

APPLIED DRAWING

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DOORWAY OF THE ERECHTHEUM, ATHENS, 408 B. C. AN
EXAMPLE OF BEAUTIFUL SPACING AND RESERVED DEC-
ORATION.

INTRODUCTION

A clear idea as to the purposes of the study of art is important. The idea prevalent a generation and more ago, included nothing more than the achievement of technical skill. This view has now broadened to include a type of art education adapted to the needs of the great majority of people who will not follow the arts professionally, but who may and, for their own distinct benefit, should acquire through various art problems a finer taste and a deeper capacity for the appreciation of beautiful things. Neither of these two aims should be forgotten. Progress in any line cannot be made without a real underlying and lasting interest and pleasure in the subject on the part of the student. With such an interest, however, very creditable results can be achieved even by those of modest ability. Interest in art may frequently be aroused when dormant by the proper appeal to the student through pointing out the connection of this or that phase of the subject to immediate conditions, or the very human interest in art with every people in the past as well as today. A thoughtful consideration of what modern life would be if every particle of art were banished will often prove a surprise to many. Such an imaginary banishment must include every line, groove or moulding, every curve or form, however slight, which is not practically needed, whose object is solely an improvement of appearance. The moment an object of any kind or size is treated beyond the point of barest utility it has acquired an element of art.

With a conviction of the utter helplessness of humanity without art, it seems impossible not to feel an interest in it, and it is hoped that even the lukewarm student may grow in enthusiasm as he progresses in his study.

This book is the result of the belief on the part of the authors and publishers that a clear presentation of problems covering many phases of applied drawing, well and copiously illustrated, would prove of real value at the present time. The problems will be found adaptable to the needs of students with aver-

age elementary training, looking either to the attainment of aesthetic appreciation or technical skill. Four main divisions of art study are covered, Design, Representation, Art Appreciation and Mechanical Drawing. The courses, problems and illustrations offered are the results of many years of class room and studio experience on the part of the authors with students of varied ages, talents and aims.

The reading matter of the book is reduced to as small a compass as possible with clearness while the illustrations are as numerous as necessary limits would permit. Almost every plate may be taken as a starting point of a large number of problems. The text adjoining most of the plates offers suggestions for many varied experiments. Rearrangement of the material and problems, here suggested, into courses to fit many varied conditions and needs, is not only possible but advisable.

Illustrative material is a prime necessity in art instruction, and the student should have as wide a field of such material to refer to and study from as possible. To this end the illustrations in this volume should be augmented by other volumes, plates, photographs, and actual objects of all kinds. The farther the pupil from good libraries and especially art museums, the harder is the problem. The book-list on page 282 will assist in the choice of helpful volumes, but even in their absence, it is hoped and believed that this book alone will do much for an intelligent and earnest student in the field of practical drawing and aesthetic training.



MATERIALS AND METHODS

CHARCOAL

Charcoal is one of the most useful mediums of the art-student and artist. The fact that it can be treated in a very slovenly manner has often caused it to be banished unjustly.

Charcoal is essentially a medium for the rendering of values, not lines. One should therefore always use it with this end in view. A kneaded eraser, sponge rubber or "art-gum" is a very necessary adjunct in this medium.

Charcoal may be worked with the point, carrying the shading gradually to completion, or it may be applied entirely over the surface of the drawing and rubbed down to a uniform gray with the ball of the thumb or a chamois, on which may be added the darks and from which the lights may be lifted with a kneaded rubber. In the absence of such a rubber the soft portion of a piece of stale bread may be worked in the fingers to a point or edge and serve excellently for this purpose.

Attempts to rub charcoal vigorously with stumps should be avoided. The texture and surface of the paper are ruined and the quality and tone of the charcoal become bronzey and unpleasant. Stumps may be used at times, but with very light pressure. Another aid which gives excellent effects is a flat bristle oil painting brush which, when lightly dragged over charcoal surfaces, tones them together most happily. Experiment and practice alone can give satisfactory understanding of these methods. A piece of sandpaper is necessary for the sharpening of charcoal. The dust from such sharpening can often be used on the drawing by application in desired places with the finger, a bit of chamois or cloth, stump or bristle brush.

Charcoal drawings when completed must be "fixed" to prevent rubbing by being sprayed with fixatif through an atomizer.

CRAYON

In the use of crayon it is best to avoid rubbing the tones. In drawings from objects the point may be used and the values represented in as nearly flat tones as possible, avoiding cross-

hatching or overlaid strokes in opposite directions. When using crayon in design a loose treatment is preferable, in which the paper is permitted to show between the strokes. Beautiful color is frequently obtained by over-laying one tone upon another by strokes in the same direction, also allowing the background color to show uniformly in minute particles.

Textures of rugs, embroideries and other textiles are frequently well interpreted by such crayon methods. Naturally the surface of the paper is an important factor in the success of any technic and only paper of proper "tooth" or roughness, as well as desirable color for the work in hand is appropriate. One should experiment with available kinds and colors of paper, whether made for drawing purposes or not, testing their value as to surface and color. Many an unexpected and happy discovery results.

PEN AND INK

Pen and ink is a medium which is enticing, though discouraging, to many a beginner and amateur. The difficulties are somewhat diminished if care is taken as to materials. These should be as follows:

Bristol board must be of the very best quality. Anything less than this means incessant annoyance if not frequent failure through catching of the pen point and a possible spreading of the width of line, especially if corrections are attempted by scratching. Before buying bristol board it is well to procure small samples of different makes and try each surface with different pens. The surface of each sample should be scratched with a sharp knife, as in erasing errors, and new lines tested on the scratched surface. This test is important, as not infrequently such corrections have to be made, and an under-surface which is absorbent or fuzzy practically renders that brand of bristol board worthless for fine work.

Pens may be coarse or fine as the taste and work indicate. For fine pens the Gillott 170, 290, 291, and mapping pens are excellent. Common brands of writing pens are frequently used by artists who find by experience their favorites. In decorative work coarser lines may be made with the ball or round pointed pen and by pens of special type, see pages 105, 107.

The ink, which many years ago was always made by tedious hand-grinding of hard sticks of Chinese ink in an ink-saucer, is

now easily procured by the bottle at almost any stationers. Use no ink for regular pen and ink drawing other than jet black India ink made by a firm of reputation. Writing ink is never satisfactory. Various good brands of India drawing ink are on the market that can be tried out by the student. For any drawing that may be subjected to surface moisture or to applied water color washes, a waterproof ink must be used.

Very soft rubber, such as the sponge or art gum, should be used for cleaning a pen drawing, as the ink will be grayed by the friction of a stiff rubber.

WATER COLOR

Water colors may be procured almost everywhere at the present day. The cheap boxes for the public schools are very serviceable, and excellent work can be produced with them. More satisfactory results, of course, come from colors of better quality and possibly greater variety, but some of the best water color painters limit their colors to three, a red, blue and yellow, while few good painters use more than seven. More than this number leads to confusion and muddiness.

The choice between tubes and pans of water colors can be best decided by experiment and experience. Each form has advantages and disadvantages. Brushes frequently come with boxes of colors. These likewise answer the beginner's requirements. Fine brushes are expensive, but they are also very durable. When buying a water color brush, test it by dipping it in water and striking the metal ferrule quickly against your finger to shake the surplus water from the hairs. A poor brush will split into two or more points—a good one will come to a single fine point.

The first essential in the proper working of water color is ability to lay a flat wash. To accomplish this satisfactorily, have the paper fastened securely to a drawing board by thumb tacks or by being stretched upon the board. If one prefers, a pad or block of several sheets of paper may be used. Remember first of all that you are using water color, and that water cannot satisfactorily be pushed up hill. Your paper, therefore, must be held slightly slanting toward you, that the wash of color shall easily be led downward. If the paper be perfectly level or lower at the top end, it will be next to impossible to guide the flow of the wash.

An ample supply of clean water is necessary. When the water in your glass or bowl becomes badly discolored, renew it in order to preserve the purity of your colors.

Enough liquid color amply to cover the desired surface must be mixed in the hollow cover of your color box or in your saucer before a wash is attempted. This is imperative. Stopping to mix new color in the middle of a flat wash is ruinous. Never use color for a wash direct from the pan or cake to the paper. Modify it by mixture with more or less water, and if necessary, with other colors in your saucer or cover. A master may occasionally modify this rule, but the beginner should not. Begin a wash at the top of your paper. Fill your brush as full of the color you have mixed for the purpose as it will hold without dripping. Paint a horizontal band of color across the paper. Make the top and ends even. The lower edge of this band should be a small river of color. Refill your brush with more color from the saucer and make a second horizontal stroke, just touching the river of wet color above which will at once flow down and make a smooth union with the new stroke. Both ends of this new band should be made vertical and even with that above. Again refill the brush from the color in the saucer and repeat with a third band with which the second wet line of color should smoothly join. The surplus of the last band of color at the bottom of the wash may be picked up by rinsing and drying your brush on cloth or blotter and passing it gently along the edge of the surplus color. This process, carefully followed and repeatedly practiced, will give perfect washes. Never attempt to correct an error in a wash while it is wet, for in so doing you will merely aggravate the trouble. Let it dry first. Frequently the apparent trouble becomes almost or quite invisible when dry.

Gradations in water colors are produced by the addition, while working, of more or less color or water, or of different colors. Gradations and corrections in water color are difficult to explain briefly in type. The student best learns them through observation of a good art teacher or from the study of a more lengthy treatise of this specialty.

Another method of laying water color consists in painting an entire sheet of paper from edge to edge for the purposes of a uniform background tone. This may be accomplished by mixing as before a sufficient amount of color desired for the surface. The paper, of good quality, should be thoroughly moistened on both sides under the faucet, and surplus water removed by a

blotter. The paper will now lie flat on a board. The wash may now be laid as before described, but preferably, in this case, with a flat bristle oil painting brush. The larger this brush the better the wash will be, if not inconsistent with the area to be covered.

Upon reaching the end of the sheet the wash is not stopped as in the previous method. The sheet, still wet, is turned sideways and brushed in that direction. Usually more color does not need to be added. When the surface has been covered thus, the sheet is turned again and brushed as at first. This process, repeated many times until the paper is nearly dry, works the color thoroughly into the pores of the paper and finally gives an attractive granular or woven texture that makes an excellent background surface.

The use of opaque water colors has greatly increased recently. These colors are especially useful to designers, and may now be had in tubes or bottles. A decade or more ago it was necessary for the artist to grind them. One opaque color may be applied over another without the under color showing. They also may be used on dark or colored backgrounds with excellent effect. They are the logical materials for commercial art.

TRACING

Tracing is a legitimate aid in design at certain times and under certain conditions. In order to be of use it must be carefully done. Careless tracing means serious danger to the work. Do not be deceived by the thought that hastily tracing over good lines will produce lines equally good. You must be as accurate in your tracing as though you were making the original drawing.

To transfer a tracing to another surface one must decide whether it is essential that the transfer face the same way as the original. A tracing laid face down is reversed in direction. If this makes no difference the transfer may be effected by rubbing the back of the tracing paper with the bowl of a spoon, the blade of a palette or pocket-knife, or with a lead pencil. Considerable pressure is required. The paper must be held so as not to slip, and the rubbing done in one direction only—not back and forth. If the tracing be made in soft or medium pencil, it will transfer well. For a transfer which faces the same way as the original it is necessary to rub a tone of soft lead pencil on the back of the tracing. This will act as a transfer-paper and make a clear impression when the lines on the front side are gone over. Carbon

and transfer papers are not good, as the transfer is effected through a greasy ink that cannot be erased later. In complicated designs with repeated right and left sides, one may often trace but one half and repeat twice elsewhere by using each of the two methods just explained. Good tracings can be transferred many times if care is taken that the paper be not cut or worn through.

STENCILING

Prepared stencil paper may be purchased at art material stores. Stencils may be cut, however, from any strong, tough paper. The paper must be made moisture proof by one or two coats of shellac. The need and proper placing of the "ties," or small connecting bands of the stencil, is explained in the design problems. Stencil brushes should have short, rather stiff bristles. Oil painting brushes will answer if regular stencil brushes are not procurable. Water color or other soft brushes are of little use for this purpose. Stenciling may be done with tempera or opaque water color just described or with water color mixed with Chinese white. Interesting results may be thus obtained on different materials but the result is in danger from contact with moisture. Washable stenciling may be accomplished by using artist's tube oil-colors. Some of the tones desired may be squeezed on the edge of a plain white china plate. A little benzine or gasoline should be poured in the center of the plate. Turpentine may also be sparingly used. The stencil brush should be moistened in the liquid and a little of the color picked up with the brush and spat on the plate to even it in the brush. Spat it on a waste piece of cloth to absorb excess of fluid, which should be plentiful enough to spread the color well but not to allow spreading under the stencil edges. Spatting vertically downward is preferable to painting crosswise over the stencil opening. A stencil should be very carefully lifted to avoid any dragging or blotting of the wet pattern, and should have any excess paint wiped off before the next application. Stencils cannot be handled roughly.

A fabric to be stenciled should be stretched flatly over as large a board or table as practicable and held by thumb tacks. The line of repetition of the stencil unit first should be carefully determined and shown by a tightly stretched thread over the surface of the goods. The spacing of the units may be accurately guided by inserting vertical pins along the thread at desired intervals. The stencil should then fit similarly over each pin as the work proceeds.

Textiles stencilled with oil colors or with certain kinds of dyes may be safely washed if care is exercised.

Stencilling by spraying the color with an atomizer is used frequently with good effect. Liquid waterproof dyes and special spraying apparatus are needed for this.

Interesting results in two or more colors are produced by combination stencils. A separate stencil must be cut for each color. When these are used in succession and properly placed the complete pattern in colors is formed. Different colors may be used on one stencil with care. Stencilling is often rendered more attractive by touches of embroidery. This must be done with considerable thought and reserve or it becomes unpleasantly ornate.

DOUBLE MIRROR

One of the most useful aids which the student and artist can have in a search for suggestions in design is a pair of small mirrors. These should be duplicates, oblong in shape, and from 4x5 inches to 5x7 inches in size. Their backs should be protected by stiff pieces of cardboard. A long and a short edge of each mirror should be bound securely to the cardboard by a strip of tape, similar to a passepartout picture frame. The other edges must be left unbound so that the reflections shall not be obstructed. A single mirror when stood vertically on any surface or against any form at once, by its reflection, makes a bi-symetric design of that form. If the second mirror is stood against the first, any form seen in the angle is repeated about that point a number of times dependent upon the angle. The range of usefulness of these mirrors is almost limitless and includes not only flat surfaces but actual objects of small size which can be placed in the angle.

TESTS IN APPEARANCE DRAWING

The best test in drawing is a highly trained eye. Other tests are but poor substitutes. Endeavor constantly therefore to train the eye that it may serve you with accuracy. All drawings should be plotted at first with eye judgment alone.

People are variously gifted as to degrees of accuracy of sight, and the acquisition of such power comes more or less quickly. Tests are merely steps toward such acquisition. Several tests are described in the following paragraphs.

The Transparent Slate. One of the best and most rapid methods of visual training is by the use of a transparent glass slate, which, when backed by a white card, may be drawn upon with a special pencil. The object or group is sketched directly upon the glass without tests. The result is judged by removing the cardboard back of the slate and observing how closely the lines of the drawing upon the glass fit the edges of the objects seen through it.

The practical value of this Cross transparent slate in the rapid training of correct vision and judgment in appearance drawing has been completely proven by large numbers of students during a score of years. Its use cannot be too highly recommended. Another device for training in values and color is also excellent. Both of these may be procured from their inventor, Mr. Anson K. Cross, Winthrop Station, Boston, Mass.

The Pencil. Proportions may be tested and compared with reasonable accuracy by checking their apparent sizes upon a pencil invariably held at arm's length.

Place a full length pencil near its end against the inner sides of the first, second and little fingers. Bring the fourth finger in front of the pencil. The pencil will be held firmly and one half will be left free upon which the thumb may slide. The apparent size of any part of an object may be taken on this pencil by bringing it at arm's length into the line of sight. The tip of the pencil should appear to touch one end of the object to be tested and the thumb slid along until it checks upon the pencil the other end. One eye only may be used in this and most other tests. The distance thus recorded on the pencil is for comparison only. Do not even transfer it to the paper. Holding the pencil at full arm's length, with the thumb still checking the first tested distance, apply it to another part of the object. The relation of

sizes may be clearly seen and compared. Smaller sizes should always be compared to larger ones. A small size must be stepped along as accurately as possible to note the number of times it may be contained in the larger.

