at widely diffused, sometimes attain a \$4000 to the Collegiate School at Say-weight of 50 lbs. brook, Connecticut, and after the removal of this school to New Haven it was named in consequence Yale College. Yale, Linus, inventor, born at Salisbury, New York, in 1821; died in 1868. In 1850 he began the study of mechanical problems, and in 1851 patented a safety lock. From this date until his death he was considered an authority in all matters relating to locks, his most notable invention being the double lock, which comprised two locks within a single case and operated by the same or different combinations. The 'Yale lock' is now in almost universal use.

Yale University (yāl), one of the oldest of the American universities, was originally a collegiate school established at Saybrook, Connecticut, in 1701. It was removed in 1716 to New Haven, and soon after its name was changed to Yale College, after its patron Elihu Yale (1648-1721). In 1887 its name was changed to Yale University by act of Assembly. It has four feathers, philography and arts theology. faculties - philosophy and arts, theology, law, and medicine—in all of which its governing body grants degrees. The first of these faculties includes, besides the original academical department, a scientific and engineering school — degrees for civil and dynamic engineering being given—and a school of fine arts. The aggregate number of volumes in all the libraries of the college is 600,000, of which 1000 were presented to it in 1730 by Bishop Berkeley. Its museum of natural history was endowed with \$150,000 by George Peabody and the endowment of the university is over \$13,000,000. The numerous buildings cover about nine acres in the heart of the city, the oldest dating from 1752. The teaching staff and members of faculty number over 410, and the average number of students over 3000.

Yam, a large esculent tuber or root produced by various plants of the genus Dioscorea, order Dioscoreaces, growing in the warmer regions of both hemispheres. Yams, when roasted or boiled, form a wholesome, palatable, and nutritious food, and are extensively cul-tivated in many tropical and sub-tropical countries. The Chinese or Japanese yam (D. Batātas) contains more nitrogenous and therefore nutritive matter, but less starch, than potatoes. It is hardy in Great Britain and thrives in the United States, but its cultivation is impeded by sometimes improperly applied generally the greath depth to which its roots de- to natives of the United States. The

Yama (yam'a), a Hindu god, the judge of the dead, whose good and bad actions are read to him out of a record, and who according to their merits and demerits are sent to the celestial or to the infernal regions. Hindus offer to him daily oblations of water.

Yamagata, Aritomo, a Japanese marquis and field-marshal; born in 1838. The son of a Samurai chieftain, he received a military education, and in 1868 took part in the suppression of the Shogunate. He became Minister of War in 1873, created a national army out of the feudal retainers, and in 1877 quelled the Satsuma rebellion. He commanded the successful Japanese forces in the Chinese war of 1894-95, and was prominent in the Russo-Japanese war of 1904; was president of the councils of war which formulated the plan of campaign. mulated the plan of campaign.

Yang-tze-kiang (yang-tze-ke-ang'), one of the two great rivers of China, is formed by two great rivers of China, is formed by two streams rising in Eastern Tibet, in lat. 26° 30' N., lon. 102° E. After flowing east and then south it enters the Chinese province of Yunnan. Pursuing a very tortuous course, much of it through most fertile and densely-populated regions, it reaches the great city of Nanking, 200 miles from the sea, where it widens gradually into the vast estuary which constitution in the vast estuary which constitution is the Valles See Life whole nects it with the Yellow Sea. Its whole course, under various names, is 2900 miles, and the area of its basin is computed to be 548,000 square miles. It is connected by the Grand Canal with the Hoang-ho or Yellow River, and is navigable for vessels of considerable draught for 1200 miles from its mouth. By the Treaty of Tien-tsin the Lower Yang-tree was opened to European trade; and 700 miles from its mouth is the treaty-port of Hangkow, the great commercial city of Mid-China. The highest port on the river at present open to foreign trade is Ichang, 1000 miles from its mouth.

Yankee (yan'ke), a cant name for Americans belonging to the New England States. During the American Revolution the name was applied by the British to all the insurgents; and during the Civil war it was the common designation of the Federal soldiers by the Confederates. In Britain the term is

See Janina. Yan'ina.

most common explanation of the term habitants, chiefly Persians, are keen tradseems also the most plausible, namely, that it is a corrupt pronunciation of English or of French Anglais formerly current among the American Indians.

Yankee-Doodle, a famous air, now regarded as American and national. In reality the air is an old English one, called Nankey Doodle, and had some derisive reference to Cromwell. The really national air of the whole United States, however, is 'The Star-Spangled Banner,' which divides public favor as a patriotic song with 'America,' beginning,

> 'My country, 'tis of thee, Sweet land of liberty,' etc.

Yankton (yank'tun), a city, county seat of Yankton Co., South Dakota, and up to 1883 the capital of Dakota Territory. It is on the N bank of the Missouri River, 61 miles N. W. of Sioux City. It contains Yankton College and has flour mills, grain elevators, brewery, brick, tile and cement works, etc. Pop. 4000.

Yankton Indians, a tribe in South Dakota, numbering about 7000.

Yard, a British and American standard measure of length, equal to 3 feet or 36 inches, the foot in general being made practically the unit. As a cloth measure the yard is divided into 4 quarters = 16 nails. A square yard contains 9 square feet, and a cubic yard 27 cubic feet. See Weights and Measures.

Yard, in ships, a long cylindrical piece taper toward each end, slung crosswise to a mast. All yards are either square or lateen, the former being suspended across the masts at right angles for spreading square sails, the latter obliquely. Yards have sheave-holes near their extremities

Yare (yar), a river of England, which, rising about the middle of Norfolk, flows east past Norwich, and after receiving the Waveney widens into the estuary of Breydon-water, is joined by the Bure, and enters the German Ocean 21 miles below Great Yarmouth, after course of shout 20 miles a course of about 30 miles.

Yarkand (yār-kānd'), the chief town in the principal casis of Eastern Turkestan, is situated on the river Yarkand. It is enclosed by a thick

ers. Pop. estimated at from 75,000 to 100,000.— The river rises in the Karakorum Mountains, and helps to form the river Tarim, which enters Lob Nor.

Yarmouth (yar'muth), or, as it is more strictly called, GREAT YARMOUTH, an English seaport, important fishing station, and watering place, is in the county of Norfolk, 20 miles east of Norwich. It is situated on a long and narrow tongue of land running from north to southward between the German Ocean and the estuary of the Yare. The town is connected by a bridge with Little Yarmouth, or South Town, in Suffolk. The parish church of St. Nicholas, founded in 1101, and of late years completely restored, is one of the largest in the kingdom. Yarmouth has a naval lunatic asylum, the only one in the kingdom. It is the great seat of the English the ring and mackerel fishery, and also furnishes large quantities of white-fish. The curing of herring as 'Yarmouth bloaters' is an important industry. The coast is dangerous, but Yarmouth Roads, between the shore and a range of sand-bankr, offers a safe anchorage. Pop. (1911) 55,188.

Yarmouth, a seaport town of Nova Scotia, 205 miles s.w. of Halifax, and the chief shipbuilding place in the province. Pop. 6600.

Yarn, any textile fiber prepared for weaving into cloth. See Thread. Yaroslaf. See Jaroslav.

Yarr, a well-known British and European plant, Spergula arvensis. See Spurrey.

Yarra-Yarra (yar'ra-yar'ra), the Australian river on which Melbourne, Victoria, is situated. Its length is about 100 miles. On account of falls it is not navigable above Melbourne. See Melbourne.

for the sheets reeving through. Either that part of it which is outside the sheave-hole, is called the yard-arm.

Yarrell (yar'el), WILLIAM, an eminent naturalist, was the son of a newspaper agent in London; born there in 1784; died in 1856. He assisted in and succeeded to his father's business. He contributed frequently to the Transactions of the Linnean Society, of which he became a fellow, and to natural history periodicals. His two works, the History of British Fishes and the History of British Birds, are standard authorities.

> See Yoruba. Yarriba.

Yarrow (yar'o), a name given to a pungent plant, Achillera milmud wall, and its rich gardens are well lefolium, also known by the name milfoil watered by numerous canals. The in- (which see). Yarrow, a parish Scotland, parish in chiefly pastoral,

tervals.

Yaws (yaz), a disease occurring in America, Africa, and the West in Indies, and almost entirely confined to the African races. It is characterized by cutaneous tumors, numerous and successive, gradually increasing from specks to

above Vicksburg.

Selkirkshire, son. It has cotton, oil and lumber interests. Pop. 6796.

celebrated for its poetical and historical associations. The river Yarrow, famous in song, issues from the foot of St. Mary's Loch, and, flowing 141 miles eastward, falls into the Ettrick, 2 miles eastward, falls into the Ettrick, 2 miles either equinoctial point, or either tropic, and his return to the same. This is the Yataghan (yat'a-gan; Turk. yataghan), a sort of dagger-strict and proper sense of the word. This period comprehends what are called the twelve calendar months, and is usually sense as the twelve calendar months, and is usually sense as the same of the word. 2 feet long, the handle without a cross-guard, much worn in Mohammedan coun-tries.

the twelve calendar months, and is usu-guard, much worn in Mohammedan coun-ally calculated to commence on January 1 and to end December 31. It is not Tates (yāts), Edmund Hodgson, an died in 1894. He wrote Broken to Harness, Land at Last, Dr. Wainwright's Patient, The Impending Sword, Personal Reminiscences, etc.

Yawl (yāl), a small ship's boat, usually rowed by four or six of 365 days.—Ecclesiastical year, from oars; a jolly-boat; also a sailing boat smillar to a cutter, but having a small sail at the stern.

Yawning (yāwn'ing), an involuntary sepansion of the mouth, a reflex muscular action, generally produced by weariness, tedium, or an inclination to sleep, sometimes by hunger, etc. When yawning is troublesome, it may be relieved by long, deep respiration, or drawing in the air at long instance of the six of 13 lunar civil months, and contains 384 days.—Sabbatical year. See Sidereal Sabbath.— Sidereal year. See Sidereal Time.

Yeast (yest), the yellowish substance, having an acid reaction, produced during the vinous fermentation of saccharine fluids, rising to the surface, when the temperature of the fluid is high, sive, gradually increasing from specks to when the temperature of the fluid is high, the size of a raspberry, one at length in the form of a frothy, flocculent, viscid growing larger than the rest; core a matter (surface yeast), and falling to fungous excrescence; fever slight, and the bottom (sediment yeast) when the probably irritative merely. It is infectious and contagious, and is produced by incoculation with Treponema pertenius, of beer consists of an immense number of inoculation with Treponema pertenius, minute cells, which constitute a plant which may be carried by the common called the yeast-plant, which multiplies house fly. It is also called frambœsia, by budding off other cells, or sometimes from the French frambœise, a raspberry. by spores. Little is known regarding the It is treated by intramuscular or intravenous injections of dioxyamido-arsenosearches seem to show that the yeast benzol, or '606,' a remedy brought forwhich forms in grape juice is derived ward by Dr. Ehrlich for syphills, both chiefly from certain germs abounding ward by Dr. Ehrlich for syphilis, both chiefly from certain germs abounding diseases being caused by varieties of about harvest-time on the grapes, and Treponema. Milk of goats thus treated diffused throughout the atmosphere of is suggested for children affected with breweries and wine-cellars, etc. Yeast is Yazoo River (yaz'ö), a river of tion of wine from grape and other fruit Mississippi, 290 miles juices, and to the manufacture of beer, long, navigable throughout its course, but it is also an agent in producing the and joining the Mississippi River 5 miles fermentation whereby bread is rendered light narrows and converse of the graph. above Vicksburg.

Nazoo, a city, capital of Yazoo Co., seded leaven. (See Fermentation.)—

Mississippi, on the navigable German yeast is prepared in various ways Yazoo River, 45 miles N. N. w. of Jack-from common yeast collected, drained,

and pressed till nearly dry. It can be so kept for several months, and is much used by bakers.—Patent yeast is yeast col-lected from a wort of malt and hop, and treated similarly to German yeast.—
Artificial yeast is a dough of flour and a small quantity of common yeast made

small quantity of common yeast made into small cakes and dried.

Yeats (yāts), WILLIAM BUTLER, an Irish poet, born at Dublin, in 1865. He wrote The Wanderings of Oisin and Other Poems, Countess Cathleon, Shadowy Waters, etc., and various plays of verse since published as Plays for the Irish Theater (1912). He was one of the leaders of the Celtic Renaissance, and has written some prose works including has written some prose works including The Celtic Twilight and Sygne and the Ireland of His Time.

See Tebio. Yeddo.

See Isiek. Yeisk.

See Islets.

the orange and the green; a bright golden color, the type of which may be found in

Yellow-berries.

Yellow-bird, a small singing bird common in the United States, the Fringills or Chrysometris tristis. The summer dress of the male is

bles that of the canary.

Yellow Fever, popularly known as In Canada and Nova Scotia the name is infectious disease of tropical and semi-to P. australis. tropical America and the western tropical Yellow River. See Hoang-ho. coast of Africa. It is caused by the Yellows, an inflammation of the liver, through the bite of the Stegomyia fasciata

See Hoang-ho.

The distraction of the Hoang-ho.

The distraction of the Jellow fever bacteria Yellows, an inflammation of the liver, through the bite of the Stegomyia fasciata of the see which and the see the second that the bite of the Stegomyia fasciata of the second the second through the bite of the Stegomyia fasciata of the second through the bite of the Stegomyia fasciata of the second through the bite of the Stegomyia fasciata of the second through the bite of the Stegomyia fasciata of the second through the bite of the Stegomyia fasciata of the second through through the second through the second through the second through t mosquito, which was proved by researches affects horses, cattle and sheep, causing made in Havana, Cuba, in 1899, by Drs. yellowness of the eyes. The same name Walter Reed, J. Carroll and A. Agraise given to a disease which affects the monts, of the United States Marine Hospital Service. The symptoms begin in from one to six days after the mosquito

Or a kind or jaundice which affects horses, cattle and sheep, causing affects horses, cattle and s

bite is inflicted. One attack usually confers lifelong immunity. There are three stages: 1. The febrile stage, beginning with malaise, headache, irritable stomach, chills, high fever; pains in head, back and limbs; scanty urine; a peculiar odor. slight jaundice occurs, resembling the appearance just prior to the eruptive stage of measles. The white of the eye is colored yellow. The coloring deepens for several days, and may become quite dusky. Albumin appears in the urine on the third day. 2. About the third or courth day the fewer drops to 100° or on the third day. Z. About the third or fourth day the fever drops to 100° or 90° F. and other symptoms improve. A crisis may then terminate the disease. 3. In the third stage the previous symptoms may reappear in worse form than before. A characteristic is an abnormally allow nulles with a fever where the mally slow pulse with a fever, where the pulse rate may decrease while the fever grows higher. The other symptoms are: complete jaundice, black vomit, hæmorrhages from mucous membranes, feeble Yell (yel), the second largest of the Shetland Islands, separated from the mainland by Yell Sound, and 25 miles in length, and from half a mile to carry the germs elsewhere. By this miles in breadth. The surface is chiefly moorland, and fishing is the leading employment. Pop. 2579.

Yellow (yel'0), one of the prismatic colors; the color of that part of the solar spectrum situated between the solar spectrum situated between and other treatment.

Yellow-AMMER, a

color, the type of which may be touch the field buttercup, which is a pure yellow. United with blue it yields green; the genus Emberiza, the E. oitrinella; with red it produces orange. See Color called also yellow-bunting. The head, cheeks, front of the neck, belly, and cheeks, front of the neck, belly, and The upper surface is partly yellow, but chiefly brown, the feathers on the top of the back being blackish in the middle, and the tail feathers are also blackish. The Yellow Pine, a North American tree, Pinus mitis or of a lemon yellow, with the wings, tail, and fore part of the head black. When caged the song of this bird greatly resem-variabilis. The wood is used largely for



THE YELLOWSTONE
View of the Grand Canon and Inspiration Point from Artist's Point.

Ocean, on the northeast coast of China; length, about 620 miles; greatest breadth, about 400 miles. It is very shallow, and obtains its name from the lemon-yellow color of its water near the land, caused by mud suspended in the water from the inflow of the rivers Hoang-ho and Yangtse-kiang.

Yellowstone National Park.

a region of the state of Wyoming, occupying its northwest corner with slight extensions into Montana and Idaho; of bird (Sylvia Marilandica). remarkable natural beauty and unique for the number and diversity of its geysers and hot springs. It was in 1872 with drawn from settlement by the United States government to become a park or tract for the recreation of the people. It was originally about 62 miles in length (from N. to s.), and 54 in width, with an area of 3350 sq. miles, but in 1882 a forest preserve of over 2000 square miles was added in the E. and S., making the total area a little over 5500 sq. miles. It is readily accessible by a branch of the Northern Pacific Railway. Its surface is mainly an undulating plain, diversified, however, by great mountain ranges, one of which, the Absaraka, a range separating the waters of the Yellowstone river (which see) from those of the Big Horn, contains some of the grandest scenery in the United States. The whole region exscenery — hot springs, mud volcances, geysers, cañons, waterfalls, etc. The geysers are more remarkable than those of Iceland, and the Grand Geyser in Firebolo Begin is the most magnificant received. hole Basin is the most magnificent nat-ural fountain in the world. The Yellow-stone Lake, one of many, is a magnifi-cent sheet of water, with an area of 150 sq. miles, and an elevation of 7440 feet. The falls of the Yellowstone are of striking beauty. The Mammoth Hot Springs also are notable, from their beautiful also are notable, from their beautiful terraces and basins of exquisitely colored calcareous deposits. A large part of the park is covered with forest. Stringent legislation protects the game, with the result that elk, deer, antelope and bear, have taken refuge in it and have rapidly increased in numbers. increased in numbers.

Yellowstone River, a river of the Western United States, which rises in the Rocky Mountains, about lat. 44° N. and lon. 110° w. After a course of about 25 miles its passes through the lake of the same name, and runs northward through same name, and runs northward through the Yellowstone National Park. Soon after issuing from the lake the river river Yeo or Ivel, 40 miles south of Brismakes at intervals a series of falls (the last being 300 feet high), and traverses dating from the fifteenth century, and is

canons, one of which, the Great Canon, is 30 miles in length, its steep sides being colored in bright hues and shaped in a great variety of fantastic forms. Running in a northeasterly direction the river ultimately joins the Missouri about lat. 48° N., after a course of some 1100 miles. Steamers can ascend it for 300 miles to the mouth of the Big Horn, which is its largest affluent.

a small North Yellow-throat, American singing

Yemen (yem'en), a division of Arabia, occupying the southwest angle occupying the southwest angle of the peninsula, and known as Arabia Felix. Some portions of it are very fertile. Among its principal products is coffee, to a specially prized kind of which Mocha, one of its seaports, has given a name everywhere known. Estimated area, 70,000 square miles; estimated population, about 750,000. (See Arabia.) The chief potentate is the Imam of Sana, a tributary of Turkey. Yen, a Japanese money of account, equivalent to \$1.04.

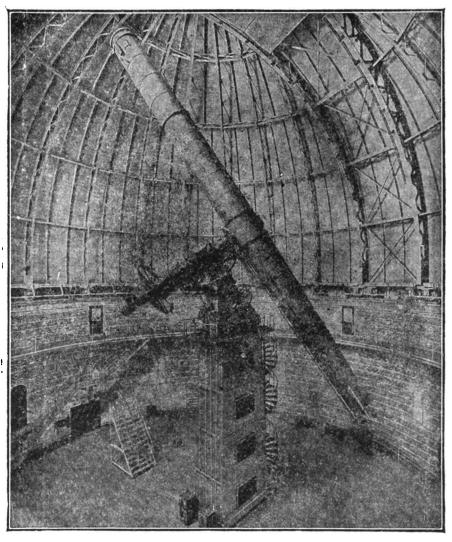
Yenikalé (yen-ik'a-la), STRAIT OF, connecting the Black Sea with the Sea of Azof, is about 20 miles long, and in some parts only 2 miles broad and 2 fathoms deep.

Yenisei (yen'i-si), a great river of Asia, rises in Mongolia, flows the blitts an endless variety of wild volcanic northward through Siberia, and after a scenery—hot springs, mud volcanoes, course of about 2500 miles enters the bay of the same name in the Arctic Ocean.

Yeniseisk (yen-e-sa'isk), a large province of Eastern Siberia, extending from the Chinese frontier to the Arctic Ocean; area, 986,908 sq. miles. It contains rich auriferous deposits. Pop. 657,900.—The capital, of the serve perme is the chief entropyth for the same name, is the chief entrepot for the gold mines of the province and the Siberian fur-trade. Pop. 11,739. Yeomanry (yō'man-ri), a volunteer cavalry force originally

embodied in Britain during the wars of the French revolution. They must fur-nish their own horses, but have an allowance for clothing; the government also supplying arms and ammunition. Unlike the ordinary volunteer force, the yeo-manry cavalry may be called out to aid the civil powers in addition to their being liable for service on invasion of the country by a foreign enemy.

Yeomen of the Guard. See Beefeaters.



TH 3 GREAT 40-INCH EQUATORIAL TELESCOPE, YERKES OBSERVATORY

3il perfections possible seem to be combined in this instrument, which with its moving dome cost some
\$170,000. The moving floor is raised by electrical means, the clock rewinds itself, and yet other
motors direct the telescope to the desired place. The observatory is at Williams Bay, Wisconsin,

miles, and a pop. (1904) of 640,171, including about 18,000 Anos, a docile aboriginal race. The island is mountainous and volcanic, and is rich in minerals, including coal, gold, and silver. Matsmai or schools of Brahmanical philosophy, and Hakodadi (which see) are the chief that of Patanjali, the essence of which is medication. Theoretically at least its devices can sequire entire command over

much used by cabi-



Yew (Taxus baccāta).

which has a more upright growth than the common yew, being esteemed the finest. The American yew (T. baccata Canadensis) is a low prostrate shrub, never forming an erect trunk. It is found in Canada and the more northern of the United States, and is commonly called ground-hemlock.

Yezd (yezd), a city of Persia, province of Farsistan, in an oasis in a sandy plain 190 miles southeast of Ispahan. It is noted for its velvet and other silk manufactures, and contains about 4000 fire worshipers. Pop. estimated at 50,000.

roted for its manufacture of gloves. Ygdrasil, Yggdrasil, (ig'dra-sil), in Pop. 13,760.

Yerkes Observatory, an institugiant ash-tree spread over the whole distribution of this work and the potential of this work and the potential of this took and the potential of the potential of this took and the potential of this took and the potential of the po by Charles T. Yerkes, a capitalist of Chi-cago, to Chicago University. It is located down to the under world. Ygdrasil typi-

40-inch lens telescope, one of the largest in the world. It is thoroughly equipped with other astronomical instruments.

Yesso (yez'ō), Yezo, or Jesso (officially called Hokkaido), the most northerly of the larger Japan islands, has an area of about 36,300 sq. and is the medium of a considerable miles, and a pop. (1904) of 843,717, including about 18,000 Ainos, a docile aboriginal race. The island is mountainous and volcanic, and is rich in menerals, including coal, gold, and silven

Yew (1), an evergreen tree of the devotees can acquire entire command over genus Taxus, nat. order Taxaceæ. The common yew is T. baccāta, indigenous in most parts of Europe. It is a handsome tree, growing to a height of themselves with the vital spirit which perfrom 30 to 40 feet, with numerous spreading branches forming a dansa hand of union is afforted the disciple (Vert) care from 30 to 40 feet, with numerous spread-vades all nature. When the mystical ing branches, forming a dense head of union is effected, the disciple (Yogi) can, foliage. Its trunk is thick, and has been according to the belief, traverse all space, known to attain a circumference of 56 become invisible, know the past, present and future.

Seeds. It used to be frequently planted in church-varies and fits tower canital of the amnire with which it is

yards, and its tough capital of the empire, with which it is elastic wood was connected by a railway 18 miles in length. extensively used in The foreign settlement consists of wellthe manufacture of constructed streets with business estab-bows. In our own lishments. The harbor, a part of the bay days, on account of of Tokio, is good and commodious. Steamthe durability of ers from San Francisco, Vancouver Iste timber, and of land, etc., call regularly. The population its hard, compact, has grown rapidly within recent years, close grain, it is increasing from 70,019 in 1884 to 394,303 in 1909.

much used by cabinet-makers and turners. There are several varieties of it, the Irish yew, adjoining the northern line of New York, which has a more facturing city, its industries including the tribute of the tribute large carpet, elevator and hat manufactures, also sugar refineries, sash, door and metal-foil factories. The first settlement here was made about 1650. Pop. 88,000. Yonne (yon), a department of Central France, traversed by the river Yonne, which is navigable throughout it. The soil is very fertile, producing large wheat crops, and the vines yield the finest red wines of Lower Burgundy, and the finest of white wines, the well-known Chablis. Auxerre is the capital. Area 2880 sq. miles. Pop. (1910) 332,277.

the Tees river on the N. to the estuary of the Humber in the s.; area 6067 sq. miles. It is divided into the North, South, and West Ridings, each riding having a separate lord-lieutenant. The surface is much diversified, there being surface is much diversined, there being a large central valley with a mountainous district in the N. E. and in the E. an elevated chalky district called the Weald. The county contains some of the most fertile tracts in the kingdom, while there are areas of barren moor. The central valley is drained chiefly by the Ouse and its tributaries. The West Riding contains some of the richest coal mines in tains some of the richest coal mines in the Kingdom and there are large de-posits of iron in the N. There are a

posits of iron in the N. There are a number of large manufacturing centers, including Leeds, Sheffield, Bradford, Huddersfield and others. Hull and York are other notable cities, York being the capital. Pop. (1911) 3,980,451.