The Finder Card: Provide a card $4 \times 5\frac{1}{2}$ inches. Cut out an oblong opening $2 \times 2\frac{3}{4}$ inches, thus making a frame. Divide the inner edges of this frame into quarters. Mark these quarters distinctly.

The finder card is used as a frame through which whatever is to be drawn may be seen. It should be tried and moved about to such a position that the eye sees exactly the arrangement and limits of the composition desired. The quarter divisions aid one in comparing and locating the many points in the picture, an oblong of the same proportions but of a larger size with quarter divisions having been sketched on one's paper as a margin line.

The Plumbline: A string 15 to 24 inches long with a small weight at the end is helpful in comparing verticals with oblique lines and in locating points in a subject which lie approximately in a vertical line. It is to be suspended from the left hand so that the string appears to cut a desired part of the subject.

The Thread: This has a somewhat similar use to the plumb-line. It should be stretched between the extended hands apparently to connect any two desired points in the subject. The thread will appear as an oblique line crossing other parts. Its slant may be noted and compared with the position of corresponding points in the drawing. Both hands must be the same distance from the eye and the thread perpendicular to the imaginary line from the eye to the subject.

The Pencil; Directions: The pencil may also be used to test the direction of line and edges. It is held at arm's length and must be observed with one eye only. Only the end of the pencil is held and no thumb measurements are to be used. Keeping the pencil perpendicular to the direction of sight it is tilted to the right or left to appear to fit the desired line or edge. When so adjusted it is best to bring one's drawing up behind it, thus comparing the edge to be tested. The arm may be very carefully lowered to the drawing for this test but there is great danger of the slant being changed and the test thus rendered useless.

Under no conditions may the pencil be pointed forward in such tests. The pencil then becomes a retreating foreshortened object of no value as a test. It must lie, as it were, against a glass

window perpendicular between the artist and his subject. Upon this glass pane it may take any slant to the right or left, but never may its end be thrust forward.

Two Joined Straight Edges: Angles may be proven in appearance drawing by the use of two straight edges of card, wood or metal, just thick enough not to bend. They may be fastened together at one end to open and close as a pocket-knife, or be held at their corners between the thumb and finger. Here also neither card must point forward but both must lie against the imaginary glass pane just described. With one eye shut the cards may be adjusted to appear to fit exactly any angle in an object or group. Holding this angle they then may be applied to the angle attempted in the drawing.

The Adjustable Finder: An ordinary finder is a card with an oblong opening. An adjustable finder may be made by cutting two cards in the shape of an L. These may overlap in opposite directions to form a frame whose size and proportions may be carried. By dividing the inner edges of these angle cards into quarter or half-inch divisions beginning at the inner corner convenient points for various comparisons will be available.



JAPANESE PLANT ARRANGEMENT.

DESIGN

The subject of design is divided into two general classes, design in the round and design in the flat. The former is design in three dimensions, the latter in two dimensions. The first applies to real objects, the second to surfaces of objects.

Design in its fullest sense serves two purposes: It produces an article of use and at the same time strives to make it as beautiful as possible.

Each of these functions of use and beauty are subject to three principles.

USE. The three important principles governing the use of an object are:

1. The form of an object should reveal and emphasize its purpose. Never should it conceal or disguise it.

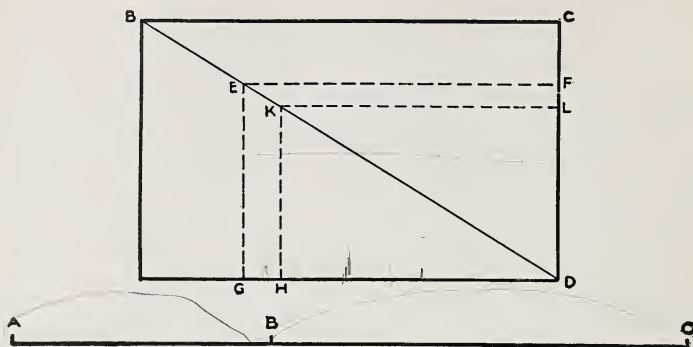
2. The material composing an object should be that most suitable for its use. The peculiarities and characteristics of this material should never masquerade as another material.

3. The construction should be honest, clearly showing without disguise the tool and process.

Apparently obvious as these principles are, their violation is an every day matter. The student of design cannot be too alert to note the presence or absence of them in objects claiming excellence of design.

BEAUTY. Under this head we must consider: 1. Proportion, or the relation of sizes; 2. Contour, or the relation of shapes; 3. Tone, or the relation of neutral values and of colors.

1. Proportion means a relationship between the measures of different parts of a whole. No one element of beauty is more important, nor is there a subject upon which has been devoted more effort in the search for guiding principles. Each age of the world has had its canons and theories of art measurements that were supposed to guide to success the designers of that epoch. A very brief statement of a general law of proportion would seem to be almost impossible, yet analysis of a large number of objects, covering many fields and many ages, leads to a conclusion that the approximate ratio of two parts to three is one of wide and useful application. There is a so-called "Greek Division of Space" which specifies "more than one-half but less than two-thirds." Again we have the ratio known as the "golden oblong" or the mean and extreme ratio.



THE GOLDEN OBLONG

The golden or ideal oblong is built upon proportions to which mathematicians give the term of mean and extreme ratio. In the above line $A C$ the ratio of $A B$ to $B C$ is as the ratio of $B C$ to $A C$. If the line were divided into 100 parts such a division would very nearly approximate the proportion of 38 to 62. The ratios of 5 to 8 and 2 to 3 are both close to this extreme and mean ratio and give the designer great help in deciding the large proportions or subdivisions of any problem.

The diagonal of any rectangle, as $B D$, can be used to locate corners of any other rectangles of different size which it may be desired to make of the same proportions as the first, as $G E F D$ and $H K L D$. This rule has wide practical applications, in the enlargement or reduction of drawings for photo-engraving or other reproduction and in other ways.

Where delicate proportions are desirable, as is more frequently the case than otherwise, an application of one of these ratios—the Greek division, between a half and a third, the golden oblong, or the ratio of two parts to three—will help wonderfully toward a solving of the problem. Where smaller divisions are required after the more prominent spaces are plotted, a further subdivision using the same ratio throughout the design should be the rule.

This ratio of two to three is, of course, not the only one resulting in beauty, nor does the use alone of any ratio bring satisfactory results. The happy combination of several factors are essential for that, guided by that indispensable thing called Taste which is to some extent inherent, but may, to a large extent, be trained.

2. Contour, or the relation of shapes, shows us the form of an object. It is its defining outline or visible edge. Such edges may be composed of straight and curved lines. The qualities and directions of these lines, and their combinations convey different distinct emotions. The horizontal line suggests repose, silence, inertness. The vertical gives the impression of uplift, life, vigor. Obliquity suggests motion of greater or less degree. The curves include the circle, ellipse, oval, spiral, their parts and combinations. Contour is treated elsewhere in connection with Plates 42, 114, 116, 118.

3. Tone refers to the neutral values or to colors of an object. Beauty is absolutely dependent upon tone. The study of tone or color has received great impetus in recent years and many errors of former systems of color teaching have apparently been corrected. As with proportion and contour, sensitive appreciation comes with years of study and experiment. Refinement of the color sense can not come without long effort. See page 165.

DOMINANCE

Before considering any of the separate principles of design it is necessary to realize the importance of the law of Dominance. This means that every design must possess a leading, dominating idea usually shown in a dominant shape and size of some part of the particular object or decoration in hand. This rule is universally applicable. This leading idea should be clearly evident to the person viewing the object; other parts must be subordinated. Successful design always illustrates this rule. Whatever the object, the mind and eye demands the satisfaction which comes from a realization, conscious or not, of a leading, controlling feature. A confusion or rivalry among parts always results in failure. In the two highboys on Page 16 one has two parts of about equal size and interest, while the other has a distinct dominance of the upper part to the great improvement of the piece. The same is true in the covered dish, Page 16. In 1, the dish and cover of equal size are very unpleasant. In 2, the dish dominates; in 3, the cover dominates. Both of these forms could be of definite service and either is better than the first form with neither part dominant. In the same Plate, the equal divisions in a candlestick or moulding are unfortunate. One part should dominate. Examples of this law are infinite, both in

• DOMINANCE •



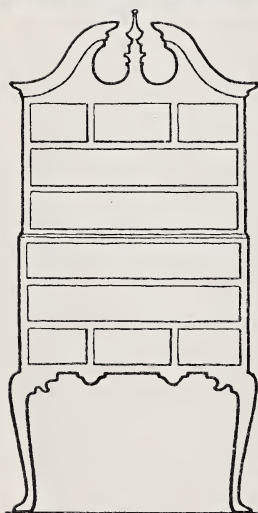
CANDLESTICKS.
1-BAD: NO DOMINANCE
2-GOOD: DOMINANCE
• WITH VARIETY •



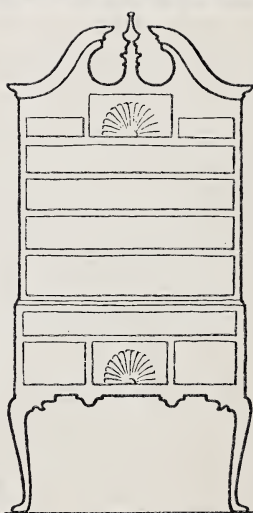
COVERED DISHES.
1-BAD: NEITHER PART DOMINANT
2-GOOD: DISH DOMINANT
3-GOOD: COVER DOMINANT



MOULDINGS.
1-BAD: NO DOMINANCE
2-GOOD: DOMINANCE
• WITH VARIETY •



AN IMAGINARY HIGHBOY SHOWING MONOTONY OF SPACING THROUGHOUT. THE PRINCIPLES OF DOMINANCE & RHYTHM ARE ENTIRELY IGNORED



AN ACTUAL HIGHBOY OF FINE DESIGN: #1 DOMINATES 2 & 3. #3 DOMINATES 2: DRAWERS IN #1 ARE IN RHYTHM: CARVED DRAWERS DOMINATE SMALLER DRAWERS

the large and in small details, for the law is equally applicable to the parts of forms, whether solids or surfaces, and to whole objects.

This law of dominance and subordination has, as has been said, universal application. It is acting jointly with other principles constantly. Other principles sometimes act separately from each other, but they cannot act without recognizing this law.

The principles which it is necessary to consider are Repetition, Rhythm, Balance and Harmony.

REPETITION

It needs almost no observation to notice that the principal of repetition is a most important factor in design. This repetition, however, must be governed by some rule of order. Disorder can never produce beauty. A very simple form though unattractive in itself can by orderly repetition appear pleasing and sometimes beautiful. Take for example a letter, I. This repeated at regular intervals gives us I I I I. The spacing may be more or less close with varying effect. The letters may be grouped, II II II or III III III. Any unit may be similarly treated.

If we introduce into this repetition a second element, that of alternation, we greatly increase our range. This alternation make take the form of a different grouping of the same succeeding figures as II III II III or II - II - II - II - . It may introduce an entirely new form into the succession as I O I O I O. These examples of repetition and alternation merely suggest some of the infinite possibilities in the line of borders.

Repetition occurs, however, in many other forms. By repeating any row of units or spots above and below itself, we immediately produce a surface decoration, which again may be infinitely varied by the spacing of these rows or by the introduction of alternating rows, or by the crossing of rows in a different direction.

Another example of repetition is observed in the reproducing of the same form on two sides of a symmetrical object. Countless examples of this exist in nature as well as in art. Again in nature do we get the repetition in varying sizes of her millions of forms of all kinds, to the unobserving, perhaps distributed haphazard, but to the searcher, obedient to rules of use and order. The leaves on a plant or tree are an example of this.

Three principles confront us in our effort to classify this idea of repetition. They are Harmony, Balance and Rhythm.

HARMONY. The principle of harmony is well nigh all inclusive, affecting alike forms or parts of forms in rhythm or in balance. Harmony is felt when two or more forms have some characteristic in common. The more this common element increases, the greater the harmony. If such an element exists equally in the different effects, we are in danger of producing monotony rather than harmony.

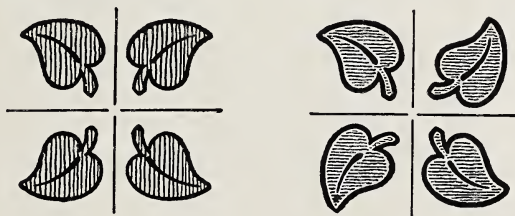
BALANCE means an opposition of equal forces. In recent books of design we have the distinction drawn between obvious balance and occult balance. Obvious balance means a balance which is clearly evident. Occult balance is that balance the cause of which is not clear, although a sense of repose may be clearly felt. We have perhaps the clearest examples of obvious balance in designs based upon symmetry or the repetition of the same form on the right and left of a central axis. Occult or obscure balance is seen in those groups of forms of unlike size or shape which by their arrangement do not follow a law of symmetry yet obey in their related positions a hidden law which gives to the composition a satisfying sense of repose.

RHYTHM. Rhythm may be defined as a sensation of consistent, orderly, accented motion. In a row of units of whatever sort our eye tends to roam from one end of the line to the other. If the units have no pronounced direction as this tendency in either direction is perhaps not strong. If, however, the units lean or point one way so that the eye is distinctly forced in that direction, / / / / / or 7 7 7 7, we have a sense of rhythm or orderly movement. Rhythm is shown in many other ways as one may see in the constant working of nature's laws. An orderly increase or decrease of measures or of colors always arouses this sense of motion and proves an element of beauty. The field of sound offers similar examples, though of a class that we need not more than mention. The rhythms of music, of concussion and of physical motion have ever fascinated alike the ignorant and the educated.

POSITIONS AND ATTITUDES

The positions taken by spots, units, or groups of spots collectively forming separate units have a very great deal to do with a decorative result. The attitude also decidedly affects it. By attitude we mean the direction taken by the unit in its relation to

the vertical. An examination of any of the designs through the book will demonstrate the importance of related positions of units in the scheme of any repeating design. The attitudes or directions possible for a unit are numberless. We may, however, show two sets of typical positions in the accompanying figures. In the first you will note that a unit may be reversed below, which we may call a simple inversion, and that this pair of units may then be reversed to the other side of the vertical, giving us a double inversion. In the other figure we have a unit repeated about a center but with each repetition making a quarter revolution. Both of these methods of repetition offer most interesting results. The history of ornament shows us very great numbers of examples in each class.



ABSTRACT DESIGN

All decorative design employs one or the other of two factors. It must use either abstract shapes, or forms conventionalized from nature. Both abstract and conventionalized forms are frequently used in the same design.

Abstract design depends upon the arrangement of lines and areas without resembling natural forms. Conventional design uses nature forms adapted by revision and the elimination of details to the needs of the specific object in hand. Both types of design are found in all styles and in every age of art history.

Abstract design has its origin, to a large extent, in the exhaustless field of geometry. Quantities of historic motives in every period come from this source and innumerable patterns in the classroom can be obtained by working over rectangular and triangular networks or within other geometric limits. Abstract units may be arrived at by arbitrary combinations of lines of varied shapes, or by cutting up larger forms into smaller interesting areas.

Natural forms or their parts frequently suggest abstract decorative shapes. Examples of this are curls of smoke, swirls of water, markings of wood and marble, wrinkling of bark and withered leaves, or the surface details of innumerable natural objects. Such forms may be adapted and used quite apart from the spirit of conventionalized ornament.

CONVENTIONALIZATION

In confronting the subject of conventionalization we meet a more difficult problem, yet one of the most important in dealing with successful decorative design.

Conventionalization is by no means a fixed or definite term. It applies alike to each of many degrees of decorative modification of nature. We may have merely approximate conventionalization where there is but slight departure from the pictorial, or the treatment may be most formal and rigid in which only the last essentials of growth and shape are arranged with severest symmetry. Between these extremes may be found all degrees of freedom or formality. Foreshortened forms and mixed combinations are frequent in many styles.

All of these difficult phases of ornament are quite beyond any but the most expert designers and not to be considered in high school work. There is no reason, however, why the simpler kinds of informal and formal conventionalization should not be understood and used by pupils.

Informal conventionalization refers to the use of the perspective appearance of a natural form for decorative purposes. The ornamental value of such an appearance is dependent upon the rejection of small details, refinement of forms, clear edges and flattened values and color.