York (British, Caer Effroc, or Ebroc; Latin, Eborācum), a cathedral city and archbishop's see, the capital of Yorkshire, England, 188 miles north of London by rail, is situated at the confluence of the Foss and the Ouse. The city proper, embracing a circuit of nearly 3 miles, was inclosed by walls, restored by Edward I, of which the portions still remaining have been converted into promenades, commanding a prospect of the enades, commanding a prospect of the surrounding country. There are many quaint, old-fashioned houses in the narrow streets of its older portion. The great object of attraction, however, is the minster or cathedral, the finest in England, which dates from the seventh century, but did not begin to assume its present form till the twelfth century, and was not completed till 1472. It is built in the form of a Latin cross with choir, aisles, transepts, a central tower and two western towers; extreme length, 524 feet; breadth, 250; height of central tower, 213 feet. (See cut at Decorated Style.) York was the capital of Roman Britain. It was made an archiepiscopal see by Rdwin of Northumbria in 624. It still ranks second theologically and politically among English cities, its archishop having the title of Primate of England (see Archbishop), and its chief magistrate takes the title of lord-mayor. t was incorporated by Henry I, and the city boundaries were extended in 1884. The trade is local, and the industries unimportant. Pop. 82,297.

York, a city, capital of York Co., Nebraska, on a branch of the Big Blue River, 50 miles w. of Lincoln.

York (york), or Yorkshire, the lar- It is in a farming and stock-raising regest county of England, faces the gion, and manufactures flour and four-North Sea on the N. E. and extends from dry products. Pop. 6235. gion, and manufactures flour and foundry products. Pop. 6235.

York, a city, capital of York Co., Pennsylvania, lies on Codorus Creek, a branch of the Susquehanna, 28 miles s. s. E. of Harrisburg. It is in a rich agricultural region and has a number of educational and charitable institu-tions. The industries are varied, including bridge and chain works, paper and pulp mills, foundries and machine shops, traction engines, water-wheels, farm im-nlements. and various others. The Contraction engines, water-wiceis, narm miplements, and various others. The Continental Congress met at this place in 1777-78 while Philadelphia was occupied by the British army. Pop. 55,000.

York, House of, an English royal house, the rival of that of Lancaster. The House of York was united the the House of York when Henry

to the House of Lancaster when Henry VII married the eldest daughter of Ed-ward IV. The emblem of the Yorkists was a white rose. See England (History).

York Peninsula, in Queensland, Australia, the re-gion lying on the east side of the Gulf

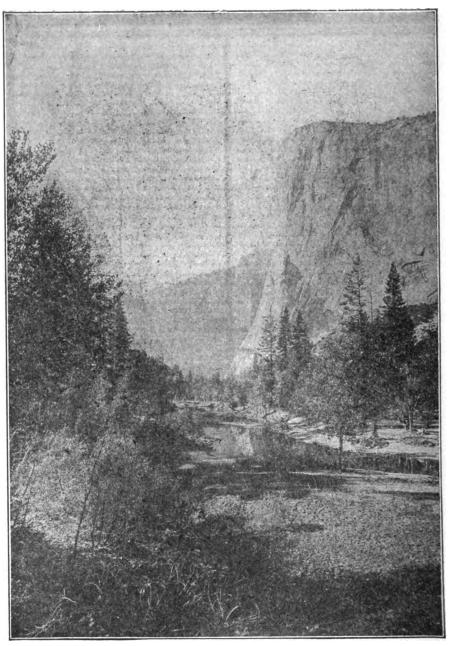
gion lying on the east side of the Gulf of Carpentaria, and terminating at its north end in Cape York, separated from New Guinea by Torres Strait.

Yorktown (yörk'toun), a village, capital of York Co., Virginia, on the right bank of York river, nearly 10 miles from its mouth and 36 miles N. N. w. of Norfolk. It was the scene of the surrender of Lord Cornwallis to General Washington, October 19, 1781. The surrender is commemorated by a monument. In the Civil war it was fortified by the Confederates, who, having been besieged by General McClelhaving been besieged by General McClellan, evacuated it May 4, 1862. Its population now numbers little over 100.

Yoruba (yō'rō-bā), a country of West Africa, north of the Bight of

Benin. It is peopled by a number of confederated tribes, and is now attached to the colony and protectorate of Lagos. Much of the country is fertile and well cultivated, and the inhabitants have made great progress in the industrial arts. They are chiefly pagans, but Mohammedanism has made way among them. Protestant and Roman Catholic missions have long been at work among them. Ibadan is the largest town.

Yosemite Valley (yō-sem'i-te), one of the greatest natural wonders of North America, is in Mariposa county, California, about 180 miles E. by S. of San Francisco and midway between the eastern and western bases of the Sierra Nevada. It is a narrow valley at an elevation of 3850 feet



EL CAPITAN
View in the Yosemite Valley, California.

above the sea, and is itself nearly level, about 6 miles in length, and varying in width from 1 mile to a mile. On each side rise enormous domes and almost verabout o miles in length, and varying in width from 1 mile to a mile. On each side rise enormous domes and almost vertical cliffs of granites one of them, called the Half Dome, being 4737 feet higher than the river Merced at its base, while than the river Merced helds held several professor of astronomy at Prince ton College in 1877. He made very important spectroscopic studies and discoveries in solar physics and chemistry.

Young, EDWARD, an English poet, was the son of a dean of Salisbury, and born in 1683. He was Educated at Winchester and Oxford, and Souls. Patronized and pensioned by the profligate Duke of Wharton, he wrote sudies and discoveries in solar physics and chemistry. He was the sudies and discoveries in solar physics and chemistry. Water Merced held at the base, while than the called in the late of the made very important spectroscopic studies and discoveries in solar p

Yoshihito (yō-shi-bé'tō), emperor or mikado of Japan, the son of Mutsuhito, born in 1879, proclaimed Crown Prince in 1889. He received a Crown Prince in 1889. He received a liberal education, and though extremely delicate as a child grew into robust manhood. On the death of Mutsuhito in 1912, Yoshihito succeeded to the throne. Youghal (yo'al or yal), a seaport of Ireland, on the estuary of the Blackwater, county Cork, 28 miles east of Cork. It has manufactures of earthenware and bricks. Pop. 5393.

Young (yung), ABTHUR, a distinguished agricultural writer, born in 1741; died in 1820. He became a farmer, and made a series of agricultural tours in England, Ireland, and France, publishing accounts of them, and in 1793 he was appointed secretary to the newly-constituted Board of Agriculture. Of his many writings his Travels in France, published in 1792, is the most interesting. Young, BRIGHAM, president of the Mormon Church, was born in Vermont in 1801; died in 1877. In 1831 he became a Mormon, and an active preacher of the Mormon doctrine. He was one of the twelve founders of Nauvoo, and after the murder of the prophet, Joseph Smith, and the flight of the Mor-Mons from Nauvoo, Young became their leader on their long journey westward, was elected their president on their settling in Utah, and when this was made a territory he was appointed its governor by President Polk. In 1852 he an-nounced that polygamy had been commanded in a special revelation to Joseph Smith, and it was accepted generally by the Mormons of Utah. Young was a real, 1903.

Thomas, scientist, was born of great practical ability. Utah dourished under his rule, and he long withstood successfully the efforts of the successfully the successfully the successfully the efforts of the successfully the su man of great practical ability. Utah Young, Thomas, scientist, was born dourished under his rule, and he long withstood successfully the efforts of the verton, in Somersetshire, England, in Urited States government to establish 1773. He qualified himself for the medical profession but a fortune left him.

ated at Dartmouth College in 1853; was a captain in the Civil war, and after-wards held several professorships, be-

ary success was his production of a series of satires, issued collectively in 1728 as The Love of Fame, the Universal Passion. In 1828 he took orders, was made a royal chaplain and rector of Welwyn, Herts, in 1830. Between 1742 and 1744 appeared the work by which chiefly he is remembered, the gloomy but striking Night Fhoughts. He died in 1765.

Fhoughts. He died in 1765.

Young,

ELLA FLAGG, an American educator, born in Buffalo, January 15, 1845; was educated at the Chicago High School and Chicago Normal School, and received the degree of Doctor of Philosophy from the University of Chicago in 1800. She began teaching in 1862; was district superintendent of schools in Chicago, 1887–99; professor of education in the University of Chicago, 1899–1905; principal of the Chicago Normal School, 1905–09; superintendent of public schools of Chicago since 1909. She is the author of a number of works.

Young John Russell, journalist,

Young, John Russell, journalist, born at Downingtown, Pennsylvania, in 1841; died in 1899. He was a war correspondent of the New York Tribune in the Civil war; established the Morning Post in Philadelphia and the Standard in New York; was European correspondent of the Herald; went round the world with General Grent, was an the world with General Grant; was appointed minister to China; and in 1897 was made librarian of Congress.

Young, Samuel Baldwin Marks, an American soldier born in

its authority there. ical profession, but a fortune lett mine its authority there.

Young, Charles Augustus, astronmade him rather languid in his practice omer, born at Hanover, New as a physician in London. In 1802 he 1804: was gradubecame the colleague of Davy as pro-



fessor of natural philosophy at the Royal Ypres took place in October, 1914, when Institution, having previously made the Britain's small professional army with discovery of the interference of light, the great bravery stopped the German forces result of researches which, completed by in their march on the channel ports and result of researches which, completed by in their march on the channel ports and Fresnel, secured the triumph of the undrove them out of the town, which had dulatory theory. In 1807 appeared his first been occupied by the enemy on Octoadmirable Lectures on Natural Philosober 3. In the second battle, in the spring phy. In 1818 he was appointed secretary to the Board of Longitude, with the heights before the town, were concharge of supervising the Nautical Alpelled to retire into Ypres. It was in this manack. Young preceded Champollion battle that the Germans first introduced in the discovery of the alphabetic charpoison gas. During 1916 the Germans, acter of certain of the Egyptian hierofrom their positions on the heights, poured glyphs. He was a man of universal ac a steady stream of projectiles into the old glyphs. He was a man of universal accomplishments, adding to his scientific town. Hardly a building was left standard mathematical attainments a knowling, and even the beautiful Cloth Hall—a edge of the classical and the principal glorious relic of the 13th and 14th centuries, built in the form of an irregular transcript surface of the classical and the principal glorious relic of the form of an irregular transcript surface and transcript surface and the complete surface and the surface an

soldiers in camp and field.

Youngstown (yungz'toun), a city, capital of Mahoning Co., Ohio, on the Mahoning River, 66 miles southeast of Cleveland, in the vicinity of iron ore and coal beds. It contains a Federal building, various homes and hospitals, an opera house, library, etc. It is an important iron manufacturing town, having many large mills and foundries, also manufactures of lumber, cars, roofing materials, powder, motor cars, etc. Pop. 79,066.

Women's Christian Young

Associations, on the same basis as the young men's, were founded in 1857 by the Dowager-Lady Kinnaird, and now exist in various cities of Britain and America. The work of the association among women is fourfold: entirely destroyed by the successive bom-

Young Men's Christian Associations. Among the first of these was that founded in London in on the offensive. The Germans were extended, and become one not only for the Ridge and other important height. extended, and became one not only for the Ridge and other important heights were extended, and became one not only for the religious but for the general culture and gained by the Allied troops. The Canasocial wellbeing of young men engaged in became dians, under General Sir Arthur Currie, business. These associations became were given the honor of leading the aswidely extended, there being in 1916 in sault, and gained a brilliant victory. The the United States alone 700,000 members, with buildings and property valued at \$90,000,000. The European war opened fice and of many comrades laid to rest. The trenches which they took over on the sums of money were contributed to he ridge were the same trenches where in sums of money were contributed to be ridge were the same trenches where, in used in their special line of activity for the spring of 1915, the Germans had attacked them with poison gas. High offi-cers who led them had played their part in lower ranks in the previous fight. It was of this third battle that Sir Douglas Haig, in his message to General Currie, said: 'I desire to congratulate you personally on the complete and important success with which your command of the Canadian Corps has been inaugurated. The two divisions you employed totally defeated four German divisions, whose losses are reliably estimated at more than double those suffered by the Canadian troops. The skill, bravery, and determi-nation shown in the attack and in maintaining the positions won against repeated heavy counter attacks were in all respects admirable.

The tide of battle surged back in 1918 in the desperate and reckless attempt of the Germans to reach Calais. The Britthe association among women is fourfold: the Germans to reach Calais. The British forces relinquished the heights, but physical, social, intellectual, and spiritual. held fast at Ypres, as the French had done at Verdun and the Marne. (See gium, a town in the province of European War.) In peace times the principal trade of the town was in cotton of the Yperlee. 28 miles s. s. w. of and laces. Jansen was bishop of Ypres and is buried in the crypt of the now intirely destroyed by the successive bornthe European war. The first battle of facturing towns of Flanders, and in the

1913 was 17,000.

(ip-si-lan'ti), a city of Washtenaw county, Mich-Ypsilanti igan, on the Huron River, 29 miles w. by s. of Detroit. It is the seat of the Michigan State Normal School, and has manufactures of paper, cement, agricultural implements, yeneers, flour, etc. Pop. 6230.

Ypsilanti, a distinguished Greek family prominent in the Greek movement for independence. DEMETRIUS was born in 1793; died in 1832. He distinguished himself so highly in the revolutions of the page president of tion of 1821 as to be made president of the Greek legislative council after the liberation from the Ottoman yoke.

Ysaye (8-zä'ē), EUGENE, a Belgian violinist, born at Liège in 1858; began to tour in 1878; and first visited the United States in 1894. He is justly regarded as one of the greatest living exponents of classical and virtuosic violin professor et the music. He was violin professor at the Brussels Conservatoire from 1886 to 1898 and was manager and conductor of the orchestral concerts.

Yssel, or IJSSEL (both I'sl), a river of the Netherlands, which leaves the Rhine near Arnhem, and receiving the Old Yssel from Rhenish Prussia, enters the Zuyder Zee after a course of 80 miles.

Ystad 36 miles southeast of Malmö. It has a safe and spacious harbor, and among its industries is shipbuilding. Pop. 9862.

Ystradyfodwg, or RHONDDA, a township of South

14th century had 200,000 inhabitants and with the control of an army corps. He employed 4000 looms. The population in now became the leading power in modernizing the Chinese army, and by 1904 had a corps of many thousands of well-drilled and well-armed men. Also, as viceroy of Chili province, he was instrumental in introducing the modern system of education into the empire. At an earlier date he had become aware of the plans of the young emperor and his reformer associates to introduce radical reforms and seize the reins of power long held by the empress dowager. He informed her of empress dowager. He informed her of her danger, in consequence of which she, with the support of the conservatives, made a palace prisoner of Kwang Seu, the emperor. Yuan gained high favor with the empress dowager by this act, but after her death, in 1908, Prince Ohun, the regent, dismissed him from his post as Grand Councilor. A hasty flight probably saved his life. After the beginning of the revolution of 1911 Yuan was recalled by the regent and made premier, with dictathe regent and made premier, with dicta-torial power, being asked to use every effort to save the Manchu dynasty. He showed great ability in dealing with the difficult situation, arranged an armistice with the revolutionists, but found it impossible to save the empire. The leaders of the revolutionary movement insisted on the dethronement of the child emperor and the establishment of a republic. Yuan the establishment of a republic. Yuan was obliged to yield to this demand, and Ysselmonde, IJSSELMONDE (1's1-1912 and the resignation of Sun Yet Sen, the Netherlands opposite the mouth of the Yssel.

IJSSELMONDE (1's1-1912 and the resignation of Sun Yet Sen, the provisional president, he accepted the presidency. An attempt by him to restore the empire at the close of 1915 fellows. on the abdication of the imperial family in the empire at the close of 1915 failed and (ü'stad), a seaport town of he continued to hold the presidency until South Sweden, on the Baltic, his death in June, 1916.

(yö-ká-tán'), a peninsula forming the southeastern Yucatan extremity of Mexico. Before its conquest by the Spaniards it was the seat Wales, in Glamorganshire, comprising for the most part a sparsely cultivated several villages, the inhabitants of which region, whose forests yield excellent timare chiefly engaged in the collieries. Pop. ber, cabinet-woods and dye-woods, and 152,798. are chiefly engaged in the collieries. Pop. 152,798.

Yttria (it'ri-a), the protoxide of yttrium, a white powder, insoluble in water, but soluble in some catan hemp. Yucatan is rich in arcids. When ignited it glows with a pure white light.

Yttrium (it'ri-um), an earth metal, one of the elements, the basis of yttria; symbol Y, atomic weight possible of yttria; symbol Y, atomic weight possible of yttria; symbol Y, atomic weight possible of the inhabitants are Insolution president of China, was resident combatted in 1861 the peninsula, which since 1824 had formed one state in the Mexican Con-Yuan Shi-kai, president of China, In 1861 the peninsula, which since 1824 was resident comhad formed one state in the Mexican Conmissioner in Korea before the Japan-Chinese war, and after that war was tan, area 29,560 square miles, pop. 314, made vice-president of the army board, 087, capital Merida; and Campeachy, area

The species are handsome plants, with white flowers, extremely elegant, but desti-tute of odor. Y. gloriosa, or com-mon Adam's neeis much prized on account of its panicle of elegant flowers, which attain a height of 10 or 12 feet. It yields a fiber well adapted for paper-making Y. filamen tosa, the silk grass, the silk grass, which has pani-cles of pendulous, cream - colored



Yucca gloriosa.

flowers, is also acclimatised as a garden plant, blossoming in the autumn.

in the autumn.

Yukon (yö'kon), one of the largest rivers of America, rises in Canada about lat. 57° 45′ N., lon. 130° 45′ w., pursues a generally westward course, of which the length is estimated at 2200 miles, the greater portion in Alaska, and enters the Pacific Ocean by several mouths. For three-fourths of its course it is navigable by steemers, and is course it is navigable by steamers, and is a channel of supply for the gold regions of the Klondike and parts of interior Alaska.

Yukon, a territory of northwest Can-ada, north of British Columbia, adjoining the territory of Alaska; area 207,076 sq. miles; area lake surface 415,280 acres, population in 1901, 27,219; in 1911, 8512. It lies in the basin of the Yukon River and is largely mountainous. There are 1847-48. He was successful in portraits 142 miles of railways. The gold of Klondike valley gives the territory its chief importance, though copper and coal are also mined. The gold produced from 1897 to 1914 amounted to \$175,000,000. The free from affectation. Died September 11, territory is governed by commissioner and

18,100 square miles, pop. 84,281, capital ten members of a Legislative Council. Campeachy.

Yucca (yuk'à), a genus of American plants, nat. order Liliacese. State the head of navigation on the Yukon River.

> (yūl), the old English and Scandinavian name for Christmas, still to some extent in use, as in the term yule-log.

(yun-nan'), the most south-Yunnan is bounded on the south by Annam, Siam, and Burmah, and on the west by Burmah. It is extremely rich in minerals, especially iron and copper, containing also many varieties of precious stones. At least a third of the cultivated land is said to be under the poppy. The inhabitants are for the most part Chinese; but there is a large number of non-Chinese Mohammedans (called by the Burmese Panthays). In 1869 the Mohammedans rose in rebellion against the Chinese government, and succeeded in establishing an independent government, but the convention of Chefoo, in 1876, the establishment of commercial relations between British subjects and Yunnan was conceded by the Chinese government. Estimated area, 146,500 square miles; estimated pop. 12,000,000.—YUNNAN, the capital, is situated in the southeast of the province, and is a busy and prosperous town. Pop. (1907) 45,000.

(ey-to), a town of France, 24 **Yvetot** miles northwest of Rouen. From the fifteenth to the middle of the sixteenth century the lords of Yvetot bore the title of king, and their lands were exempt from service to the French crown; hence Béranger's famous song, Le roi d'Yvetot. Pop. (1906) 6214.

the last letter of the English alpha- Zaire. See Congo. Z, bet, is a sibilant consonant, and is merely a vocal or sonant S, having precisely the same sound that s has in wise, case, please, etc. (See S.) The words in modern English, which begin with s are all derived from other languages, mostly from the Greek. When not initial, however, we often find it represent-ing an older s in genuine English words,

as in blaze, freeze, gaze, graze, etc.

Zaandam (sän-däm'), or SAARDAM,
a town in the province of North Holland, 3 miles northwest of Amsterdam. It is noted chiefly as the place where in 1697 Peter the Great worked for a short time as a ship carpenter. Pop. (1913) 26,172.

Zabern (tsh'bern); French, Saverne), a town of Germany, in Alsace, at the foot of the Vosges Mountains, and on the Rhine and Marne Canal. Pop. on the Rhine and Marne Canal.

Zacatecas (sä-kà-tà'kàs), a state of Mexico, belonging to the central tableland, and bounded by the states of Aguas-Calientes, Jalisco, Durango, Cobahuila, Nuevo-Leon, and San Luis Potosi. It is very rich in gold and silver which are extensively wined

Zambesi (sam-ba'sē), the most important river in Southeastern Africa, and the largest flowing inte eral streams uniting in the far interior. It flows first southeast and then northeast, then curves again to the southeast, and reaches the Indian Ocean by several mouths in the Mosambique Channel opposite Madagascar. The delta of the Zambesi covers an area of about 25,000 square miles, and commences about 90 miles from the coast, a little below the confluence of the main stream with the Shire. The course of the whole river is about 1400 miles, and it drains an area of 600,000 square miles. Its course as a whole is through fertile valleys and whole is through fertile valleys and wooded plains; but the navigation is interrupted by rapids and cataracts, among the latter being the Victoria Falls, which are among the grandest in the world. The valley of the Zambesi is capable of immense development in the way of trade. The Portuguess government have long exercised sway for three hundred miles from the mouths of the river, and by the international arrange. Luis Potosi. It is very rich in gold and numbred lines from the mounts of the silver, which are extensively mined river, and by the international arrange-Area, 24,757 square miles. Pop. 462,190. ment of 1890 the river from the coast to —Zacatecas, the capital, 340 miles the confluence of the Shiré is recognised northwest of Mexico, is the center of one as being in Portuguese territory; west northwest of Mexico, is the center of one as being in Portuguese territory; west of the oldest and most productive silvermining districts in the republic. Pop. (1910) 25,900.

Zacaton (zak'a-ton), a grass of wide growth in America, which is recommended by the U. S. Department of Agriculture for the manufacture of paper, to which it seems well adapted.

Zaffre (zaf'er), an impure oxide of cobalt, used in painting.

Zagazig (zā-gā-zēg'), the capital of Sharkiyeh, at the junction of the railways from Cairo, Suez, Alexandria, and Portuguese territory as far west as Zumbo, 450 miles from the sea; farther west it passes through territory under British influence, its early course being, however, in Portuguese territory. The Zambesi and its affiuents are now free to the flags of all nations.

Zamia (sā'mi-a), a genus of plants, nat. order Cycadaces. The species are found in tropical America, at the Cape of Good Hope, and in Australia, and partly resemble palms, partly tree-from Cairo, Suez, Alexandria, and partly resemble palms, partly tree-from Cairo, Suez, Alexandria, and partly resemble palms, partly tree-from Cairo, Suez, Alexandria, and partly resemble palms, partly tree-from Cairo, Suez, Alexandria, and for the genus in South Africa, where the central part of the stem pith of Z. Offre is formed into cakes, baked, and eaten by the natives. rid, on the right bank of the Douro. Pop. 16,283.

Zanesville (sanz'vil), the county town of Muskingum Co., Ohio, situated on the Muskingum River, 142 miles south of Cleveland. Its notable buildings include the court-bouse, Athenseum, and the Soldiers' and Sailors' Memorial Hall. It is in a coal and iron country and is largely engaged in manufacture, having three large encaustic and mosaic tile works, woolen, cotton, and hosiery factories, large tube works, glass works, railroad shops, etc. It is an active trade center of a large agricultural district. Pop. 28,026.

Zangwill (zang wil), ISBAEL, novelist, born of a Jewish famist, born of a Jewish famly in London in 1864. He was graduated
from London University, and became a
journalist. He is widely known for his
tales of Jewish life, Children of the
Ghetto, Ghetto Tragedies, and The King
of Schnorrers. He has also written The
Master, Without Prejudice, etc.—His
brother Louis (born 1869), is the author
of A Drama in Dutch, The World and a

Man. etc.