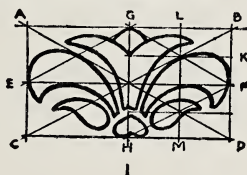
In the formal style the natural principles of form and growth are taken as a guide, and purely decorative shapes and arrangements are developed upon such principles.

Exercises should be given in each of these modes. The informal method, being but slightly removed from the pictorial, is perhaps the easier of the two and needs less guidance except in choice of subject. In the more formal style the student should be taught to conventionalize a few basic types of flowers in top and side views, adapting such drawings to several different space limits. Different forms of common leaves should be similarly studied. Such exercise will give an appreciation of conventionalized ornament and develop some ability to produce it. Through-

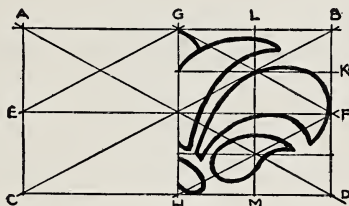
out all design employing nature motives one is constantly confronted with conventionalized forms. An appreciation of the beauty of these forms in the best art is a source of keen delight. The development of such appreciative power is distinctly worth while and may best be accomplished by individual attempts at conventional ornament.

Both abstract and conventional design are governed by definite rules of order. The most comprehensive of these are harmony, balance, rhythm, dominance and subordination. These rules or principles of design should be studied at length and their practical application impressed upon the pupils.

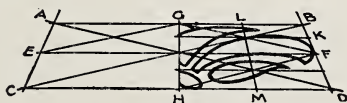
Order and system are so important that it would be well if every designer could be made to respect them. Only in art's decline do we find the designer throwing away in his conceit the very factors that would be his work's salvation.



1

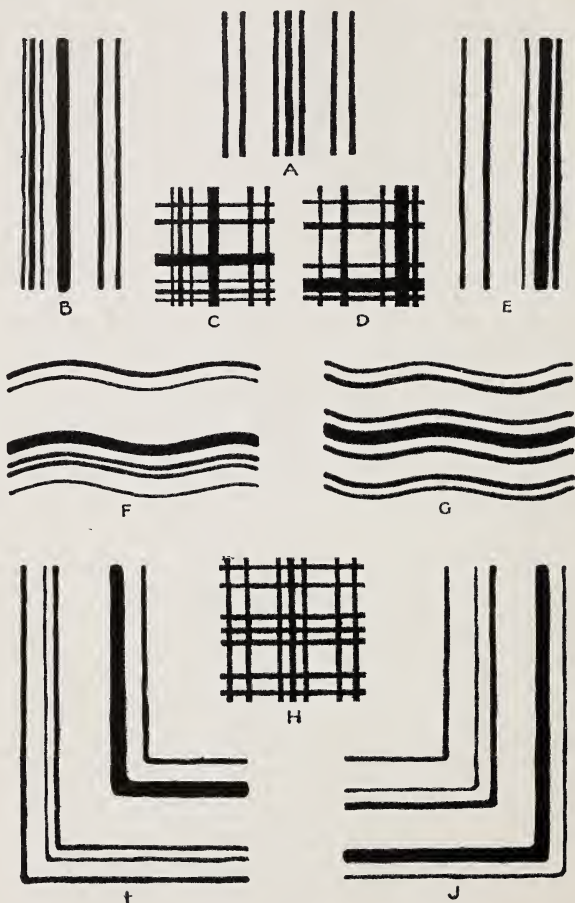


2



3

THE RECTANGULAR NETWORK AS
AN AID IN DRAWING. SEE PAGE 73.



BORDERS AND PLAIDS OF FREEHAND BRUSH LINES
SHOWING DOMINANT GROUPS AND SPACES.

GENERAL DESIGN PRINCIPLES

One of the simplest yet most important problems in decoration involves the use of parallel lines variously spaced. These lines may be of the same thickness or may vary in weight. This plate presents a few of the ways of approaching these problems.

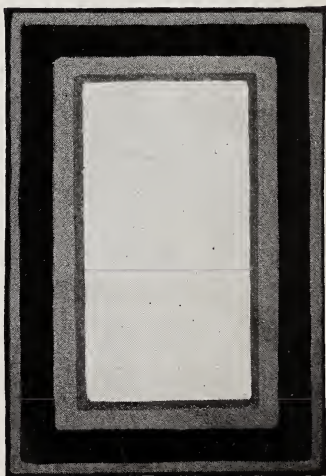
For this work a bottle of India ink and a small brush are needed. The paper should be placed on a level rather than a slanting surface. The brush should be held in a vertical, not an oblique, position; papers and brush should thus be perpendicular to each other.

In making a line the brush should be as full of ink as possible without dripping. It should then be pressed on the paper to the width of line desired, and the line drawn by moving the hand and arm, not the fingers alone. This is invariably hard for a beginner, but should be practiced until control is acquired with various widths of lines. The length of line may be continued by resting at the end of a stroke and lifting the entire arm to a new position and continuing the stroke. Mechanical guides such as following the edge of the board or a ruler should not be indulged in.

When a sufficient mastery of the brush has been attained, a group of lines may be tried. The grouping of these lines is an important part of the problem. For horizontal lines the hand should be moved to the right; vertical lines should be drawn toward the body, never pushed in the opposite direction.

In referring to the plate you will notice that in each group of lines some one line or group of lines and frequently some one space or pair of spaces is dominant in size. This is an important feature that must be insisted upon. It is a principle which exists in all good design. Be sure some line or space or both dominate in size and conspicuousness. Successful practice with these groups of lines may be followed by combining vertical and horizontal groups to turn a corner (i, j), by bands formed by curved lines (f, g), and by plaids (c, d, h).

The application of these problems is shown in the constant use of parallel bands, grooves and mouldings almost everywhere. The frontispiece beautifully illustrates such uses.



BORDERS OF PLAIN BANDS ILLUSTRATING AGREEABLE SPACING
AND PROPORTIONS AND A DOMINANT STRIPE IN EACH BORDER.

Take a sheet of white paper about 12 by 18 inches. Draw on this sheet four rectangles each measuring $3\frac{3}{4}$ by $5\frac{3}{4}$ inches. Have a space of $\frac{1}{2}$ inch between each pair of them. Let these rectangles represent four plain rugs which are to have very simple borders composed of plain bands running around the edges of the rugs. Each rug must have three bands of different width. In each case one band must be clearly dominant in size. The edges of the bands must be parallel with the edges of the rugs. The center space of the rug should be the dominant feature of the rug and left perfectly plain. The problem in design consists in spacing these bands so as to get the most pleasing proportions and variety possible. There are to be no slanting or curved lines in any rug, or any breaks in the continuation of the lines. All work must be free hand absolutely.

When you have decided on the spacing of these lines, and have drawn them in satisfactorily, color each rug with water color, making the border different values from the body of the rug. The colors of any one rug should be variations of one tone and not a variety of colors.

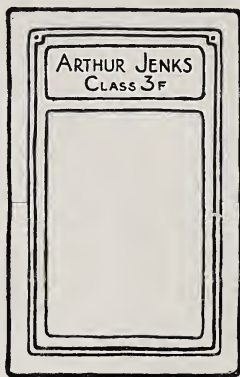
Interesting developments of the above problem are shown on Plates 26 and 27. Try on a fresh sheet of paper six corners for a rug which shall be composed of straight lines in only vertical and horizontal directions. These may be arranged in the form of steps or blocks, interlacing of lines, bands, or other forms. The designs should be extremely simple. After the modification of the corners, we may take the middle of the sides as the next point of possible change, if such seems desirable. Complete several borders of this type.

Borders formed of bands interrupted at regular intervals either by spaces or inserted forms lead to still other types in which the continuous line effects originally started with have entirely given way to a repetition of block units. These may be purely abstract in form or may suggest natural forms. The turning of the corners and the center of each side of the frame are always points of difficulty. In all work of this kind excellent assistance may be had by using squared paper beneath tissue or rice paper. The squares seen through the upper sheet soon suggest to an imaginative mind a multitude of interesting figures. The introduction of a well lettered title or name shows the use of this problem in simple cover designing, Plate 26.

Plate 27 shows a varied set of problems, reviewing what has been suggested in the three previous plates.



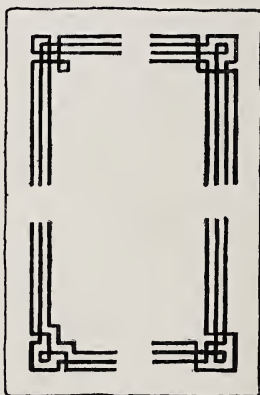
A



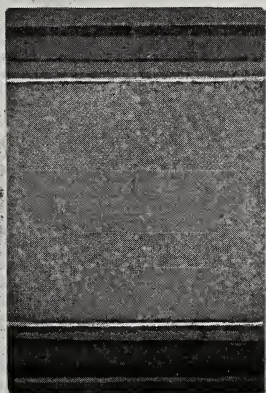
B



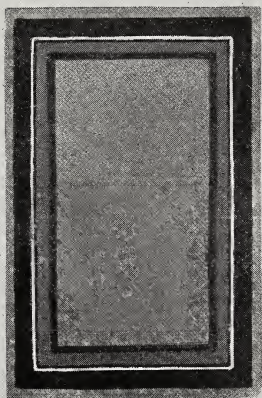
C



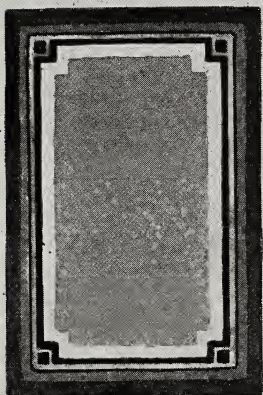
D



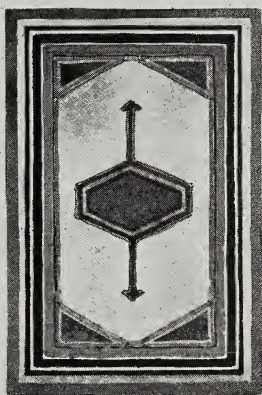
A



B



C



D

FOUR METHODS IN PLANNING SIMPLE RUGS—
D SUGGESTS AN ORIENTAL TYPE.



A



B



C



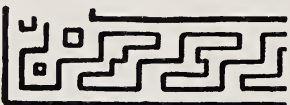
D



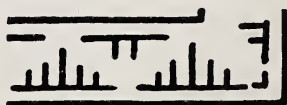
E



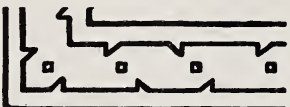
F



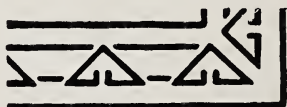
G



H



I



J



K



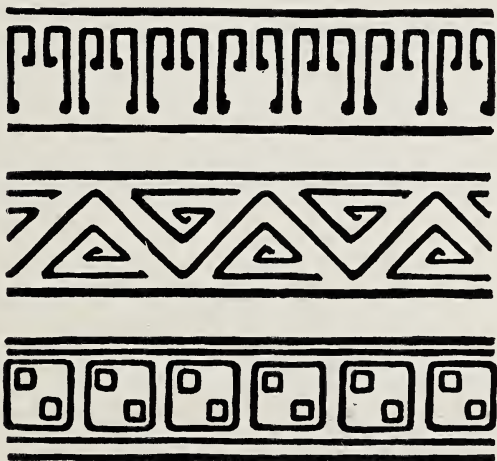
L

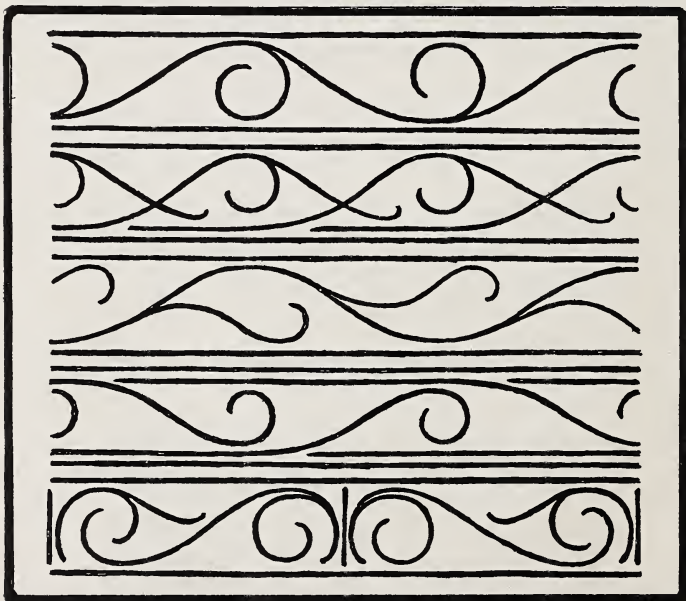
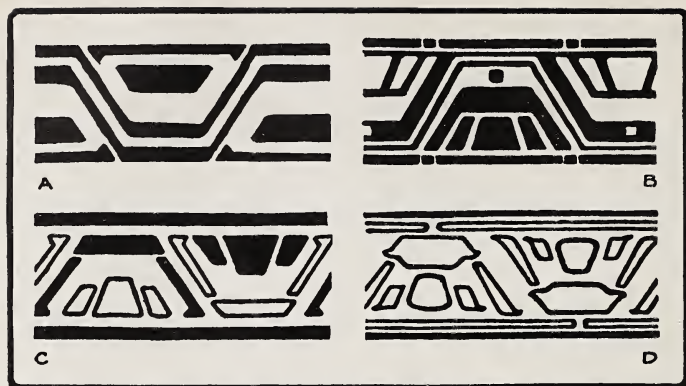
BORDERS OF ABSTRACT STRAIGHT LINE UNITS. A B C D,
LINES IN ONE DIRECTION; E F G H, TWO DIRECTIONS;
I J K L, THREE DIRECTIONS.

In our first problems we tested the value of borders composed of lines parallel to the edges along which they ran. Variety was gained through the dominance of one line or one space. The corners were the next point for experiment. Many of the most beautiful border treatments have consisted of nothing but carefully planned corner designs, joined by the plainest bands on the four sides. An added embellishment comes with the decoration of the middle of each side.

Further breaking up of a border brings us to a succession of units, either simple or complex. Plate 28 shows a series of exercises of a simple type, possessing, however, a number of chances for experiment.

A to D show us lines in one direction only (not including the edges of the border nor the turning at the corners in any case). E to H show us lines in two directions, while I to L employ three directions. Experiment with a number of original borders, setting yourself similar limitations. Endeavor in these borders to get a feeling of movement that is consistent and smooth, not jerky. In the combinations of three lines it is well to have the oblique lines in the direction forty-five degrees, or a half right angle.





VARIATIONS OF A BORDER
SKELETON LINES FOR FLORAL DEVELOPMENT.

In the upper section of this sheet are four borders which are developed from the last design on page 28. They suggest similar lines of experiment by which imagination and originality may be trained. Try a large number of similar problems based on good borders of historic or modern design, or of the student's own production.

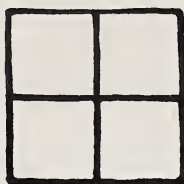
In the laying out of any design, it is important to plot the masses and flow of lines throughout the desired area before attempting any elaboration of detail. Unless a well balanced arrangement is assured, no amount of later work will avail. The empty or unfilled portions of the enclosing space are absolutely as important as the forms comprising the design itself. In fact, the design is not only the part which is drawn, but also the empty spaces in combination with their related forms. This fact is too often not realized or ignored. This applies not only to decorative design, but pictorial composition as well.

A well-known firm of paper makers uses the motto, "The paper is part of the picture." This is a truth, frequently, and is equally applicable to decorative design.

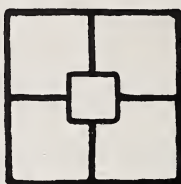
In the laying out of designs based on plant growth a skeleton of light lines in accord with the simple principles of such growth is desirable. The lower portion of the opposite page shows some possible lines of this type.



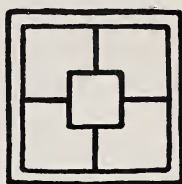
BORDERS BASED ON SQUARE NETWORK.