Zarskoje-Selo.

Zea; ancient Ceos), one of the
Cyclades, in the Ægean Sea, 14
miles from the coast of Attica; 13 miles
long, and 8 broad. It is fertile, producing fruit, wine, honey, and valonia.
Pop. 5019, most of whom belong to Zea,
brother Louis (born 1869), is the author
of A Drama in Dutch, The World and a

Zealand (ze'land), or Seeland, the
Danish islands. Man, etc.

productive plain, almost covered with the dwarf grape which produces the so-called currants; also olives, almonds, oranges, and wine. The staple export is currants. Destructive earthquakes, causing great loss of life and property, occurred in February, March, and April, 1893. Pop. 46,-032. Zante, the capital, is a considerable scaport on its east side. Pop. 14,-650.

Magdishu (Magadoxo), about lat. 2° N., and Cape Delgado, lat. 10° 42′ S., with the four islands of Zansibar, Pemba, Lamu, and Mafia. The continental part of the sultanate has recently become part of British East Africa and German East of British East Africa and German East Zebu (sebu), a ruminant of the ox Africa; while the island and town of Zanzibar, and the island of Pemba, are Indicas, called also Brahman bull. This entirely under British protection. The quadruped differs from the common ox in island (area, 600 sq. miles) is very fertile having one, or more rarely two, humps and well cultivated, being especially suited of fat on the shoulders, and in having for the cultivation of cloves surery confidence and a particular conditions.

Zamora (tha-mo'ra), a city in Spain, caste Portuguese from the Malabar coast capital of the province of the of India, and the Suahilis from the same name, 182 miles northwest of Madmainland.—ZANZIBAR, the chief town, rid, on the right bank of the Douro. on the west side of the island, is the center of trade for the eastern seaboard of Africa, and of missionary and exploring work of the interior. At the instance of the British government the slave trade has been abolished and slavery restricted in Zanzibar. Pop. about 35,-000.

Zara (zā'rā), an Austrian seaport, capital of Dalmatia, lies on the Adriatic, 130 miles southeast of Trieste. It is an old town, with interesting mediæval relics. Its chief industry is the preparation of the well-known liqueur maraschino. Pop. 32,551.

Zarathustra. See Zoroaster.

Zarskoje-Selo. See Tsarskoye-selo.

Zealand (ze'land), or SEELAND, the largest of the Danish islands, Zante (man'te; ancient, Zaoynikus), separated from Sweden by the Sound and one of the Ionian Islands, is 25 from Funen by the Great Belt length, miles long, and about 12 miles broad; 81 miles, breadth, 65. It will be a large area, 277 square miles. The greater part crops of the interior consists of a fertile and It contains the capital of Denmark, Co-

penhagen.

7ahra 'sē'bra), the Equus or Asiaus cbrs, a quadruped of Southern Africa, n rly as large as a horse, white, striped with numerous brownish-black bands on the head, trunk, and legs, except on the selly and inside of the thighs. The sebra is extremely difficult to approach, from its watchful habits and great swiftness of foot. Only in a few in-Zanzibar (săn-si-băr'), a sultanate stances has it been domesticated. The of East Africa, which for name has been sometimes applied to the merly comprised the whole coast between now extinct quagga and the dauw or name has been sometimes applied to the now extinct quagga and the dauw or Burchell's sebra; but they differ from the sebra in having no stripes on the lower limbs, while those on the body are not so black as the true sebra's. See Desco, Quagge.

for the cultivation of cloves, sugar, cofeighteen caudal vertebrae instead of
fee, cocoa, and various spices, of which
twenty-one. It is found extensively in
there is a considerable export. The popladia, and also in China, Japan, and
ulation (200,000) is extremely heterogeaction (200,000) is extremely heterogeaction

Zend-Avesta

riding. Their flesh is eaten as an article put out, and was carried to Babylon, of food, especially the hump, which is es- which city was probably the place of his riding. teemed a great delicacy.



Zebu (Taurus Indicus).

to a region of Palestine. At the first submarine basin. The raid was undercensus the tribe numbered 57,400, and taken in conjunction with one on Ostend, 60,500 at the second. The territory of also in German hands, and here two block the tribe lay in the fertile hilly country ships were run ashore and blown up.

and Joshua. He began to prophesy in 690 square miles. Pop. 227.292.

the second year of Darius Hystaspes, and with his senior contemporary, the prophet Haggai, contributed powerfully by his cials created under the Mogul govappeals to the rebuilding of the temple ernment of India. They have been (Ezra, vi, 14). Chapters i-viii of the regarded, first, as district governors; secprophecies of Zechariah, are generally admitted to be his composition. But the farmers or collectors of the government two other sections of the book into which two other sections of the book into which critics and commentators have divided it, Bengal, the zemindar has all the rights chapters ix-xi and xii-xiii, have been of a British landed proprietor, subject to ascribed by many to a pre-exilic author, the payment of the land-tax, and also to partly because both what is said and is a certain ill-defined tenant-right on the not said in them is regarded as irreconpart of tenants who have long held pos-

not said in them is regarded as cilable with a post-exilic one.

Zedekiah (zed-e-ki'à), the last king Zenana (ze-na'na), the name given to the portion of a house reserved when he was twenty-one years served exclusively for the females belongby the prophet Jeremiah, who, as well as Ezekiel, then in Chaldea, predicted the approaching fall of Jerusalem, which was besieged by Nebuchadnezzar and taken, B.C. 588. Zedekiah, whose sons were killed in his presence, had his eyes faith and practice. It consists of several

death.

Zedoary (zed'ō-a-ri; Curcuma Zedoaria), a plant of the order Zingiberaceæ, distinguished, like ginger, for the stimulating and aromatic properties of the root. It is a native of India and China. The roots of several other precise are sold under the seme name species are sold under the same name.

Zeebrugge (ze-brug), a port in Belgium which became of great importance during the European war, when it became a base for submarines during the German occupation of Belgium. In April, 1918, it was the scene of a desire raid undertaken by British of a daring raid undertaken by British Zebu. See Cebu.

naval forces, with the co-operation of French destroyers. Six obsolete cruisers, filled with concrete, were convoyed under of Jacob, and gave his name smoke curtains and sunk or blown up at to one of the twelve tribes of Israel, and the entrance of the channel leading to the to a region of Palestine. At the first submarine basin. The raid was under-

to the north of the plain of Jezreel, and included Nazareth.

Zechariah (zek-a-ri'à), or Zachaprovince of Holland, has the greater part of its surface below the sea-level, and minor prophets, is supposed to have been of its surface below the sea-level, and first detachment of the exiles who returned to Jerusalem under Zerubbabel parted. The capital is Middleburg. Area, and Joshua. He began to prophesy in the second veer of Deriva Hystegrees and Zerubbabel (zerubbabel) in India.

revenue on land. At the present day, in

David. When he was twenty-one your served exclusively for the remaies belongof age Nebuchadnezzar appointed him
succeed his nephew Jeholachim (whom
he carried to Babylon) as king of Judah.
He took an oath of allegiance to Nebuchadnezzar, which he afterwards broke member of the Aryan family of languages,
by entering into an alliance with Egypt.

And very closely allied to Sanskrit. See
His conduct in so doing was denounced next article.



divisions, of which the oldest is written one of his pupils. He was a favorite in the primitive Zend language. This disciple of Parmenides, and is introduced partly consists of gathas or songs, some as discussing philosophy with his master of which may contain the actual words in Plato's dialogue of that name. He of Zoroaster, and are valuable as consought to recommend Parmenides's doctaining the doctrines he taught. An trine of the one by controverting the English translation of the Zend-Avesta popular belief in the existence of the has been published.

Zengg (seng), a seaport town of Austria, on the Adriatic. Pop. 3182

Zenith (zen'ith), the vertical point of the heavens at any place, that is, the point right above a spectator's is, the point right above a spectator's head, and from which a line drawn perpendicular to the plane of the horizon would, if produced, pass through the earth's center, supposing the earth a perfect sphere. Each point on the surface of the earth has therefore its corresponding zenith. The opposite pole of the celestial horizon is termed the nadir. (See Nadis.) The souith distance of (See Nadir.) The senith distance of a heavenly body is the arc intercepted between the body and the senith, being the

zenjan (sen-jän'), a town of Persia, in the province of Irak-Aejmi, with manufactures of carpets, woolen cloths, and arms. Pop. 15,000.

Zeno (ze'no), emperor of the Eastern Empire from 474 to 491 A.D. He is represented as depraved and incapable. One of the chief events of his reign, which was full of vicissitudes, was the permission given by him to Theodoric to dethrone Odoacer, which led to the establishment of the Ostrogothic kingdom in Italy.

Zeno, of CITIUM, in Cyprus, where Stoic school of philosophy, flourished in the first half of the third century B.C. Settling in Athens he attached himself to various philosophical sects in succession, until he instituted a doctrine of his own. He taught in the Stoa, a porch adorned with the pictures of Polygnotus, whence his followers were called Stoics. adorned with the pictures of Polygnotus, whence his followers were called Stoics, and were sometimes designated 'disciples of the porch.' His writings are all lost. In his ethical system the nature of moral obligation was recognized as unconditional, virtue as the only good, and vice, not pain, as the only evil. Developed by his successors, Stoicism became the creed of the noblest of the Romans until Christianity was generally Romans until Christianity was generally accepted. (See Stoics.) The date of his death is uncertain.

many.

Zenobia (se-no'bi-a), Queen of Palmyra, was the wife of its king Odenathus, and accompanied him both in war and in chase. Gallienus, in return for his services, acknowledged return for his services, acknowledged Odenathus as emperor, and when her husband was murdered, 267 A.D., she assumed the sovereignty, conquered Egypt, and called herself Queen of the East. Her ambition provoked the emperor Aurelian to make war on her, and after a stubborn resistance she fell into his power (273 A.D.) and was obliged to grace his triumph. She was allowed to pass the remainder of her life as a Roman matron. Zenobia was a woman of great courage, beauty, and linguistic accomplishments, and her studies were directed by Longinus (which see).

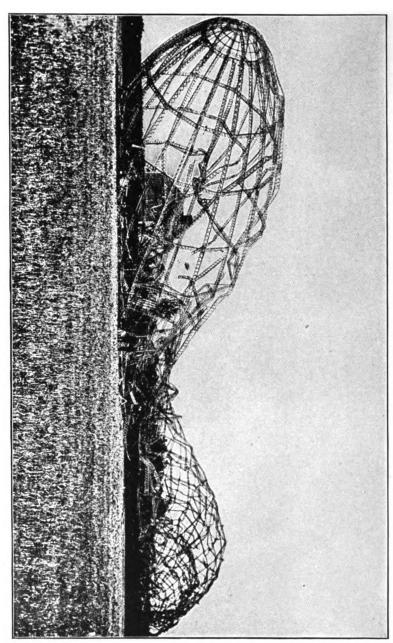
Zeolite (85'6-lit), a generic name of a number of minerals which fuse under the blowpipe. They are hydrated double silicates, of which the principal bases are aluminum and calcium.

cium.

Zephaniah (sef-a-nī'a), the name of one of the books of the Bible, the work of the ninth in order of the minor prophets, who lived in the reign of Josiah, and who probably ut-tered his prophecies some time between 630 and 624 R.C. The subjects of his prophecy are the temporary desolation of Judea, the destruction of the Philistines, Moabites, Ammonites, Assyrians, etc., and the promise that God will effect the restoration and felicity of a righteous remnant.

Zephyr, the west wind and poetic-ZEPHYRUS (sef'èr, sef'i-rus), ally, any soft, mild, gentle breeze. The poets personify Zephyrus, and make him the most mild and gentle of all the sylvan deities.