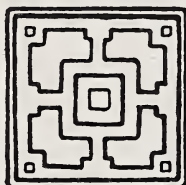
A



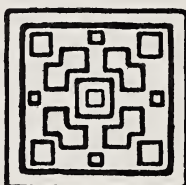
B



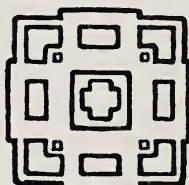
C



D



E



F



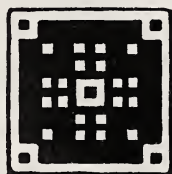
G



H



I



J



K



L

Draw several squares measuring three inches on each side. Plan them so that they are neatly spaced on your paper. Divide these squares by horizontal and vertical lines generally following the ideas shown in the adjoining plate, but changing these so that your designs are original. Your aim should be to make in each case a pleasing arrangement of lines and spaces and a figure suitable for possibly a tile, a carved or inlaid panel, or a unit that could be repeated any number of times for a border or a surface.

Draw this design absolutely free-hand, directly with the brush and ink. Make no preliminary pencil sketches but think out clearly what you want to do and then draw directly on the blank paper with the brush. If you do not succeed with the first effort, try until you do. Your lines should be thick and bold and not thin, scraggly, or wavering. A courageous, honest mistake is frequently better than a weak, hesitating effort.

When the ink lines are entirely dry on all of your designs, tint them with water color, using in some two or three tones of the same color in a single design, and in others several different colors in one design. Place your finished work on mounts against the wall and criticise and compare the results.

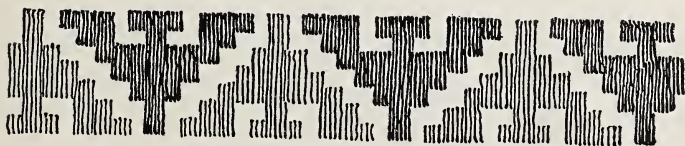
Illustrations of these problems are given in the adjoining plate.

A is obviously incomplete. It needs a centre, as in B. We then probably feel that a border line, as in C, is an improvement. Other steps are at first perhaps not clear, but come by experiment.

In most cases the inner lines are parallel with the boundaries of the rectangle. In G, H, I and K, the diagonal is used, and slight modification of curves introduced. We thus arrive by simple steps to forms suggesting leaves and flowers. Other problems based on these designs will suggest themselves.

In J and K the effectiveness of a solid mass of background color is well shown.

In the border below we have suggested bird forms developed on squared paper.



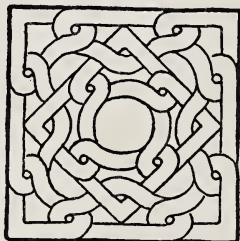
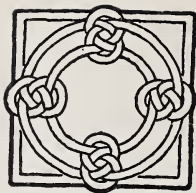


Plate 34 introduces us to the extensive field of interlaced ornament. The early Christian or Celtic Art in Ireland, dating about the eighth to tenth centuries, shows the most remarkable interlaced designs. A large number of stone crosses as well as numerous smaller objects so decorated exist in that country. But, it is especially in the remarkable books produced by the Irish monks of that age that we see almost unbelievable care, skill and originality lavished on interlaced pattern. The Book of Kells is a famous example.

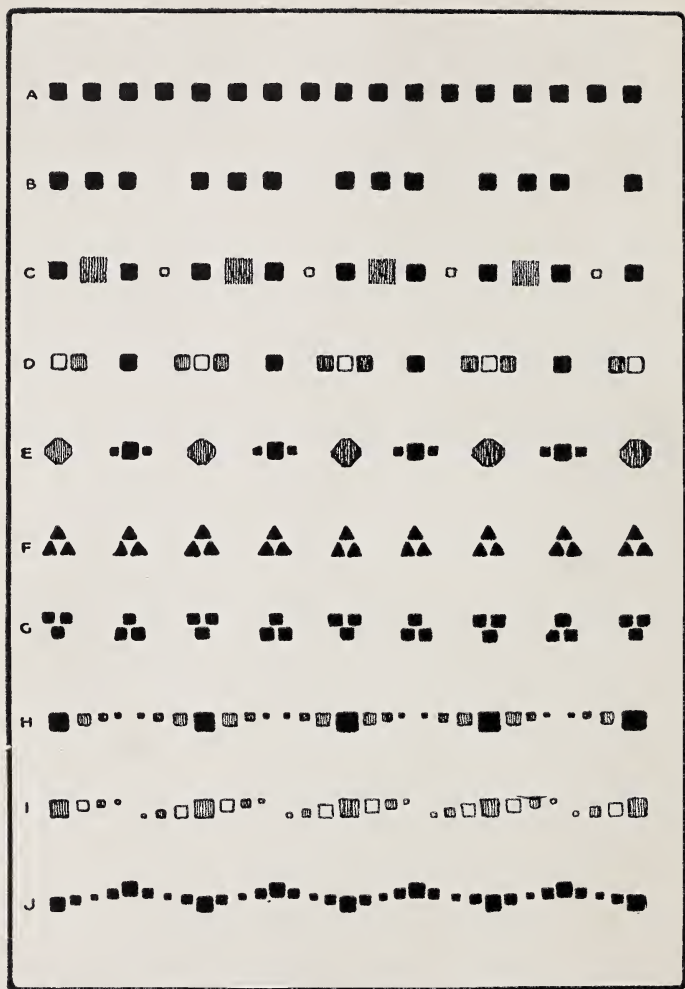
In Scandinavian art we also find interlacing much used. Frequently in these Irish and Scandinavian designs the interwoven lines are developed into animal or bird forms of grotesque type. Interlacing is also present in the historic art of other peoples and much used at present.

The accompanying plate gives several good examples of interwoven designs. The two largest on the second row are Saracenic, the others are Celtic.

In the dissecting or designing of this kind of design one is apt to be hopelessly bewildered at first. The unravelling of the problem, however, is not so difficult, if one will consider any one of these designs to be based on the simplest square net work, as in the lower left corner of the opposite page. If, however, the bands are stopped in their course, at such regular places as the designer selects and these ends joined together in some new way by curves and angles, as in the lower right hand design, we have the solution of a rather intricate problem which would otherwise present puzzling difficulties. The bottom centre drawing shows this design complete as carved in stone on an old medieval church.

Just above these are three diagrams showing the weaving plan of the details in the three designs at the top of the page. Curved lines it will be noted are but modifications of straight lines which form the net framework beneath them. After the interlacing on this framework has been planned the lines can be bent, adapted and elaborated to any degree desired.

The three examples on the centre row of this plate should be dissected on the above plan. Draw plain networks of straight lines and adapt these designs to them. It will be necessary to straighten curves in order to make them fit, but their underlying plan can thus be found. Good interlacing always alternates in its weaving over and under.



SOME POSSIBLE VARIATIONS IN
ROWS OF SMALL SPOTS.

Some of the possibilities of spots in orderly arrangement are shown in Plate 38. They may be classified as follows:

- A. Square spots occur in a regular order.
- B. The spots are in groups with larger spaces.
- C. The size and tone of the spots change regularly.
- D. The tone, grouping and spacing change regularly.
- E. The shape, tone, size, grouping and spacing change regularly.

The remaining rows show other possibilities in the arrangements of simple spots. The student should make a number of personal experiments with this problem, with pen and brush, in ink and water color.

The addition of one or more continuous lines above and below any line of spots aids at once in the effect of a border.

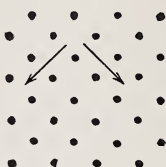


Surface patterns are easily developed from rows of spots by successive orderly repetition of the rows one beneath the other. The examples below illustrate this. Laws governing several kinds of repetition are shown in Plate 38.

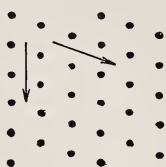




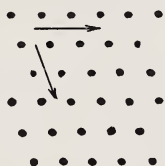
A



B



C



D



E



F



G



H



I



J



K



L



M



N



O



P



Q



R



S



T



U

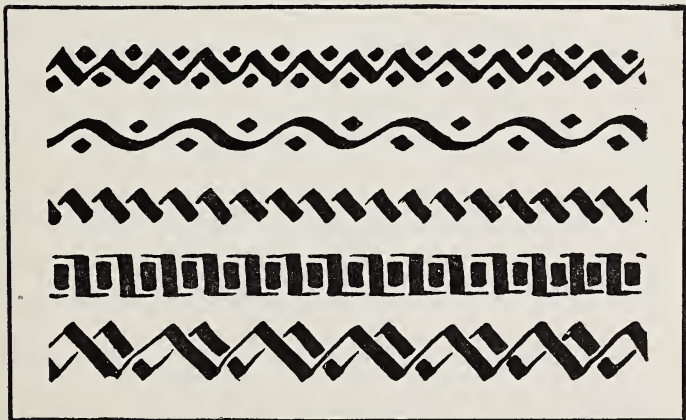
SIX METHODS OF SURFACE REPEATS, A TO F. FIFTEEN POSSIBLE RELATIONSHIPS OF SIMPLE LINES—AFTER J. BOURGOIN.

Various systems of repetition are shown in Plate 38. They are skeletons or frame works merely, on which designs may be repeated and built up. From A to F are possible arrangements of dots, each dot representing as simple or elaborate a unit as you wish. The arrows show the tendency of the dots in each system to run in rows, guided by the comparative nearness of the units. The two commonest systems of repetition are A and B.

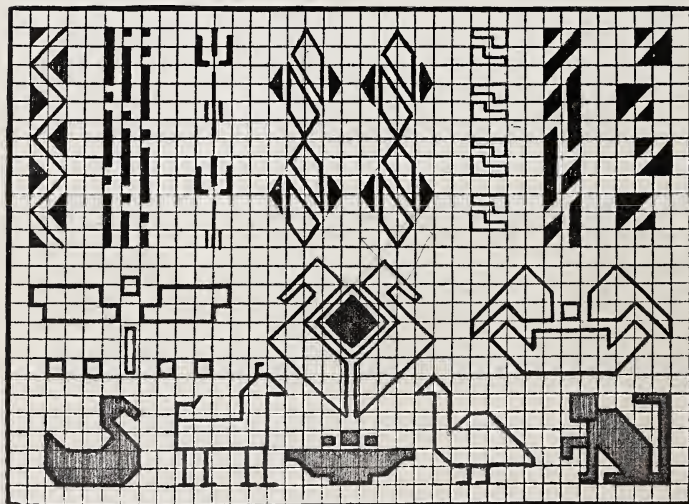
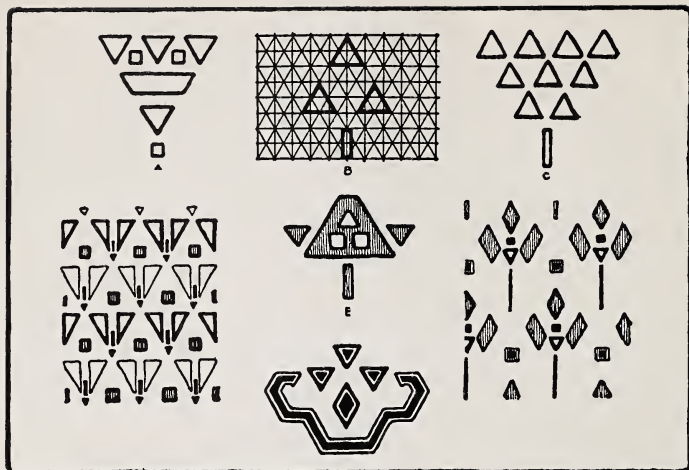
The lower half of the plate is reproduced from a French work, "Theorie de l'Ornement," by J. Bourgoïn, published in 1873.

The line of scallops D, E, F and the zig-zag M, N, O are shown each in a different combination with itself. Imagine either of these lines developed as may be desired, into a more elaborate band and similarly repeated. These examples illustrate the almost limitless changes possible with the use of simple material.

With a stub pen or a stick sharpened to a flat chisel or screw-driver shaped end, or a pencil with a broad, flat shaped lead, try a large number of borders in thick and thin strokes as shown in the lower part of this page. Do not attempt to be too accurate, nor yet allow yourself enough freedom to be slovenly and careless. A slight inaccuracy, however, is more pleasing than mechanical precision. Do not sketch these out faintly at first but produce them direct without further finishing.



STUB PEN BORDERS.



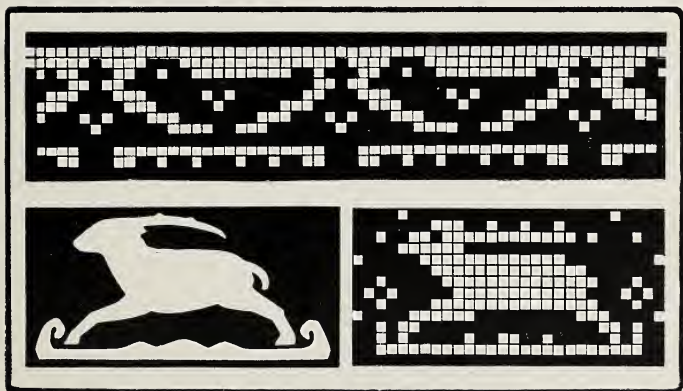
BORDERS FREELY MADE WITH THE FLAT NIBBED PEN.
DECORATIVE UNITS DEVELOPED ON SQUARED PAPER.

The problems suggested in the adjoining plate are almost self-explanatory. They are built on squares or triangles.

A wide range of designs in all the historic styles and in every day art are based on some underlying network, usually that of the rectangle or triangle. We used the underlying net in the interlacing problems of page 34. These designs, however, are not of this class. Some of the simplest are often better than the more complicated. Much of the fascinating and intricate tracery in Arab and Moorish art is based on such nets. See page 64.

It is well to remember that simple units frequently lead to more beautiful results than complicated ones, especially in the hands of the inexperienced. In the designing of many units observe nature's principle of upward spring or growth, with the chief interest of the unit toward the top. Design a border 8x12 inches, using two alternating figures derived from the nets described above. The corners will be especially difficult. Several trial borders should be drawn and the best completed in two or three tones as shown on Plate 47. Then try in another problem to develop these straight line units into forms suggestive of nature. See pages 30, 48.

All designs intended for weaving have to be adapted and redrawn on squared paper, as shown below, in order to conform to the arrangements of threads in the loom. Embroidery of great beauty can be produced by the simplest methods of cross-stitch, based on the square network.





C & S CURVES . . CIRCULAR ARCS &
CURVES HAVING SIMILAR HALVES
ARE THE LEAST INTERESTING



LINE RHYTHMS WITHIN
LIMITING BOUNDARIES

SIMPLE AND COMPOUND CURVES OF OTHER THAN CIR-
CULAR FORM ARE THE MOST USEFUL IN DESIGN.

Most students easily appreciate the kind of curves that are usable if they are classified as C curves and S curves. C curves are those that curve in one direction only, while the S curve has a compound direction.

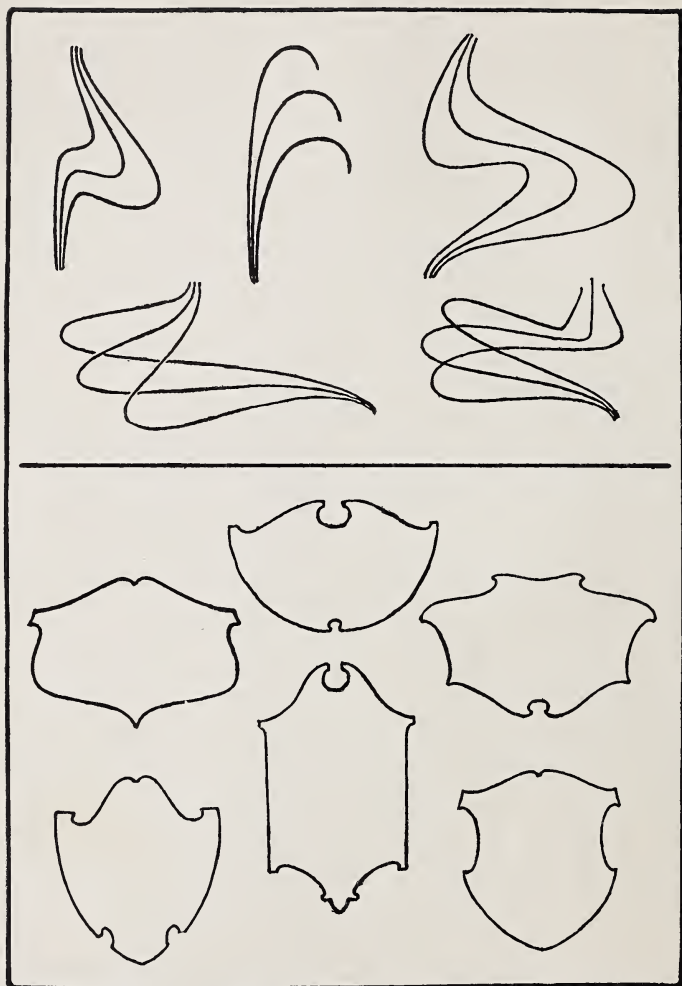
By eliminating all curves but these, the work at once becomes, at least, hopeful. In either of these curves the fact must be appreciated that equal and uniform curvature is usually less pleasing than the emphasis or accenting of one part or another, as illustrated in the two upper rows.

The C and S curves may also be termed simple and compound curves. Anything which exceeds the latter, for the purpose of these exercises, will be termed a complex curve and banished forthwith.

A vital principle, frequently neglected, is the massing of any form, rhythmic or not, within a pleasing limiting shape. The eye cannot grasp a sprawling figure. Geometric figures with straight line boundaries are good as inclosing shapes, whether a rectangle, triangle, trapezoid or even a more complicated form. Other enclosures formed by straight and curved lines may be used. Figures formed only by curves comprise, of course, the circle and ellipses of any proportion. Another basic curved shape, itself beautiful and capable of many variations, is the egg or ovoid. It may be long or short, narrow or wide, formed on a straight or curved axis. Its top or base may be indented or extended to a point and its contours modified by subordinate forms within reasonable limits.

An exterior enclosing shape decided upon, its interior should be broken by a line rhythm. The growth should be distinctly from one source and tangential in its joinings, with the clear purpose of obtaining, with each curve, an enclosed area which is itself of pleasing form. The danger of running into curves other than the C and the S is great, and in many cases the pupil seems helpless. The arrangement may be symmetrical on the axis line or have no such restriction. After any shape has been filled with a line rhythm, the completion of the design may be accomplished by modifying the various areas enclosed by the lines into leaves and flowers. The rhythmic lines may be taken as leading veins of the leaves or as boundaries between leaves and flowers. Frequently the rhythmic lines are adequate in themselves without further treatment.

The enclosing boundary line of the limiting shape may be permanently retained as a part of the scheme, or erased, as seems best. Finally, the treatment of the whole in color, if feasible, enhances the effect.



RHYTHMS OF VARIED CURVES. SHIELDS AND ESCUTCHEONS ILLUSTRATING GOOD COMBINATIONS OF CURVES.

The rhythmic flow of several related curves from one general source is constantly found in nature and art. We find such rhythm in running water, swirls of clouds and dust, or the mingling of different colored liquids. A drop of waterproof India ink on the surface of a glass of water will, at the touch of a pencil, produce beautiful rhythmic forms, seen the clearer if the glass stands on a white surface. The markings of leaves, flowers, shells, insects and the grain of woods offer countless examples.

A series of exercises similar to those in Plate 44 will be helpful in appreciating and producing good line rhythm. Such rhythms may repeat to form pattern.

The lower half of the plate gives a series of applications of these curves to simple frame forms of the nature of shields or escutcheons. Try making some. Avoid joining a C and an S curve together without an angle or straight line to break their union, or you will produce a complex, tiresome and aimless curve.

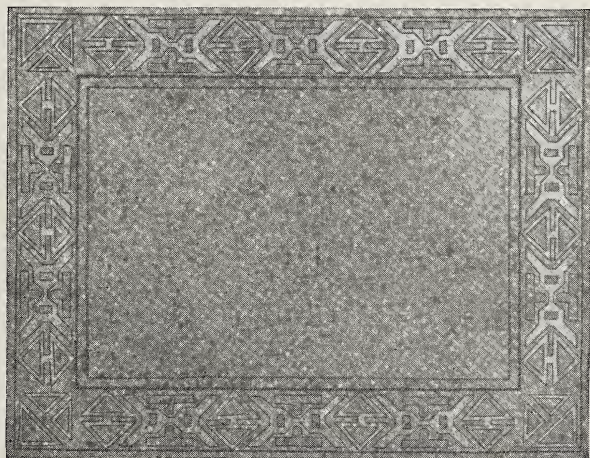
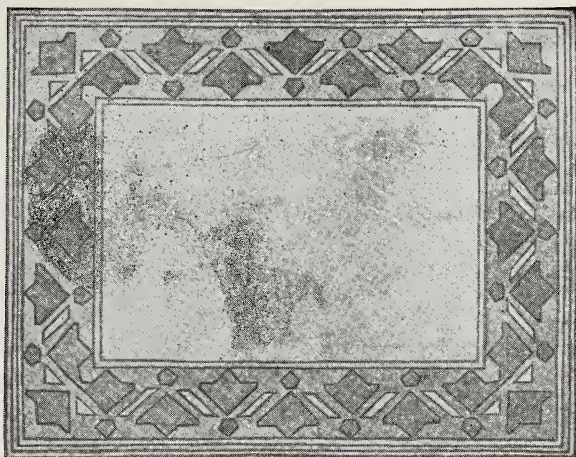
Plate 46 is intended to show the results of the free play of the brush in design. Much of the beauty of famous Greek vases is due to the free brush decoration upon them. The so-called honey-suckle and other forms are the results of brush play.

The brush must be regarded and used as a flexible instrument with which narrow and wide strokes may be made with equal ease. A medium sized brush should be filled with water color and many strokes tried until some of its possibilities are known. Then the forms along the left side of the adjoining plate should be mastered. Following this, the other designs in the plate should be practiced. Original variations of these may follow. Pencil must not be used. Direct brush strokes alone are wanted, and tracing also is forbidden.

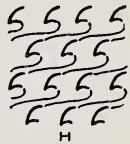
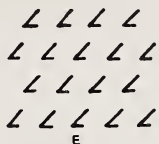
In the historic art of the different peoples, the brush has been repeatedly used. An examination of any of these decorations shows the freedom of the brush play and the lack of tracing or other mechanical aids. Study should be given to Plates 58 and 63, where examples of direct free brush decorations are given.







RECTANGULAR BORDERS COMPOSED OF
ABSTRACT STRAIGHT LINE UNITS.



· SURFACE · PATTERN ·
· ABSTRACT · MOTIVES ·

As a review of some of the plates and problems that have been presented this plate will be helpful.

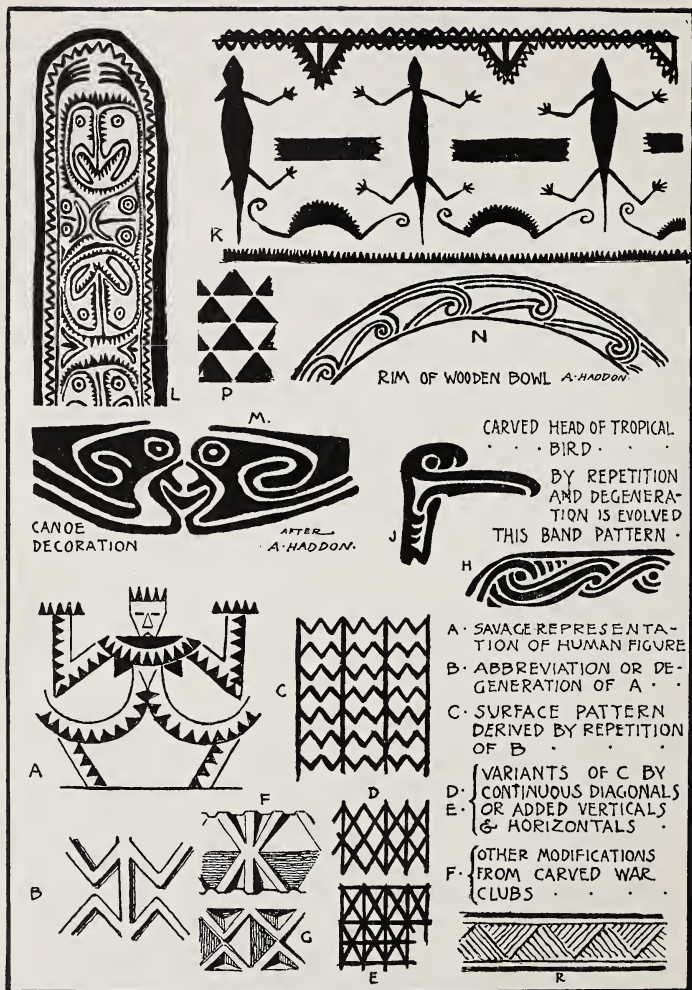
Simple arrangements of spots in different systems of repetition are suggested in A and B. C and D show some of the interesting results of combining dots and lines, and lines of different lengths as surface decoration. E gives us a series of angles in orderly arrangement. F and G show two of a wide variety of possible connections of these angles which at once give a sense of growth or graceful motion to the design. In H we have the small angles changed through the use of short curves rather than the straight lines for their sides and a still different method of connecting them with one another.

I to N are problems similar to Plate 44, involving the rhythmic combination of three or more lines. To do this successfully is a test of one's sense of beauty of line and an excellent way to develop such a sense. Figures O to S review the line rhythms within limiting boundaries on the lower half of Plate 42. From these five figures are derived the row of decorative flower units below, T to X. Each division of the upper shapes has been in some way modified and forms either a space or a part of the flower or leaf form of the row below. The bottom row shows straight line variations of the preceding figures, an interesting and valuable exercise for the design student.

All of the exercises on this sheet, it must be remembered, are too small. Actual practice should be done on a large scale without niggling and fussing. Any one of these figures ought to be made not less than four inches in its shorter dimension.



HINDOO DESIGNS. OWEN JONES GRAMMAR OF ORNAMENT.



CANOE
DECORATION

AFTER
A. HADDON.

CARVED HEAD OF TROPICAL
BIRD.

BY REPETITION
AND DEGENERATION
THIS BAND PATTERN.

A. SAVAGE REPRESENTATION
OF HUMAN FIGURE

B. ABBREVIATION OR DE-
GENERATION OF A.

C. SURFACE PATTERN
DERIVED BY REPETITION
OF B.

D. VARIANTS OF C BY
CONTINUOUS DIAGONALS
E. OR ADDED VERTICALS
& HORIZONTALS.

F. OTHER MODIFICATIONS
FROM CARVED WAR
CLUBS.

The field of savage ornament is full of suggestions to the student of design. One may be helped through studying the origin of the ideas of barbaric people and their methods of using them or we may from the forms used by them ourselves get suggestions of new forms for our own use.

Realism is believed by many scientists to be the origin of most savage ornament. An original picture or carving, hopelessly crude, was to the savage filled with truth and life. Such picture or carving copied and repeated by many hands, and in different materials, degenerated until the original form was hardly discoverable; yet the idea persisted as tradition.

In addition to Realism another factor must be reckoned with. We may call this conservatism, or the unwillingness to change the shape, method or style that had become the habit. Thus we have forms or markings that were due to certain methods of making an object imitated with entirely different materials and methods of manufacture and for different purposes.

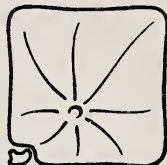
In "The Evolution in Art" by Alfred C. Haddon, from which some of the drawings on the accompanying plate are borrowed, four lines of development of savage art are given. These are Art, Information, Wealth and Religion. In Art we have the human desire to picture and to beautify. In Information we see a phase of art growing through the interchange of pictorial signs of every sort for purposes of communication. Heraldry and tribal symbols and the alphabet fall into this class. The desire for Wealth and its attendant display led to the decoration and over elaboration of objects purely as a sign of personal riches and importance rather than for any practical or artistic reason. Many modern forms may be traced back to this source. The last influence in the development of savage art is Religion. Man has ever desired to bring into visual form his ideas of the unseen powers about him. These forms degenerate, through successive repetition and simplifying, into magical symbols or signs. In Plate 50, A represents a god. B is a poor imitation of A. C is a repetition of B, forming a symbolic decoration. D and E show still further mix-up and decay of the original form. F and G are from the same form A. H and N while apparently purely decorative are derived from and stand for the tropical frigate bird, J. In K we have a border of alligators and savage garments. P represents triangular pieces of cloth, the costume of the savage tribe. The combined use of the same eyes or other features by more than one face causes curious results: L, M.



A



B



C



D



E



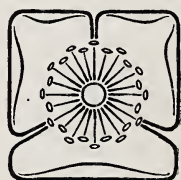
F



G



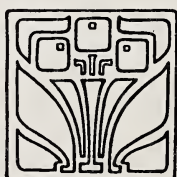
H



I



J



K



L



M



N



O

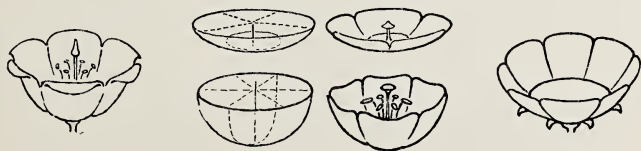
ADAPTATIONS OF VARIOUS LEAVES AND FLOWERS TO THE LIMITS OF A SQUARE, A-L; OBLONG TREATMENT, M-O.

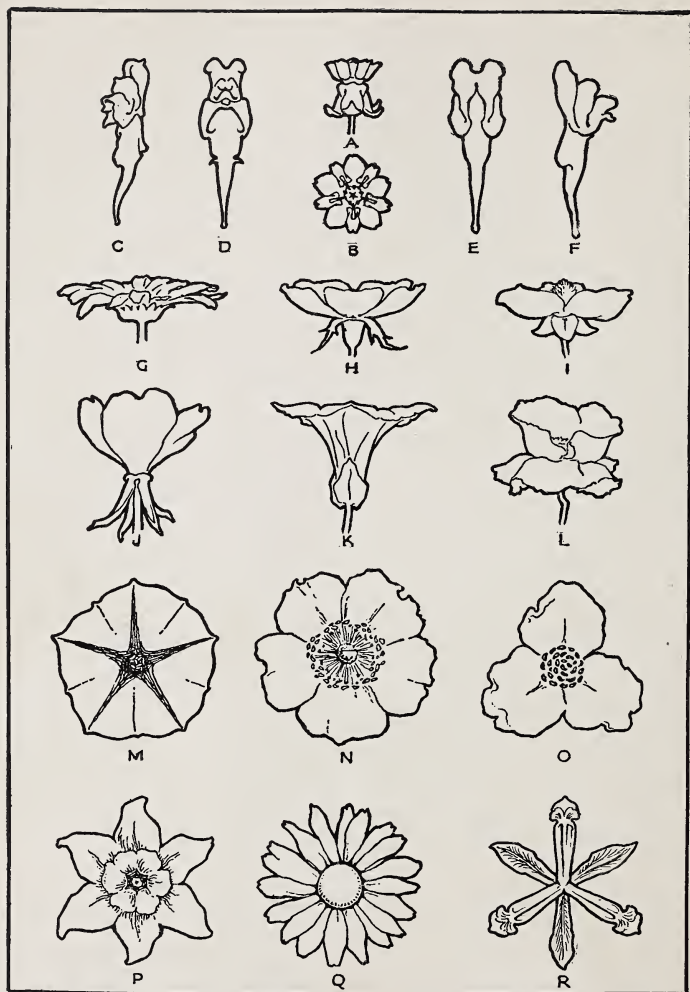
These problems deal with natural forms for purposes of design. These must be considered elastic, as though they could be either stretched or shrunk to accommodate themselves to necessary limits. In A to F leaves are given which fit the square. In all of these the veins play a most important part. In planning a leaf within any form it is well to sketch the veins first.

D and F show leaves with irregular edges. While the two sides of either leaf are not symmetrical, the indentations will be found to balance each other satisfactorily, yet with variety. E shows two methods of treating a simple indented leaf. This leaf should be symmetrical, of course, and not retain the unmatched sides as shown here. G to I are flowers fitted to square limits, both in side and face views. The fact that a flower has an odd number of petals should be no bar to its use in a square, as shown in I.

Side views of groups of flowers and leaves are given in J to O, and show both the stiff and free treatment in conventionalization. In all of these problems it is essential that the forms fill the frame chosen so that it may be removed and the geometric form taken by the leaf, flower or group shall be as unmistakably the one intended as though the frame were about it.

Draw several cones each having an elliptical base about $1\frac{1}{4}$ to $1\frac{1}{2}$ inches long. Each base should show a different degree of curvature. Each cone should differ from the other cones in length and amount of slant of their sides. Draw on another part of the sheet four other ellipses of about the same size, and add to them sufficient lines to form them into bowls or saucers of greater or less depth. Divide the edges of the ellipses in each case into from five to eight equal parts. Change the drawings of these cones, bowls, or saucers into decorative flower forms, using as few lines as possible and keeping strictly to outline only. Each flower will appear tipped forward more or less according to the degree of fulness of the ellipse.