Zeppelin (tsep'pe-lin), FERRDINAND COUNT, aviator, was born at Constance, Baden, in 1838. He entered the army, was an officer of cavalry in the Franco-German war, and afterwards rose to the rank of lieutenant-general. He subsequently became an enthusiast in aviation, building dirigible, power-driven Zeno, of Elea, an early Greek phiair-shops, and making many experimental been born about the beginning of the fifth Bern in 1892, and in 1900 he was able century B.C. He taught philosophy at to remain an hour in the air. In subscattens, and Pericles is said to have been quent years he built a succession of very



A WRECKED ZEPPELIN

The airship came down in England without injury to its crew of twenty-two men. They set fire to the gas bags before surrendering.



large cigar-shaped balloons and made long Zerdusht. journeys, but met with serious disasters, several of his great airships being destroyed. A fund contributed largely by the German nation enabled Count Zeppelin to continue his experiments, and he threw himself enthusiastically into the development of his ideas. The results were happy; he produced a number of huge dirigibles which were capable of sustained flights. When the war broke out in 1914 the imagination of the German people was fired by the prospect of a fleet of Zeppelin airships hurling death and destruction upon the enemy. The war-Zeppelin beairships hurling death and destruction upon the enemy. The war-Zeppelin became an actuality. It was armed and earried bombs, but proved inadequate to cope with the anti-aircraft guns and the speedy scaplanes and aeroplanes. Super-Zeppelins were constructed on models prepared by the count a short time before he died. One of these, the L 33, fell into the hands of the British in the fall of 1916 and the wreek covered over an aere of hands of the British in the lan of the British in the land of the wreck (tser-rän'), Carl, German-American musical conduction to the set of the state of the land two tor, born at Malchow, Mecklenburg, in the land cost \$1,750,000. The Zeppelin had been the vessel destined by the Germans was conductor of the Handel and Haydn been the vessel destined by the Germans to the heart of England. been the vessel destined by the Germans to strike terror to the heart of England, but the perfecting of the anti-aircraft gun and the speedy armored aeroplane de-stroyed the effectiveness of the huge Zeppelins. Subsequent German air raids on Zeuglodon Great Britain were carried out by the heavier-than-air fliers, which presented less of a target for the gunners on land and in the air. As a weapon of aggressive warfare the Zeppelins proved unsatisfactory. The capture and destruction of many of these airships was a severe blow to Count Zeppelin and the German people, who had placed the most extraordinary hopes in them. In 1863 Ferdinand Zeppelin visited the United States and fought with the Union troops in the Civil war. St. Paul, Minn., claims the distinction of being the town where young Zeppelin made his first ascent in a balloon. Count Zeppelin died March 8, 1917.

Zerafshan (zer-af-shan'), a river in Central Asia, which flows westward past Samarkand, and becomes lost in the neighborhood of the Amoo-Daria, west of Bokhara. Its length is from 400 to 500 miles.

(tserpst), a town in the German duchy of Anhalt, on the Nuthe, 21 miles southeast of Magdeburg, is the seat of various manufactures; ironfounding is carried on; and there are several breweries. Pop. 17,095.

Zerda (zer'da), the fennec (q. v.).

See Zoroaster.

(ser-mät'), a village famous as a tourist center, in the Zermatt canton of Valais, Switzerland, at the foot of the Matterhorn. Elevation 5315 feet. Zero (ze'ro), in physics, any convenient point with reference to which quantitatively estimable phenomena of the same kind are compared; such as the point of a graduated instrument at which its scale commences; the neutral point between any ascending and descending scale or series, generally represented by the mark 0. In thermometers the zero of the Centigrade and Réaumur scales is the freezing rount of water: in Fahrenthe freezing point of water; in Fahrenheit's scale, 32° below the freezing point of water. (See Thermometer.) Absolute zero is -273° C., or 273° C. below the freezing point of water, at which temperature any given body is supposed to contain no heat.

time Boston owed much of its good music to his efforts and enthusiasm.

Zetland. See Shetland.

(zû'glo-don), an extinct genus of marine mammals, regarded by Huxley as intermediate between the true cetaceans and the carnivorous seals. They belong to the Eocene and Micene, and Z. cetoides of the Middle Eocene of the United States attained a length of 70 feet.

Zeulenroda of Central Germany, principality of Reuss-Greis. Pop. 9419.
Zeus (zds), in mythology, the supreme divinity among the Greeks; the divinity among the Greeks; the ruler of the other gods; generally treated as the equivalent of the Roman Jupiter. He was the son of Cronus and Rhea, brother of Poseidon (Neptune) and Hera (Juno), the latter of whom was also his wife. He expelled his father and the dynasty of the Titans, successfully opposed the attacks of the giants and the conspiracies of the other gods, and became chief power in heaven and earth. See Jupiter.

(tsois), JOHANN KASPAR, born in 1806; died in 1856; a native Zeuss of Bavaria, may be said to have founded Celtic philology with the publication in 1853 of his great work, the Grammatica Celtica. In his later years he was a professor at the Bamberg Lyceum.

school of painting, the distinguishing characters of which were accurate imitation and the representation of physical beauty. One of his most famous works was a picture of Helen. He was a contemporary of the painter Parrhasius.

Zibet, Zibeth (zib'et), Viverra zibetha, an animal of the same genus as the civet cat. It is found in Eastern Asia, and in some of the larger islands of the Indian Archipelago. It

islands of the Indian Archipelago. It secrets an odoriferous substance which resembles that secreted by the civet. It is often tamed by the natives of the countries where it is found, and it inhabits their houses like a domestic cat. See Civet.

Zif, ZIPH, the second month of the Jewish sacred year, extending from the new moon in May (or according to some rabbis in April) to that in June.

Zilleh (zē-le'; ancient Zela), a town of northeastern Asia Minor, 39 miles southwest of Tokat; with some manufactures, and an annual fair attended by from 40,000 to 50,000 persons. Pop. 20,000.

Zimapan (sē-mā-pān'), a town of Mexico, state of Hidalgo, with gold, silver, and lead mines. Pop. (commune) 15,000.

Zimmermann (tsim'er-man), Je-HANN GEORG, an eminent physician and miscellaneous writer, was born in 1728 at Brügg, in the Swiss canton of Bern. At the University of Göttingen he studied under and was befriended by Haller, and eventually was appointed public physician to his native town. He became famous in his profession, and published several works on miscellaneous subjects, with one on Experience in Medicine, which procured him the appointment of physician for Hanover to George III. The loss of his wife and other domestic calamities brought on an attack of hypochondria, from which a second marriage relieved him, and as a result of his recovery he produced his once celebrated treatise on Solitude (1784), by which out of his own country he is alone remembered. In 1786 he attended Frederick the Great in his last illness, about whom he published two works, one of them Conversations with the King, which involved him in painful controversy. Eventually he became mentally deranged, and died in 1795. His Autobiography was issued in 1791.

Zeuxis

(zūk'zis), a celebrated Greek painter, who flourished about

420-400

B.C., and latterly lived in Ephesus. He belonged to the Asiatic metallic luster and a bluish-white color. School of painting, the distinguishing Its texture is lamellated and crystalline, characters of which were accurate imitation and the representation of physical beauty. One of his most famous works ficulty, and its toughness is such as to require considerable force to break it when the mass is large. At low or high when the mass is large. At low or high degrees of heat it is brittle, but between 250° and 300° F. it is both malleable and ductile, and may be rolled or hammered into sheets of considerable thinness and drawn into wire. Its malleability is considerably diminished by the impurities which the zinc of commerce contains. It fuses at 773° F., and when slowly cooled crystallizes in four- or six-sided prisms. Zinc undergoes little change by the action of air and moisture. When fused in open vessels it absorbs oxygen, and forms the white oxide called flowers of zinc. Heated strongly in air it takes fire and burns with a beautiful white light, forming oxide of zinc. Zinc is found in the United States; also Britain, Austria, Germany, Belgium, Italy, etc. It does not occur in the native state, but is obtained from its ores, which are chiefly the sulphide, or zinc-blende, and the carrespondence of zince of zince. bonate, or calamine. The oxide of sinc (ZnO) is a fine white powder, insoluble in water, but very soluble in acids, which it neutralizes, being a powerful base of the same class as magnesia. It combines also with some of the alkalies. Several of the salts of zinc are employed in medicine and the arts; as the sulphate, which is used in calico printing, and in medicine as an astringent, a caustic, an emetic, and a tonic; the oxide and the carbonate, used as pigments, etc. Sheet-zinc is largely employed for lining water cisterns, baths, etc., for making spouts, pipes, for covering roofs, and several other architectural purposes. Plates of this metal are used as generators of electricity in voltaic batteries, etc.; they are also employed in the production of pictures. tures, etc., in the style of woodcuts. (See Zinoography.) Zinc is much employed in the manufacture of brass (see Brass) and other alloys, and in preparing galvanized iron. See Galvanized Iron.

Zinc-blende, native sulphide of sinc, consisting essentially of sulphur and zinc, but often containing a considerable proportion of iron. See Zinc.

Zincography (zing-kog'ra-fl), an art in its essential features similar to lithography, the stone

printing is described under Anastatio.

Zinc-white (ZnO), oxide of zinc, a pigment now largely ubstituted for white-lead as being less liable to blacken on exposure; but it has not lem. an equal covering power.

Zingis Khan. See Genghie Khan.

religionists from Moravia, and built for them the village of Herrnhut, he settled among them, and by degrees established there a common worship, and a mission ary and industrial organization based on the family, not on the monastic, system. This association became known throughout the world as the Moravian Brethren (which see). To the extension of its influence Zinzendorf devoted his fortune and his energies, visiting in the course and his energies, visiting in the course of the strength o and his energies, visiting in the course of his journeys England and America. He died in 1760.

He died in 1760.

Zinziberaces (zin-zi-ber-ā'se-ē), Zinorder of plants, of which the genus Zinziber (ginger) is the type. The species are
all tropical plants, or nearly so, the
greater number inhabiting various parts
of the East Indies. They are generally of great beauty through the developwithout surface-outlet. It is remarkable
remarkable r

printing-surface of the latter being recolors of their bracts; but they are chiefly placed by that of a plate of polished valued for the sake of the aromatic and sinc. A form of this art called anastatic stimulating properties of the rhizome or printing is described under *Anastatic*.

Zingarelli (dzen-ga-rel'lē), Nicocio (dzen-g author and playwright, took a prominent part in the Zionist movement. The con-Zinzendorf (tsin'tsen-dorf), Nicho-Las Ludwig, Count couragement from the Turks. The capton of an autonomous Jewish state in Palestine met with little practical encouragement from the Turks. The capton at Dresden in 1700. After studying law at Wittenberg, and several years of foreign travel, he resolved to settle principle of Zionism officially. He wrote: down as a Christian land-owner among a pious tenantry, and while carrying out this intention he worked assiduously in coöperation with congenial friends at treating a revival of religion in the Euthersan Church. Having given an asylum on his estate to some persecuted societies. The headquarters are in New York.

Zirconium, the metal contained in zircon and certain other



waters for weeks and even months, during

waters for weeks and even months, during which its bottom is often covered with Wagram, an armistice was concluded behaviorant herbage.

Ziska (zis'ka), John, leader of the Hussites, was born about 1360 (here Napoleon I and the Archduke Charles. Pop. 16,261.

Zoan (sō'an), the Tanis of the Greeks and Romans, an ancient Egypthe Knights of the Teutonic Order, and tian city, on the right bank of what was fought against the Poles, as also with the Tanitic bank of the Nile, now only Hungarians against the Turks. He is a canal. It was probably the residence also said to have fought on the English side at the battle of side at the battle of Agincourt. He threw in his lot with the militant reformers who took arms after the martyrdom of Huss and Jerome in Bohemia. and became their Tabor, which he fortified, and where a town grew up occupied by his followers, who took the name of Taborites. He died in October, 1424.

Zither, Zithern (tsit'er, tsit'ern), a stringed musical instrument consisting of a sounding-box forms of the instrument, being made of steel, brass, catgut, and silk covered with fine silver or copper wire, and tuned by pegs at one end. Five of the strings are strings on the frets, the right-hand thumb the strings on the frets, the right-hand thumb the strings. These strings are strings on the frets, the right-hand thumb the strings of the left hand stopping the strings on the frets, the right-hand thumb the strings. These strings of the strings the strings on the frets, the right-hand thumb the strings of the strings of the strings the strings the scanes of the strings the scanes and by the sea-anemones and by the great bulk of the coral-polyps.

Zoa, represented by the sea-anemones and by the great bulk of the coral-polyps.

Zodiac (zō'di-ak), an imaginary belt or sone in the heavens, extending about 9° on each side of the ecliptic. It is divided into twelve equal parts called by the sea-anemones and by the great bulk of the coral-polyps. armed with a metal ring striking the strings. These strings, which are tuned in fifths, have a chromatic range from C in the second space on the bass staff to Zodiacal Light (zō-dra-kal), in D on the sixth ledger-line above the treble. Zodiacal Light (sto-dra-kal), in All the remaining strings, called the ac-companying strings, are struck by the first three fingers of the right hand, and being unstopped produce only the single tone to which they are tuned. The instru-ment is played on a table with the keyboard nearest the performer.

cotton and woolen stuffs in Saxony; of a continuous disc, probably of meteors manufactures also woolens, cottons, trimmings, etc., and has bleach-fields, dyeworks, machine-works, tile-works and otteries, royal institute of glass-painting, etc. There are a number of lignite mines worked in the vicinity. Pop. 34,706.