FLOWER FORMS OF SEVERAL COMMON DISTINCT TYPES, IN DIFFERENT POSITIONS.

For design one must have proper material. Nothing can equal for this purpose careful details of plants seen from different positions.

Most simple flowers in face view are based on the circle with regular spaced petals (M to R, Plate 54). In edge view they are cup, saucer or plate-shaped (G to L, Plate 54). Note carefully the corolla, calyx, pistils and stamens.

Experiment with as many flowers as possible in both face view and edge view as though elastic and capable of fitting snugly into several different areas, Plate 52.

A wide field for experiment and discovery is presented by the buds, fruit, seedpods and sections of nature forms, a few of which are shown in Plate 56. Some of them are as follows:

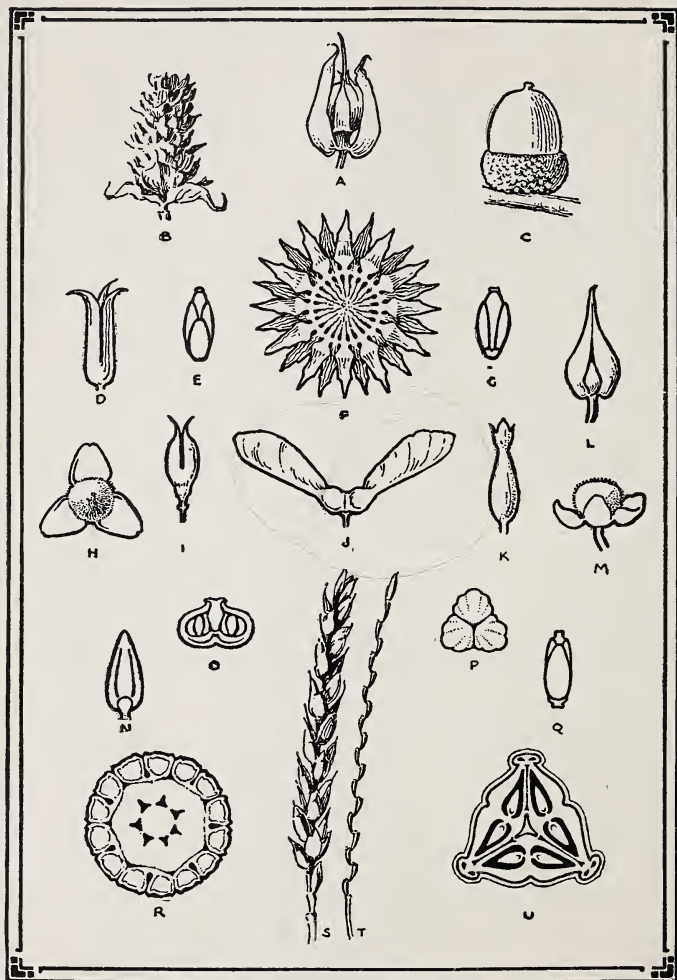
A, L, N, Morning Glory; C, Acorn; D, Evening Primrose; E, G, Q, Arbor Vitae; H, M, Sagitarius; J, Maple; S, Wheat Head; T, Wheat Head stripped; R, Section of Corn Cob; U, Section of Cucumber.

Some of these forms have been conventionalized. None should be used for purposes of design until so treated.

Repetition of these conventionalized units according to the methods explained in Plates 36 and 38 will produce interesting patterns.

The drawings in Plate 57 illustrate certain examples of rhythm in nature. Rhythm has elsewhere been defined as orderly accented progression. It will be clearly seen here how the mature, advanced forms on each of these sprays gradually but regularly evolve from less mature flowers or leaves which come from half open buds and buds beginning to form. Not only is there a regular progression as to advance of growth; sizes show as clear and pleasing a rhythm from the large to the small. The spacing between the parts also is orderly in its arrangements. Finally color enters the field and renders with its obedience to the law of gradation a new beauty. The searching eye will ever find wonderful rhythms of tones from dark to light, from one color to another in every field of nature, during every season. But a slight suggestion of this is given in the shading of the Red Hot Poker plant in this plate, suggesting the gradation from a light tone at the bottom to a fiery red at the top.





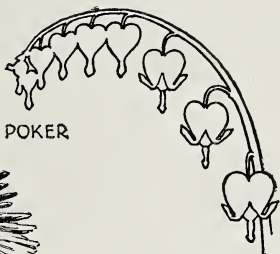
FRUIT, BUDS, SEEDS, SEED-PODS, AND SECTIONS
AS MATERIAL FOR DESIGNS.



FOX GLOVE



RED HOT POKER



BLEEDING
HEART



IVY



GLADIOLUS

•H.B.



SIMPLE DECORATIVE FIGURES AND BORDERS
 OF GREEK AND COPTIC ORIGIN. ADAPTED FROM
 NATURE IN ORNAMENT, L. F. DAY; BATSFORD, LONDON.

During the first centuries of the Christian era, we find in Egypt an interesting art flourishing among the Copts, or Egyptian Christians. Many beautiful textiles have come down to us from those times that are full of design suggestions. The designs in lighter tones on this plate give us examples of some of this Coptic ornament. There is a certain simple, free, primitive character about it that is most appealing. Frequently there is an ignoring of the laws of true growth as in both the borders here, where in the upper we find the curled-up leaves growing in opposite directions on the same stem, and in the lower, tendrils performing a similar trick. These errors, which are frequently pardonable in famous works of the past, because of their many other wonderful qualities, do not, however, excuse us for childish mistakes.

In the four detached forms at the top we have interesting units suggestive of nature, yet not so close as to be distinguishable by name. The animals below are fascinating.

The black borders are Greek, and in the vases from which they were borrowed are direct brush work.

Make original borders in the spirit of these designs.

The designs in lighter tones on this plate, and at the foot of the page are good examples of plant and animal details as found in Coptic art. Laws of plant growth as well as accurate drawing are innocently violated. The decorative quality, however, is very fine.





On the opposite page we have four excellent examples of textiles of the 16th Century. These designs are composed of leaves, flowers and birds of a very conventional type. In one may also be found birds' nests, butterflies, acorns and a decorative form of unknown meaning. The lower right hand design is lace.

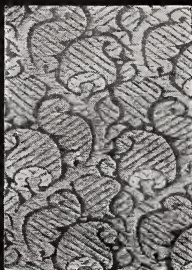
In all of these we first feel the beautiful disposal of light and dark areas and the charm of rhythm in the relation of lines and masses. In the details will be noted the skillful conventionalizing of nature's forms. In the upper left example we see an interesting example of a white detail placed on a larger black form, thus greatly increasing the decorative effect. It is also important to note that no attempt at light and shade or perspective is made. This was the case in the best periods of design. Within the more recent times design deteriorated through too close an imitation of nature's details, rather than following nature's principles and bigger forms. The geometric framework on which these textiles repeat is also quite clear.

On the next page, Plate 62, are other excellent examples of repeating woven pattern. These are from India, a kind known as "Kin Khab" weaving. It would be well to analyze each of these patterns carefully to see the way it is made, and to try oneself to originate something along this order. Choose, for example, in A, a leaf form, and note where this recurs. This gives you the plan of the repeat. Then see the leading line of growth which connects these leaves and note what other forms branch from it and how they are fitted snugly into the spaces. The beauty of these designs is due to a great extent to the skill shown in the close fitting of the patterns.

Several references have been made to free brush work in previous exercises. In Plate 63 are excellent examples of the free brush work of the Oriental artists. The apparent ease with which these decorations were done and the lack of precision and accuracy in them should not be taken by the novice as an excuse for carelessness. The thing which should be clearly understood and made a more frequent rule of action is that the brush was guided by thought and skill, probably as the result of many years of severe training. Tracing and other mechanical aids are discarded and the keen eye and sure hand alone produce the result. The slight irregularities and differences add interest rather than otherwise. In every age the free hand of the artist has produced the happiest results. Our own work will profit by a following of this rule.



B



A



C



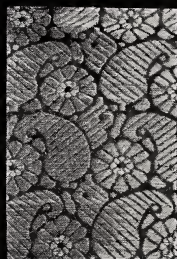
D



E

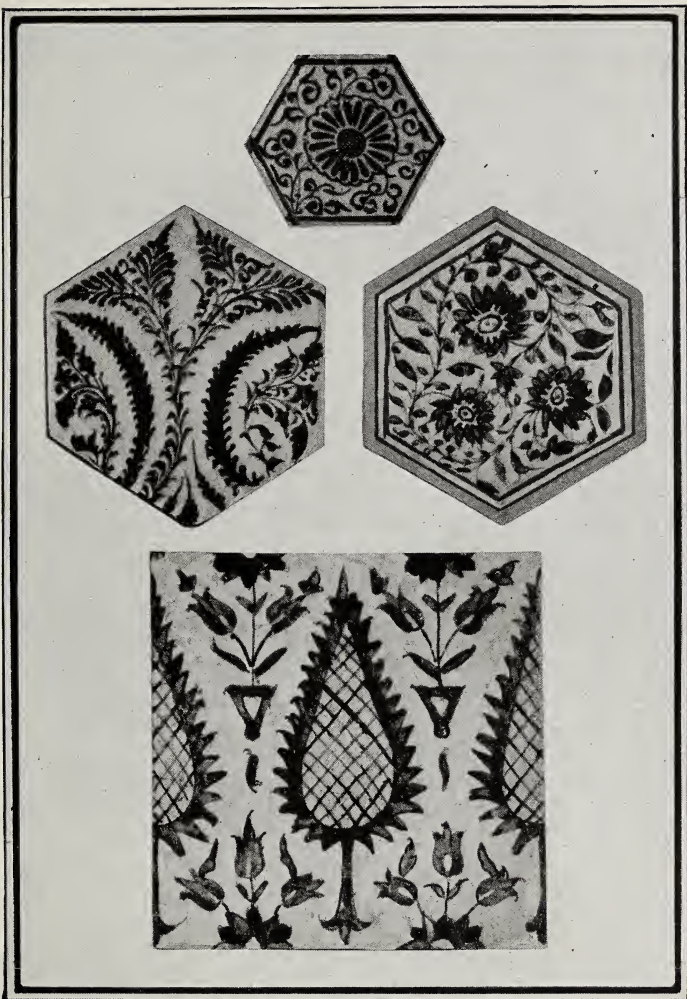


F

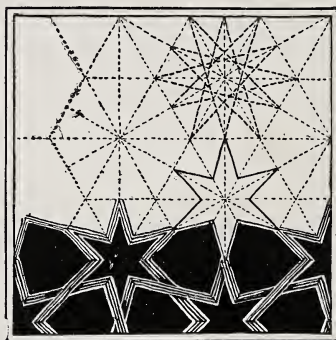
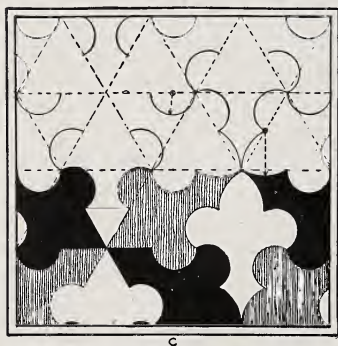
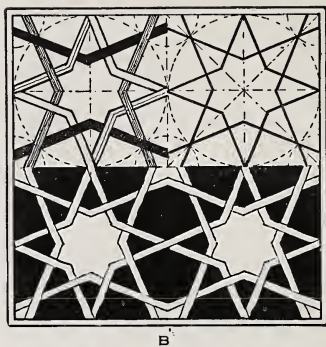
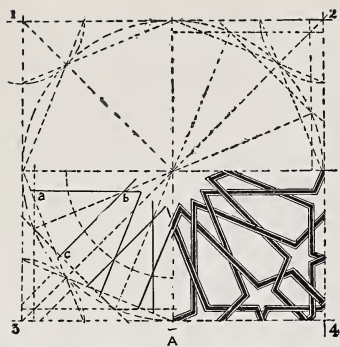


G

GOLD THREAD OR "KIN KHAB" WEAVING. SHOWING
SIMPLE BUT BEAUTIFUL DESIGNED SURFACES.
THE JOHN HERRON ART INSTITUTE.



PHOTOGRAPHS OF TILES FROM DAMASCUS ILLUSTRATING
THE FREE BRUSH PLAY OF THE PAINTER.
COLLECTION OF MR. LOCKWOOD DE FOREST.



GEOMETRICAL ANALYSES OF
MOHAMMEDAN DECORATIONS.

The Mohammedan religion forbids the representation of living forms. This led to the production of ingenious and beautiful geometric designs. The accompanying plate explains some of these.

Figure A. Basis of repeat, a square. 1. Inscribe a circle, to which draw four tangent circles with corners of square as centers. Draw diagonals of square, thus giving points for the construction of octagons in large and small circles. 2. Inscribe a second octagon in large circle, its angles midway between angles of the first octagon. Extend sides of octagon to sides of square. Connect center of circle and angles of second octagon. 3. Place point b any distance from center of circle on all radii. Draw ab and bc parallel to alternate radii. Draw similar parallels to all other radii. Repeat process in corner circles. 4. Interlace and elaborate final lines, erasing all others.

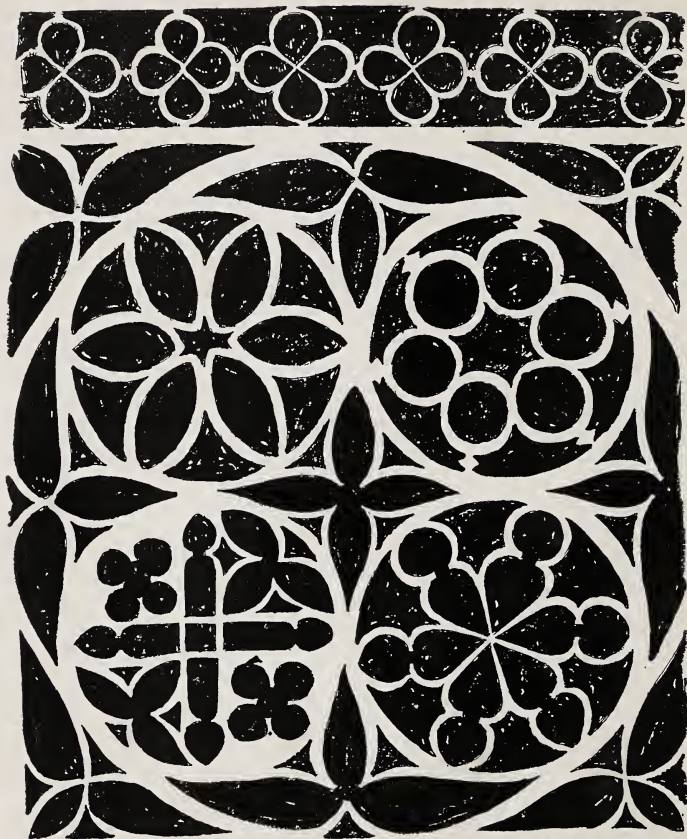
Figure B. Basis of repeat, a square. 1. Inscribe in square (upper right-hand corner) large circle. Draw quarter circles in corners. 2. Draw diagonals and diameters. 3. Connect ends of diameters and meeting points of large and small circles with straight lines. 4. Elaborate these lines into bands and interlace, erasing all construction lines.

Figure C. Basis of repeat, a hexagon. The method of construction is shown in the diagram. The sharp points of the figures are shown both with curved and straight lines. A choice may be made and preserved through the design.

Figure D. Basis of repeat, a hexagon. The divisions of the hexagon produce a six-pointed star the edges of which, elaborated into bands, interlace continuously.

In E, F and G are shown some interesting phases of Saracenic design, in which the dark and light portions of the pattern are similar in shape. In E the rectangle, 1, 2, 3, 4 is bisected by 5, 6. The line 3, 5 is drawn and divided into two equal parts by point 7. Any shape, not too elaborate, drawn from near the point 5 to stop at point 7 will form half of the upper portion of the design. This shape must be traced inverted and reversed below 7 to end near 3. The whole shape is now traced in a reverse position at the right. The design is colored in contrasting tones. Figure G shows a more elaborate example.

F, 1, is an explanation of the other patterns in this group. Whatever is cut out from one block must be added to the next. The small curves shown in 1 are developed in 3 to leaves, and still other forms appear in 2 and 4.



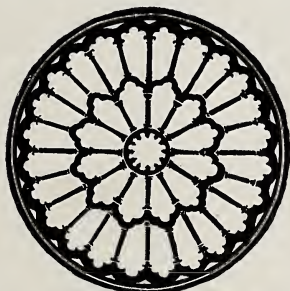
IRON . .
GRILL . IN
CHOIR . OF
CHARTRES
CATHEDRAL

THE LARGE CIRCLE CONTAINS FOUR SMALLER CIRCLES
WITH DIFFERENT INTERIOR TREATMENTS.

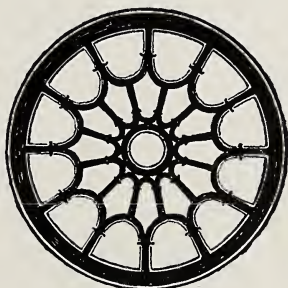
Gothic art, as did the Saracenic, derived much of its ornament from geometry. Plate 66 is an example of this. It represents a small screen of pierced iron covering an opening in a part of the choir of Cathedral of Chartres, France. Though not a foot across in the original, it has a delightful variety of geometric circular patterns, which still give a satisfying sense of harmony in their variety. This is largely due probably to the constant recurring of the circular curves throughout the different parts of the design.

Fascinating experiment may be made with the compass, especially if aided by illustrations showing the geometric framework of Gothic traceries. Some other examples of this are given below.

Other examples of Gothic decoration are given in Plates 122, 128 and 129.



NOTRE DAME, PARIS



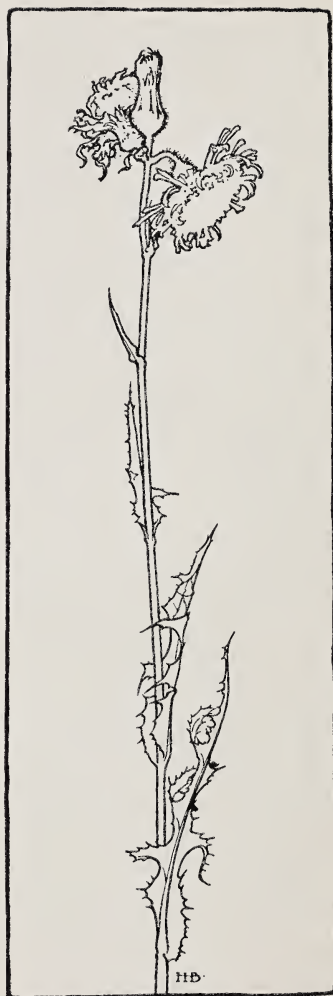
MANTES CATHEDRAL



ST. NICAISE, RHEIMS



NOTRE DAME, PARIS



DRAWINGS OF THE SOW THISTLE IN OUTLINE AND IN
A SILHOUETTE OF TWO VALUES.

NATURE ANALYSIS AND APPLICATION TO DESIGN

This problem is the arrangement of an attractive spray, including stem, leaves, buds, seed-pods or flowers. This should be at least eight inches long, though much longer than that is preferred. Consider it framed by an oblong of any proportions you wish. You must decide, however, the best position to have the oblong so that the spray with its parts makes the best composition including all the background spaces possible. Draw the spray with a small brush and India ink without any previous pencil guide lines or sketching. This will require very careful thinking and plotting and imagination before you start. Your first two or three trials may not be successful; do not stop, however, on that account. The effect of the finished drawing will be a silhouette or shadow form of the spray without any interior details showing.

Much additional interest can be given this work by putting into the same drawing a second flower branch of the same or a different kind, so placed as to compose well with the first, but rendered in this second instance in a lighter value. This second silhouette gives decided interest to the whole picture, suggesting a more distant form dimmed by space.

The use of the square or oblong finder is advisable after these drawings have been made; and well-composed portions, discovered by the finder, should be traced on rice paper. Several compositions can frequently be made from one flower drawing. Continue this study by a pen and ink drawing in accented outline, base on a pencil study of the same or a different spray. Accurate drawing and truthful records of facts of construction are most important.

Plates 70 and 71 show careful studies of flowers with their stems and leaves in natural attitudes. Each flower and stalk should show clearly. Do not draw a bunch or bouquet. If available, draw some flower spray showing clearly the calyx, corolla, stem, leaves, and, if possible, buds and forming seed-pod or fruit. Sometimes all these are on one stalk at the same time.

A medium or hard pencil, kept sharp, should be used for accurate drawing. Drawings may be finished in pen and ink, water color or crayon.



PEN AND INK DRAWING IN ACCENTED OUTLINE
OF THE EVENING PRIMROSE.



STUDY OF MISTLETOE IN PEN
AND INK OUTLINE.



BOLD TREATMENTS OF FLOWER SUBJECTS
WITH PANEL ENCLOSURES.

In the drawing of natural forms, either from the actual objects or from copies, the tendency frequently is to draw small. A good cure for such a habit will be found in the making of extra large drawings of similar kinds of objects.

Drawings of this kind should not be less than 12x18 inches, while many should be much larger. Charcoal should be used in plotting the general masses and refining the smaller shapes. For a final finish a black crayon may be employed, or a brush-and-ink outline, to resist rubbing. These large drawings serve a double purpose. They are an excellent drill in large planning and in manual execution with bold outline; when finished they serve admirably as design, material in other classes, their large dimensions and bold execution being easily seen across the room.

The proper interpretation of natural forms on such a bold scale will be found a none too simple task, even if copied from the flat. The plates shown herewith are free interpretations enlarged from some English outlines by Vere Foster.

As an added element of interest, after these drawings are finished in outline, flat tones of harmonious color may be added, and simple panel or marginal lines used as enclosing forms. Parts may be tinted in crayon as a pleasing contrast to other surfaces in wash in the same drawing. Papers of different textures will prove interesting for experiment, in the way crayon, wash, charcoal or other mediums may show to advantage.

SQUARING UP

In connection with these large drawings, above suggested, the subject of squaring up may be satisfactorily presented. Its great antiquity as a valuable method or aid in drawing should be realized, and the fact that it has probably been employed by almost every civilized people. Small drawings, tracings, or actual printed pictures, if marking will not injure them, may be covered by a network of rectangles. The large sheet for the copy is to have an exactly proportionate system of oblongs. Both network systems should have at their edges identifying rows of numbers and letters as guides. The plotting of a drawing on the large paper, following square by square the smaller picture, is usually full of interest to everyone, and it yet leaves at the end a considerable field for individual expression in the method of finishing up the bare form which the squaring process has helped to produce. Refer to cut on page 21.



EXAMPLES OF JAPANESE PLANT
DRAWING WITH BRUSH.

Classes in design should take some well-known flower and study its decorative possibilities. Free renderings of such flower, bud, leaves, seed-pods, and so forth, should be made from the actual plant when possible.

Plate 74 shows the extraordinary skill of the Japanese in the decorative drawing of natural forms. Unlike Europeans and Americans, the Japanese has been trained from infancy to use the brush. Many ages of such habit develops a peculiar natural aptitude that leads to special proficiency with added study. These Japanese panels are fine examples of line and mass composition.

Studies of plant sprays of all kinds should be repeatedly made in the spirit of these panels, with direct brush work.

The teacher should make before the classes a series of large studies in strong black lines on paper, either white or of some pleasing tone. Blackboard drawing cannot take the place of virile work resembling the technique required of the pupils. Sometimes in skillful hands these large drawings are very effective if made in black on toned paper, carefully touched at a few important places with a little white or color. Too much of this, however, is worse than none.

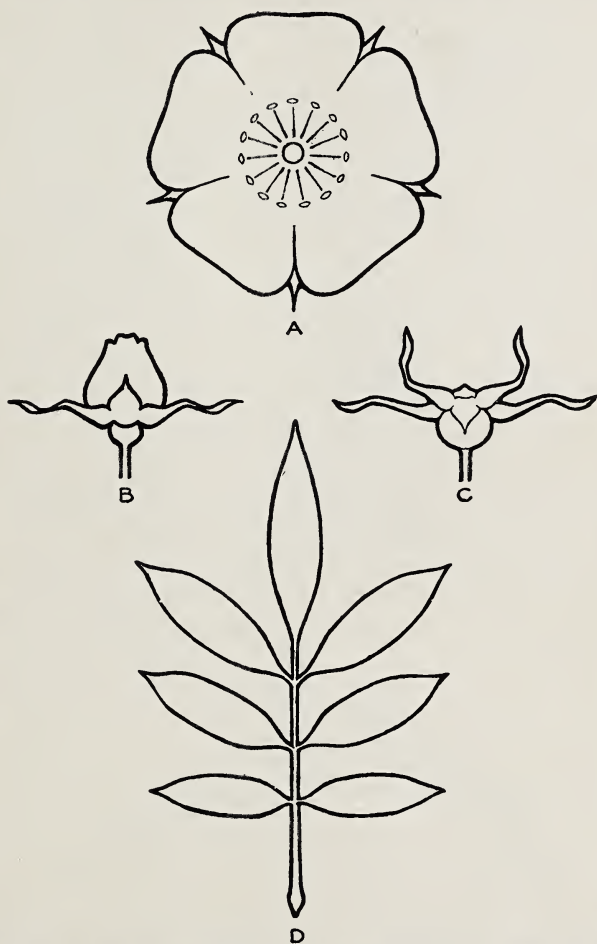
Studies of the natural plant should be followed by analysis of the plant for its decorative possibilities. Plants at first unpromising will be found full of decorative suggestions if the searcher is in earnest. The details given on Plates 76 and 77 are but few of the quantity presented by the wild rose. Here, again, the storehouse of history should be drawn on for illustrations of the fine use of similar plants in the best periods of ornament.



FLOWER UNITS FROM 16TH CENTURY TEXTILES.



STUDIES IN PEN AND INK OF THE WILD ROSE.
A, SEEDPOD OR "HIP." B, BUD. C, OPEN FLOWER.



FORMAL CONVENTIONALIZATION OF THE WILD ROSE.
A, FLOWER. B, BUD. C, SEED POD OR "HIP." D, LEAF.



STUDY OF THE THISTLE, RENDERED IN OUTLINE
WITH UPPER SIDES OF LEAVES BLACK.

The laying-out of the leading lines of a drawing are of first importance. No amount of clever technique can atone for errors of proportion, direction and position. Shapes of leaves or flowers, too, are to be utterly ignored until these main lines are correctly placed.

Commence, then, by a single line for each main stalk, from top to bottom; correct the poise and proportion of these until they are just right. The location of the principal leaves comes next. Each of these should be considered in its relation with spaces above and below itself and the midrib drawn as a single line of proper direction, length and curvature.

If the drawing has been satisfactorily made to this stage, it will show but a few light lines, the upright stems and the center ribs of the important leaves. These lines, however, are the skeleton of the plant, upon which all else depends.

Further procedure will in turn take up the shapes of the leaves, plotting their large masses, at first very faintly, and ignoring the minor parts till later.

Smaller leaves and buds can now be placed and drawn as to their general shapes.

At this stage review carefully the steps so far in close comparison with the model. Observe the forms of spaces between parts, as well as the parts themselves. There is as much truth of drawing necessary in spaces left as in forms shown. If the result of your scrutiny is satisfying, the final drawing can be undertaken.

Commencing at the top every detail of the object should be drawn carefully, and lightly, until the lowest part of the plant is reached.

The final stage of the drawing should consist in going over the light outline, accenting it in places and supplying in this final process every bit of the character of the plant possible.

The plate shows another method of treatment. Instead of the final stage suggested in the preceding paragraph, the finishing process here consists of a careful outline rendering in pen and ink. All outer surfaces of leaves are left in outline, while inner or upper surfaces are rendered in solid black with veins left white. A reverse of this process may be tried, the under surfaces being treated in solid black, the upper in outline. This idea can be found happily carried out in many of Miss Ford's drawings in Day's "Nature and Ornament," Vol. 1, in Midgely and Lilley's "Plant Form and Design," and in other works of a similar nature.



A



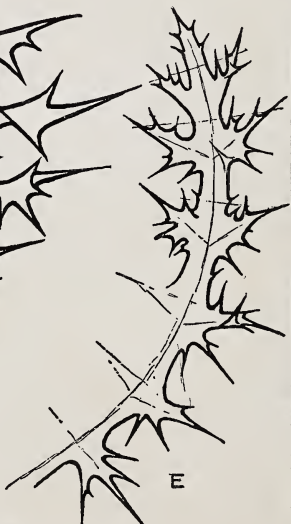
B



C



D



E

THISTLE DETAILS CONVENTIONALIZED

HB

The accompanying and succeeding plates show various decorative adaptations of the naturalistic studies of the thistle. This plant has been chosen as being one of our most decorative growths. The principles deduced in its treatment, however, are not different from those to be employed in the decorative use of any plant.

These plates to a large extent speak for themselves. Plate 80, showing the large central leaf, suggests arrangements of both flowers and leaves in solid black, suitable, with the white paths between the solid parts, for use as stencils. Such possible use does not, of course, indicate their inappropriateness for other purposes.

The three leaves, covering the rest of this plate, suggest different renderings of these exceedingly decorative forms. The careful planning of the midrib and the spacing and size of the lobes on each side are most important. Whether in straight or curved form, the center lines, branchings and outside limiting boundaries should be faintly but surely plotted, as indicated by some of the finer lines on the side leaves. Although this plant more perhaps than many others suggests to the unobserving confusion and tangled disorder, nothing could be more offensive or amateurish in design than a retreat behind such an excuse in the production of details meaninglessly confused.

The thistle has been used very extensively in mediæval and modern decorative art. We find it recurring constantly in textile, wood and metal design, frequently in excellent taste but sometimes so extravagantly employed as to be a loud example of what to avoid. The student can find in every period of historic design such examples when the worker or designer, or both, forgetting the limitations of material or the real use of the object, allows his own conceit to stifle good judgment and taste. "Rightly understood, the conformation of an ornament should be in keeping with the form and structure of the object which it adorns, should be in complete subordination to it, and should never stifle or conceal it."





B



A



C



D



OLD
GERMAN

E



OLD
GERMAN

F



G

•H.B.

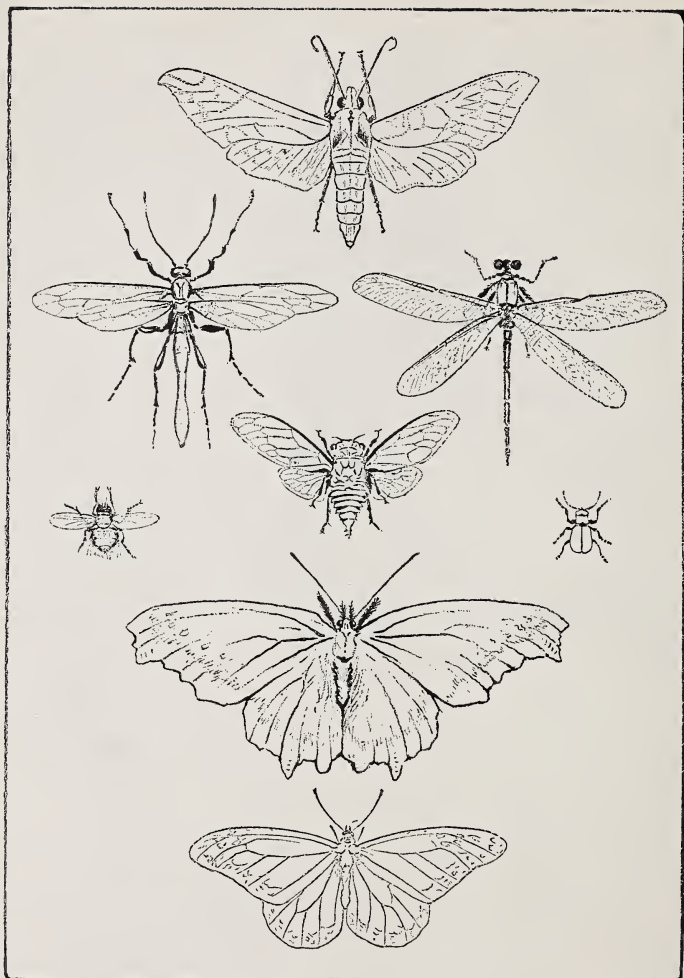


The two accompanying panels are semi-decorative modifications of parts of the drawing in Plate 78. The changes of form are slight and only sufficient to adapt more satisfactorily the plant to the panel shape. The procedure in drawing should be similar to that already described; the final steps, however, consist of brush work in solid black, either for plant or background.