Zlatoust (zla-tō-ost'), a town of Russia, government of Ufa, which exhibits pictures of the Ai, which supplies with motive scope, which has completely replaced it.

of the Ai, which supplies with motive scope, which has completely replaced it. power the crown iron-works. It has man- Each shows pictures of objects, giving ufactures of swords, bayonets, firearms and ordnance. Pop. 20,973.

Znaim (tsnim), a town of Moravia, on the Thaya, has manufactures of earthenware, leather, checolate,

etc. Here in 1800, after the battle of

sequently the scene of the 'marvelous things' that were done 'in the field of Zoan' (Ps. lxxxviii, 12). The temple was one of the grandest in Egypt. Its ruins, buried under mounds, have been explored, and one of the chief curiosities found in them is the Canopus stone, with a trilingual inscription, like that on the Rosetta stone, hieroglyphic, demotic, and Crock stone, hieroglyphic, demotic, and Greek, recording a decree of Egyptian princes assembled at Canopus B.C. 254. instrument consisting of a sounding-box Zoantharia (zo-an-tha'ri-a), an operced with a large circular sound-hole Zoantharia der of the class Actinomoon, and the planets known to them were always within it. This, however, is not true of all the planets. See

Ecliptic. nous tract of an elongated triangular figure, lying nearly on the ecliptic, its base being on the horizon, and its apex at varying altitudes, seen at certain seasons of the year either in the west after sunset or in the east before sunrise. It Zittau (tsit'ou), a town of Saxony, in appears with greatest brilliance within the district of Bautzen, on the tropics, where it sometimes rivals Mandau, 48 miles E. S. E. of Dresden, is the Milky Way. The most plausible hyther center of the manufacture of mixed pothesis respecting it is that it consists conton and weeken stuffer in Saxony.

different phases of attitudes and made to run together by passing before the eye in quick succession.

Zoilus (zō'i-las), a rhetorician of ancient Greece, born at Amphip-

tempted nection with some success. He first became generally known by commencing, in 1871, the famous series of novels entitled Les Rougon Macquart Histoire Naturelle d'une Famille sous le Second Empire. They were based on a theory that it is the duty of the modern novelist to depict human life, in all grades of section executive as it is only titing and of society, exactly as it is, omitting and softening nothing, however repulsive and disgusting. Zola carried out this theory so effectually that English translations of several of these novels are not allowed to be sold. One of the series, L'Assommoir, portraying the evil consequences of drunkenness, was dramatized by Charles Reade as 'Drink,' and became popular. Among his later and more attractive works are Lourdes (1894); Rome (1896), and Paris (1898). In 1897 he condemned the course adopted by the government in the Dreyfus case and was tried for libel during his absence and sentenced to fine and imprisonment. He

sentenced to fine and imprisonment. He escaped this penalty by remaining abroad until after the revision of the Dreyfus trial. He died Sept. 29, 1902.

Zollverein (tsol'ver-in), the German customs union, the precursor of the present German Empire, founded in 1827, and afterwards greatly extended through the efforts of the government of Prussia. Its principal object was the establishment of a uniform rate of customs duties throughout the various of customs duties throughout the various states joining the union. The territories of the Zollverein now coincide with those of the German Empire, and include also Luxembourg.

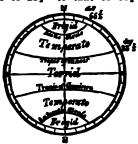
Zombor (som'bor), or Sombor, capital of the Hungarian county of Bacs-Bodrog, on a canal which unites the Theiss and Danube, about 120 miles south of Budapest, is the center of the eorn and cattle trade of an extensive dis-

trict. Pop. 29,036.
Zonaras (son'a-ras), Joannes, a Bysantine historian, flourished in the twelfth century. His chief work is the *Chronicon*, a history extending from the creation of the world to A.D. 1118. Of the events of his own time his account is meager; but his works contain valuable fragments from lost writings of earlier historians.

olis, chiefly remembered for the asperity of his criticisms on the poems of Homer.

The time at which he lived is uncertain — probably the third century B.C. His the equator, and named according to the name is used proverbially as that of a captious or snarling critic.

Zola (50°1a), EMILE, a French novelist, from tropic to tropic, or 23½° north and born in 1840, the son of an Italian engineer. After working for Paris publishers and writing for the press he atmosphered fiction with some success. He parallel of 23½° to that of 66½° north first became generally known by com-



per of the Barth.

and south, and therefore called the north temperate and south temperate zone respectively; and two frigid zones, situated between the polar circles and the north and south poles. (See Climate.) (2) In natural history, the name is given to any well-defined belt within which certain forms of plant or animal life are confined; as the different belts of vegetation which occur as we ascend mountains. Zooid (go'oid), in biology, an animal organism, not independently developed from a fertilized ovum, but derived from a preceding individual by the process either of fission or gemmation.

Zoölatry (zō-ol'a-tri), animal worship; adoration paid by man to any of the lower animals. This

man to any or the lower animals. This cult seems to have passed through three stages: (1) The animal was reverenced and propitiated as possessing a power greater than that of man. (2) The animal was regarded as an incarnation of some deity or spirit. (3) It was raised to the position of a tribal ancestor.

Zoölogical Garden (ső-ő-loj'i-kal), a public garden in which a collection of animals is kept. The gardens of the Zoölogical Society, Regent's Park, London (familiarly termed the Zoo'), founded in 1828, are probably the finest of the kind in the world. They belong to the Zoölogical Society of London, which was founded in 1826. Of the other chief soological gardens, the Jardin des Plantes in Paris is the oldest, having been founded in 1794. Gardens of this kind form a popular resort in the have originated. Among those who have larger American cities.

Zoölogical Stations, stations or centers which have of late years been established in various parts of the world for the study of zoölogy. The Stazione Zoölogica at of zoology. The Stazione Zoologica at Naples, founded mainly in Dohrn in 1872, is of an international character. Other institutions of the same kind on a smaller scale have been established in various parts of France, United States, Italy, Russia, etc.

Zoölogy (zō-ol'ō-ji; Gr. zōon, an animal, and logos, discourse), that science which treats of the natural history of animals, or their structure, physiology, classification, habits, and distribution. The term 'natural history' tribution. The term 'natural history' has been frequently used as synonymous with zoology; but such a term is obviously of wider signification, and should be used to indicate the whole group of the natural sciences. Zoölogy is a branch of biological science, constituting, in fact, with its neignbor branch, botany, the science of biology. Its study comprehends such branches as the morphology of animals, or the science of form or structure, which again includes comparative anatomy, by which we investigate exter-nal and internal appearances, the positions and relations of organs and parts; the development of animals, which treats of the various stages leading from the embryonic to the mature state; the physiology of animals, which includes the study of the functions of nutrition, reproduction, and of the nervous system; classification or taxonomy, which assigns to the various individuals their proper place in the scale of life. A new depart-ment has been added in recent times, sometimes called etiology, which investigates the origin and descent of animals, or treats of the evolutionary aspect of or treats of the evolutionary aspect of the parent plant.

zoölogical science. Various systems of classification have been framed by zoölogists. Linnæus divided the animal kingdom into six classes, viz., Mammalia, Estramadura in 1512; died in 1581. He dom into six classes, viz., Mammalia, was made a member of the supreme council of Castile in 1543, was afterwards Worms (Vermes). Cuvier proposed a sent as an embassy to Germany, and in more scientific arrangement. He divided 1549 was appointed historiographer of the animal kingdom into four sub-kingdoms, viz., Vertebrata. Mollusca. kingdoms, viz., Vertebrata, Mollusca, nale of the Cro Articulata and Radiata. Modern classi- high reputation. fications have been based chiefly on morphological characters, with the addition of the study of cellular embryology, and the facts of heredity and adaptation. American skunks. Like the latter, it They have been very largely influenced by secretes a liquid having a very offensive scent from which they are believed to spots.

modified the classification of Cuvier may be noted Lamarck, Ehrenberg, Owen, Milne-Edwards, Von Siebold, Leuckart, Agassis, Huxley, Haeckel, Müller, Dohrn, Ray Lankester and others. Professor Huxley recognizes the following sub-kingdoms: Vertebrata, Mollusca, Molluscoida, Annulosa, Annuloida, Cœlenterata, Infusoria and Protozoa. Haeckel's classification gives the broad divisions -Vertebrata, Arthropoda, Echinodermata, Mollusca, Vermes, Zoöphyta and Protozoa. There are more recent systems, some of which are far more elaborate than those given. That of Ray Lankester may be instanced. These systems agree in dividing the animal kingdom into the sub-tingdoms of Protozoe (single-celled sub-tingdoms of Protozoe (single-celled subdividing the animal kingdom into the sub-kingdoms of Protozoa (single-celled animals) and Metozoa (many-celled animals). The latter include Porifera (sponges), Cœlenterata (polyps, medusæ, etc.), Echinodermata (star-fish, sea-urchins, etc.), Arthropoda (crustaceans, insects, spiders, etc.), Mollusca (shellfish), and Vertebrata (fishes, batrachia, reptiles, birds and mammals). birds and mammals).

Zoophyte (zo'o-fit; Gr. soon, an animal, and phyton, a plant), the name given by Cuvier to any member of his sub-kingdom Radiata. It is now loosely applied to animals of extremely low organization which present many ex-

ternal resemblances to plants.

Zoospore (zō'os-pōr), a spore occurring in cryptogamic plants, which, having cil-

ia or long fili-form moving processes projecting from its surface, moves spontaneously for a



short time after being discharged from the spore-case of the parent plant.

the kingdom. His principal work, Annals of the Crown of Aragon, enjoys a

the theory of evolution, which has induced odor, which it can discharge to a conmany naturalists to arrange animal forms siderable distance. Its glossy fur is as nearly as possible on the lines of de-black in color, with white bands and

his date is assigned to the tenth century their Arab dress. Ultimately the native before Christ. His doctrines are to be found in the Parsee scriptures called the Zend-Avesta (which see), and the Githâs, which is the oldest part of that work, are declared to contain his authentic utterances. The fundamental idea of his doctrine was the existence, since the beginning, of a spirit of good, author, born at Magdeburg in 1771; died Ahurô Mazdaô (Ormuzd), and a spirit of evil, Angrô Mainyush (Ahriman). These two are in perpetual conflict, and the soul of man is the great object of the war. Ormuzd created man free, so that if he allows himself to fall under the sway of Ahriman he is held to be justly punishable. When he dies his good and evil deeds will be weighed against each other, and accordingly as the balance is struck will be sent to heaven or to hell. If they are exactly equal, the soul passes important manufactures of woolens, struck will be sent to heaven or to hell. If they are exactly equal, the soul passes has important manufactures of woolens, into an intermediate state, and remains there until the day of judgment. Ormuzd is to triumph ultimately, and then there will be one undivided kingdom of God in heaven and on earth. The religion of Zoroaster, when it became that of Iran, was expounded by a widely-spread priesthood, and these provided for of the sixteenth century, were chiefly noted in their own country for their of Iran, was expounded by a widely-spread priesthood, and these provided for of the two, came to England in 1574, and received commissions to paint the porelaborated laws for the purification of the two, came to England in 1574, and received commissions to paint the portland appropriate of Scots. His portrait of the latter was the burying of the dead bodies of believers, which, by the Parsees in Bombay 7,10° (tsok), a central and the small-

Zorrilla y Moral (tho-rel'ya e mo-ral'), Don José, Zorrilla y Moral (tho-rel'ya e mountainous in the south-ral'), Don José, east and south, where the Rossberg occu-a Spanish dramatist and poet, born at pies the frontier, slopes more or less Valladolid in 1817. He was intended gradually north and west, till it becomes for the law, but devoted himself instead comparatively flat. The only lakes deto literary pursuits. In 1841 he published Songs of the Troubadours; this Egeri. The climate, rigorous in the was followed by a collection of Historical mountainous districts, is mild on the Legends and Traditions; several volumes lower south alopes. The chief exports of poems, comedies, etc., all of which were

Zoroaster (zō-rō-as'ter; Old Persian Zarathustra, later Per. Zorimus (zos'i-mus), a Greek histo-zordusht), one of the great religious teachers of the East, the founder of what was for centuries the national religion of half of the fifth century A.D. He was a Persia, and is still adhered to by the Parsees. He has been represented by pire he severely criticised the Christian eminent authorities as purely mythical, emperors, representing the substitution but it seems more reasonable to believe that he was a real and historical personage. If this view be accepted, he was probably a native of the east of Iran, but there is great uncertainty as to the time in which he appeared as a religious tribe. The Zouaves in the pay of the teacher. He is supposed by some to have came a French possession, incorporated with the French army there, preserving his date is assigned to the tenth century before Christ. His doctrines are to be

lievers, which, by the Parsees in Bombay Zug (tsōk), a central and the small-and elsewhere, are still left to be devoured by vultures. See Fire-worship, Guebres, land, bounded by Zürich, Schwyz, Lu-cerne, and Aargau; area, 92 square miles. The surface, mountainous in the south-

Zuider Zee (zoi'der-zā; or Zuyder; South Sea), a gulf of the North Sea, on the coast of Holland; 80 miles long, 40 miles greatest breadth. It was formerly a lake, but was united with the German Ocean by inundations with the German Ocean by inundations in the twelfth and thirteenth centuries. The islands Texel, Vlieland, Terschelling, Ameland, etc., separate it from the North Sea, with which it communicates by various channels, the principal one being between Helder and Texel. It is very shallow, and to avoid the difficulties of its navigation to Amsterdam the North Sea. Canal was constructed. In 1914 the government lent its support to plans for the ernment lent its support to plans for the construction of a dike twenty miles wide across the mouth of the Zuyder Zee, thus reclaiming a large area of fertile land; estimated cost, \$80,000,000.

Zuinglius. See Zwingu.

Zululand (zö'lö-land), a South African territory northeast of Natal, now a British possession; area, 10,461 square miles. It is bounded by the Tugela, which divides it from Natal, by the Indian Ocean, by Tongaland, and on the northwest by the Transvaal. It has a coast line of 210 miles. The southern portion of the country consists chiefly of undulating plains, covered with grass, and thinly wooded. The coast received the fact marries and very unhealthy. grass, and thinly wooded. The coast re-gion is flat, marshy, and very unhealthy. The inland region is healthy and rich in The inland region is healthy and rich in tropical productions, containing large forests. The Zulus are a warlike Kaffir tribe, and for a time were formidable to the colonists of Natal, possessing an organized army of considerable numbers. In 1879, these his St. Thomas Aquinas is held to under their king Cetewayo, they came into conflict with the British. (See ever produced in Spain. There are some of his works in the galleries of Paris, tunate for the British (a body of troops Berlin, Dresden and Munich. He was having been annihilated at Isandula), eminently successful in his treatment of but in July, 1879, a general engagement

wasser.' Area, 92 square miles; pop. took place at Ulundi, where the power of 25,026.—Zug, the capital, stands on the the Zulus was quite crushed. The subsectorth shore of the lake, is 12 miles northquent British reorganization of Zuluesst of Lucerne, with which and with land did not work successfully, and in Zurich it is connected by railway. Pop. 1882 Cetewayo was restored, a strip of east of Lucerne, with which and with Zdirich it is connected by railway. Pop. 1882 Cetewayo was restored, a strip of C508.—Lake of Zue, or Zueersee, chiefly in the canton of Zug, 9 miles long north to south, and in breadth from 3 miles to 1 Cetewayo fied in 1883, after being demile. The shores are low in all directions feated by a hostile Zulu chief, Usibepu, except the south and southeast. In the and there he died in 1884. However, former direction the Rigi and in the latter Cetewayo's son, Dinisulu, assisted by the Rossberg rise in lofty precipices, presenting scenery of a grand description. The lake has a maximum depth of 650 mately the Boers took possession of a feet. The fishing, principally pike and carp, is productive. Also famous for a the remaining portion of Zululand, with pseuliar kind of trout locally called Röthell.

Zuider Zee (zoi'der-zā; or Zuyder: Zulus Port division of the African Zulus (zö/löz), a branch of the great
Bantu division of the African
people which is notable for the
physical and mental development of its members. They are organized as a pure democracy, their chiefs being elected and holding office during the pleasure of the people. They have a very complete people. They have a very complete though unwritten code of laws, and as a race are conspicuous for their morality drunkenness and freedom from crime. See Zululand.

Zumbo (zum'bō), a town of South Africa, near the confluence of the Loangwa with the Zambesi; lat. 15° 37′ 2″ s.; lon. 30° 32′ E.; 450 miles from the mouth of the Zambesi. It marks the western point of the Portuguese territories on the Zambesi; has an advantageous site; was formerly the seat of an important trade, and contained a number of substantial buildings; but of late trade was neglected, and the town fell into

decay. Zumpt (tsumt), KARL GOTTLOB, born in 1792; died in 1827; professor of Roman literature in the University of Berlin, produced several excellent edi-tions of Latin classics, and a valuable and elaborate Latin grammar, of which there have been several English translations.

Zurbaran (thoor-ba-ran'), FBANish painter, born in Estramadura in 1598; died in 1662. He studied under Juan de Roelas at Seville, producing there many of his best works. Among

of coloring, chiaroscuro and exquisite representation of velvets, brocades and white draperies. He received the title of painter to Philip III, and was patronized by Philip IV.

Zürich (tsü'rih; ancient, Turicum), Zvornik (zvor'něk), a fortified of Bosnia, on the

(tsu'rih; ancient, Turicum), ZVOIIIK a town of Switzerland, capital Pop. 3500. of the canton of the same name, is beautifully situated at the northern end of the lake of Zürich, on both sides of the Limmat, and having on the west the Sihl, tifully situated at the northern end of the lake of Zürich, on both sides of the Limmat, and having on the west the Sihl, which joins it immediately below. It has a university and a polytechnic school, both occupying handsome buildings, a Romanesque cathedral of the eleventh-thirteenth centuries, town-hall, public library, etc. Its most considerable industry is that of silk, but its cotton-spinning and manufacture of locomotives and machinery are also important. Its silv St. Mary (1453-1536), restored inhabitants are mainly German-speaking Protestants. Pop. (including auburbs), (1522), now a theater; town-house, governments, and having on the west the Sihl, Bavaria, in the Palatinate, pleasantly bavaria, in the Palatinate, pleasantly with as university and a polytechnic school, factures of velvet, plush, cotton fabrics, machinery, etc. The edition of the classics known by the name of 'Bipont' was published here. Pop. 14,711.

Zwickau (tsvik'ou), a town of Sax-ony, 60 miles w.s.w. of Dresden, with several fine churches, not-sand machinery are also important. Its ably St. Mary (1453-1536), restored inhabitants are mainly German-speaking 1894; the fine Gothic 'Gewandhaus' gards population. It is one of the northgards population. It is one of the northern cantons, and extends from the lake
ootton goods, dyes, and chemical prodocton goods, dyes, and chemical products, etc.; productive coal mines in the
its waters are carried by the Thur, Töss,
vicinity employ over 8000 men. Pop.
Glatt, and Limmat. It is highly cultivated, and the land held by no fewer
than 36,000 proprietors. There are exthan 36,000 proprietors. There are extensive manufactures of silk and cotton
physician, was born at Bale in 1533;
goods. Area, 655 square miles. Pop.

Greek at Bale, and published On the goods. Area, 655 square miles. Pop. 431,637.

rich, but partly in Schwyz. Its greatest length is about 27 miles; while its greatlength is about 27 miles; while its greatest breadth does not exceed 3 miles, and quirements.

its greatest depth 600 feet. Its scenery Zwingli (tsving'le), or (as it is often Latinized) Zuinglius, Ultimore hope in the control of t is distinguished not so much for Latinized) ZUINGLIUS, Ulgrandeur as for beauty. A considerable RICH, the Swiss reformer, was born in traffic is carried on upon the lake by means of sailing vessels and a number of steamers. It is well supplied with fish. Its chief feeder is the Linth Canal, com-municating with the Wallenstatter-see. It discharges itself at the town of Zürich by the Limmat.

TREATY OF, signed there November 10, 1859, by the pleni-Zürich. potentiaries of France and Austria, embodied the conditions of the preliminaries of peace agreed to at Villafranca, on the at Einsiedein (1516), which a supposed part of Napoleon III and the Emperor of miracle-working image of the Virgin had Austria, Francis Joseph, and closed the made a favorite resort of pilgrims. So Franco-Italian war by Austria's abandon-effectively did he denounce pilgrimages as ment of her right to Lombardy.

and he was remarkable for his richness being the scene of the death of Sir Philip Sidney, who was killed before its walls in 1586. Pop. 19,000.

(zvor'něk), a fortified town of Bosnia, on the Drina.

(tsvI'bruk-en; Latin, Bipontium; French, Zweibrücken

Protestants. Pop. (including suburbs), (1522), now a theater; town-house, gov-205,000.—The canton holds the second ernment buildings, etc. The railway-place in the Swiss confederation as re-station is one of the largest in Germany. Zwickau has manufactures of linen and

Greek at Bale, and published On the Zürich, Lake of, or Zurichersee, lies Rural Method of Cato and Varro and chiefly in the canton of Zü-a collection of anecdotes entitled Theater rich, but partly in Schwyz. Its greatest of Human Life. His son and several of his grandsons were noted for various ac-

the canton of St. Gall, where his father was a thriving peasant proprietor. Intended for the church, he studied at various places, during a second residence at Basel becoming the pupil and friend of Thomas Wyttenbach, a reformer before the Reformation, and from him learned the evangelical doctrines which he after-wards promulgated with signal success. His first overt revolt against the Roman Catholic system was when he was a priest superstitious that his sermons were talked Zutphen (sutfen), a fortified town of in Rome, and it is said futile offers of Holland, in the province promotion were made to coax him into of Gelderland, 20 miles by rail south of silence. In 1518 he was appointed Deventer, has an active trade, especially preacher in the cathedral of Zürich, in timber and grain. It is notable as where he opposed a preacher of indul-



gences. Then followed other denunciations of Roman Catholic practices and doctrines, until Zürich, the authorities of which supported Zwingli, and the people of which adhered to him, became thoroughly Protestant, and adopted a reformed theology, worship, and discipline. Zwingli went further than Luther, whose doctrine of consubstantiation led to what proved on the whole a resultless conference on the subject between him and Luther and Melanchthon at Marburg in 1528. In 1531 the Forest Cantons, which adhered to the Roman Catholic faith, made war upon Zürich, whose troops Zwingli accompanied as chaplain. While in the thick of an engagement at Kappel, near Zürich, he was mortally wounded, October 11, 1531.

Zwirner (tswer'ner), Ernst Fried-Rich, a German architect, born in Silesia in 1802; died in 1861. He was appointed architect of the ancient Cologne Cathedral in 1833, and spent many years in its restoration and completion. His work is considered a highly admirable and successful example

of restoration.

Zwittau (zwit'a), a town of Austria-Hungary, in the extreme north of Moravia, circle of Olmütz, 40

Zwolle (zwolle), a town of Holland, Zythum (zl'thum), a kind of beer overlissel. It is a well-built town, with plied also to the beer of the northern fine suburbs and a fine church (St. nations; a liquor made from malt and Michael's), with a famous organ. Zwolle communicates with the sea by means of the Willemsvaart Canal. Among its industries are shipbuilding, cotton manufacture, tanning, rope-making, etc. Three miles from the town is

East Flanders, 17 miles N. E. of Dendermonde, in the Scheldt. Pop. about 5000.

Zygæna (zi-ge'na), or Hammer-Headed Shark. See Shark. (zī-mot'ik), a name applied to Zymotic Diseases epidemic and endemic, contagious diseases, because they are supposed to be produced by some morbific principle acting on the system like a ferment (Greek zymē). This morbific principle or poison gets into the blood in minute particles or germs, which there increase and multiply, the disease lasting until the poison has become worked out, or has been destroyed. Among these diseases are measles, scarlet fever, smallpox, typhus, typhoid, diphtheria, whooping-cough, croup, erysipelas,

Zygophyllaceæ (zI-gō-fil-lā'se-ē), an order of hypogynous exogens, containing about a hundred species of herbaceous plants, trees and shrubs, found in the hottest parts of both hemispheres. There are seven known genera, of which the most impor-tant is Guaiacum (which see). The abundance of species of Zygophyllum and some other genera constitutes a most striking feature of the North African and Arabian deserts. The flowers of miles N. of Brunn. It is a seat of the Z. fabago are employed as a substitute textile industry and has manufactures of for capers, and are known as bean-tobacco, etc. Pop. 9029. Z. fabago are employed as a substitute

Zyrnayovsk (zir'na-yovsk), a min-ing town in a rich silver-producing district of Semipalatinsk, near the southern border of Siberia. It lies among the slopes of the Altai Mounthe monastery of the Agnetenberg, where tains, on a head-stream of the Irtish Thomas a Kempis spent most of his life.

Pop. (1913) 33,836.

Tartar tribe, are Shamanists, and live Zwyndrecht (zwin'dreht), a commune of Belgium, in 5000.