While these panels suggest free positions of the plant sprays, try also several formal bisymmetrical arrangements in black and white within similar upright oblong frames, striving for as beautiful decorative effect as possible.

Other treatments of a plant drawing might be a rendering in two or three values in pencil or wash, a combination of one or two tones of wash with pen and ink outline and solid black. Any or all of these methods gain further interest by execution on tinted paper, with possibly occasional touches of white.

The adjoining Plate 82 shows further decorative uses of the thistle. In the upper circle is an informal conventionalization permitting many variations in values and color. The borders at the sides are composed of the simplest elements and point the way to a wide range of experiments of a similar order. The central blossom balanced by two leaves was suggested by a tiny emblem on an old English coin. The two old German motives are adapted from reproductions in Lewis F. Day's "Nature in Ornament." The lowest figure may be used as a tailpiece.



STUDIES OF INSECTS IN ACCENTED
PENCIL OUTLINE.

Insect Motives in Decoration.—The butterfly, bug, beetle or other insect is almost invariably an excellent subject for study in conventionalization and adaptation to design uses. It is vastly more desirable to study these insects directly from nature than from prints of any kind.

The delicate but sharp makings of the actual body and wings convey much more clearly the sense of construction necessary to any good design than can a printed picture. Viewing the real insect from different angles and under different lightings increases the interest and excites a greater decorative desire than can be aroused from the unchanging product of the printing press. Lacking the real specimens, any good type of color print is by all means desirable.

The main divisions of the body and the important ribs of the wings are the necessary parts to be accented in any well-thought-out insect decoration. It is amazing how crude the notions of quite mature students are shown to be by their drawings in these respects.

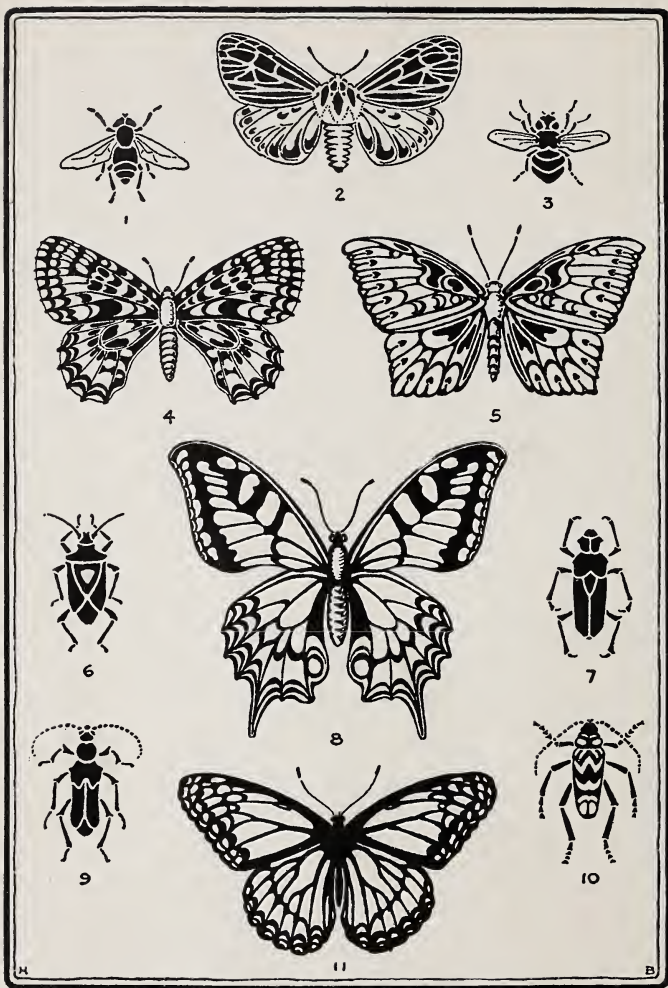
The size of the body compared to the wings, the relative position of each to the other, the size, placing or possible discarding of the "feelers"—these are some of the vital things to be very carefully studied. Several efforts from each student are none too many to expect before a really good decorative insect can be evolved.

Not only may the whole insect make the decorative unit, but details of the wings, body or other parts may separately serve such a purpose.

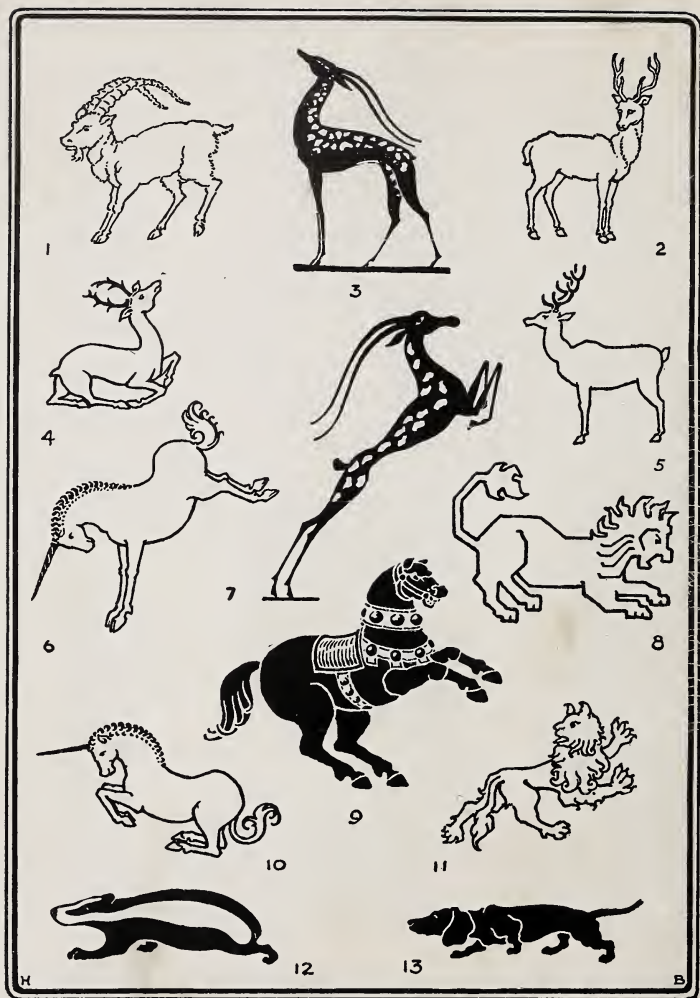
Nature and nature's principles are the guide, but are not to be followed in the direction of pictorial reproduction except in a first study or two. The suppression of details antagonistic to a good decorative unit is an important part of designing which is very difficult for some to understand. Especially is this so with many high school and college students whose work in biology demands exact drawings of details barren of æsthetic interest.

On the following pages are drawings of insects in which the decorative qualities have been distinctly emphasized. These should offer many suggestions not only for similar exercises but for designs derived from details on wings or other parts. Such details are not to be slavishly copied but taken rather as motives to be experimented with and altered to suit the designer's needs.

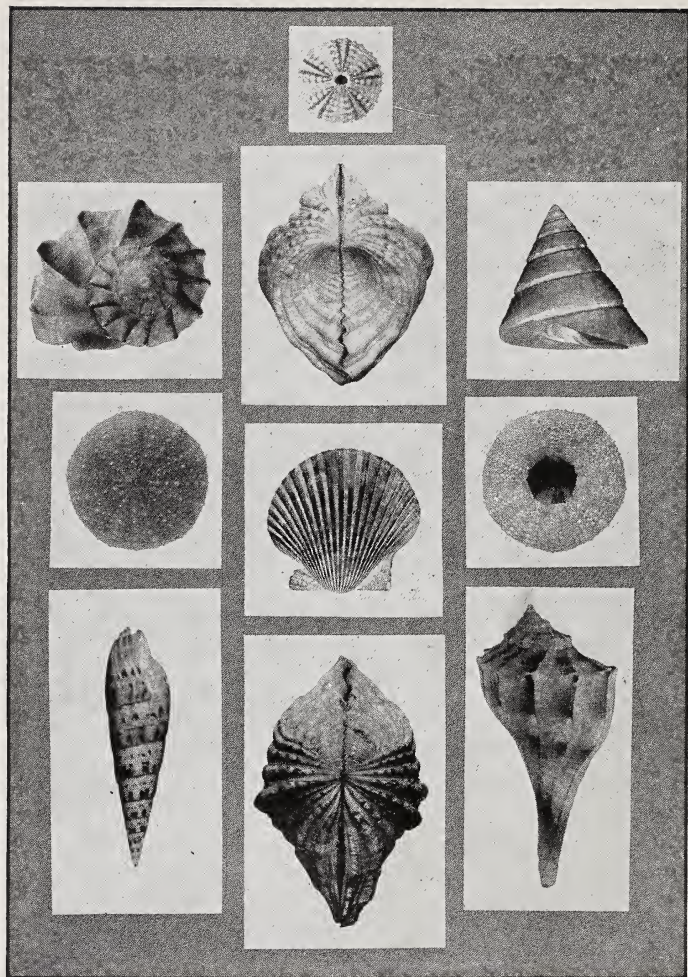
In Plates 88 and 89 are drawings of animals and birds, offered as suggestions, to be decoratively used. They have been derived and adapted from many sources.











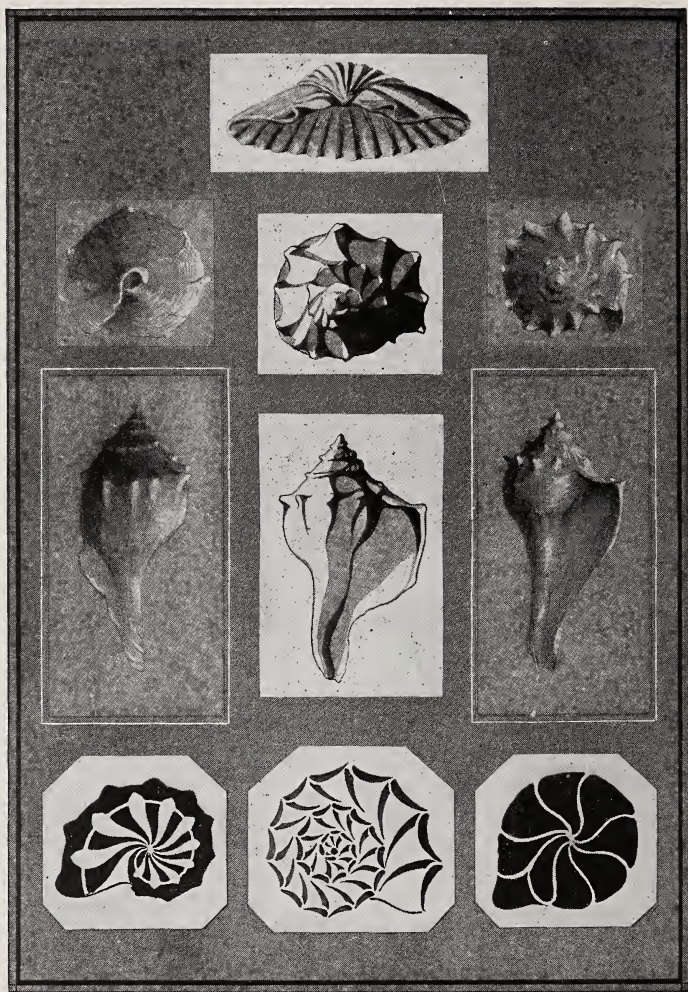
THE CAMERA CAN BE OF GREAT AID TO THE DESIGNER
IF INTELLIGENTLY USED WITH PROPER MATERIAL.

The decorative stimulus one receives from the study of insects is equaled in the study of shells, though with distinctly different types of forms. Plate 90 shows reproductions of photographs of some of these common but beautiful forms. Every position from which they are viewed presents new patterns and delights to the eye. The humblest shell often is better and finer in its decorative message than the elaborate and startling curiosity. The shapes of these objects present clearly to us the laws of symmetry and rhythm in their most refined forms. The marvelous rhythms in size and color, usually indicative of the successive growth of the animal; the system of radiation formed by lines, grooves or raised spots of exquisitely graded sizes, all these and many more evidences of consummate order make attempts at description quite inadequate.

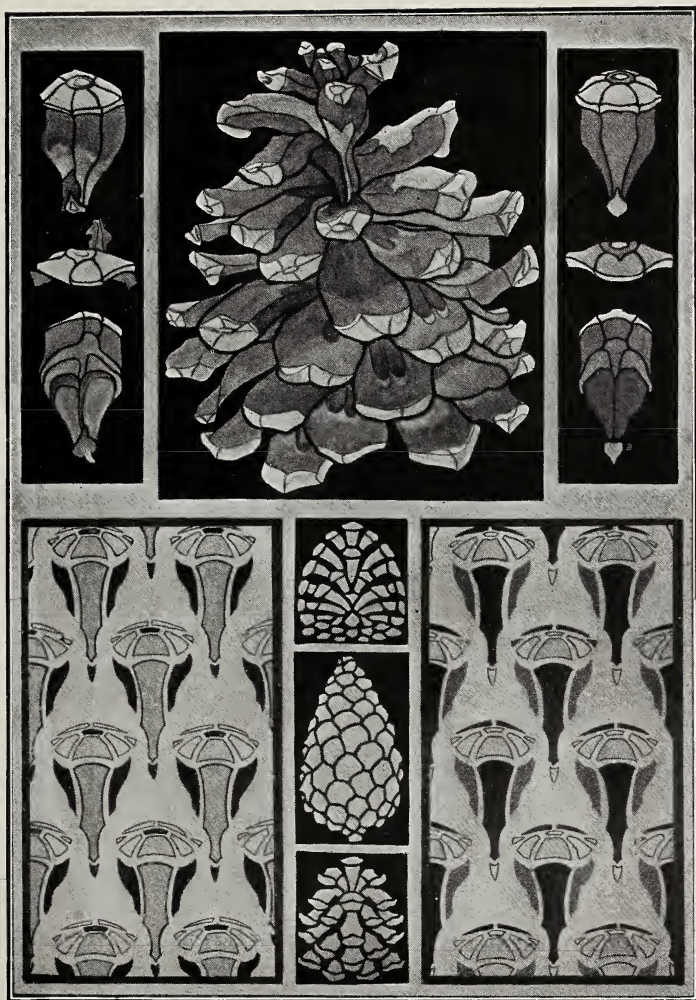
In Plate 92 are shown a number of interpretations of the shells on the previous plate. These are done in various ways, in pencil, wash, and pen and ink. Chinese white is touched on the gray paper drawings. The drawings below are from X-Rays of shells which reveal the beauty of their interior forms.

In the same spirit with this butterfly and shell study with its analysis, dissection, conventional treatment and application to decorative uses are the pine cones on Plate 93. The large drawing at the top, an old cone of the Italian pine, offers an excellent study in free-hand drawing. At the left are three of its natural scales which appear at the right conventionalized. These are all made on black paper with opaque water colors, a most effective method for producing design studies. In the center, below, are three smaller cones of different types. The upper and lower are conventionalized to quite a formal degree, while the middle cone is more informal in its conventional treatment. The scales from the upper right panel form two variations of a surface pattern at the right and left of the lower portion of the plate.

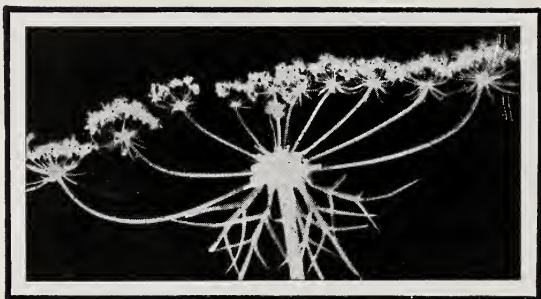
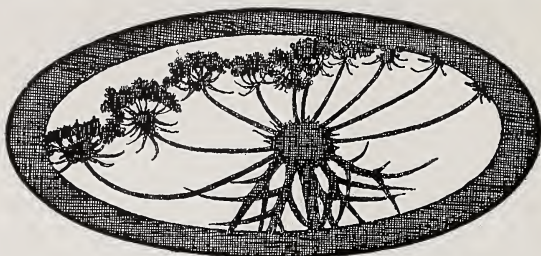




INTERPRETATIONS OF SHELLS IN PENCIL, INK, WASH,
AND CHINESE WHITE ON WHITE AND TONED PAPERS.



ANALYSIS OF THE PINE CONE WITH SURFACE PATTERNS
DEVELOPED FROM A CONVENTIONALIZED DETAIL.



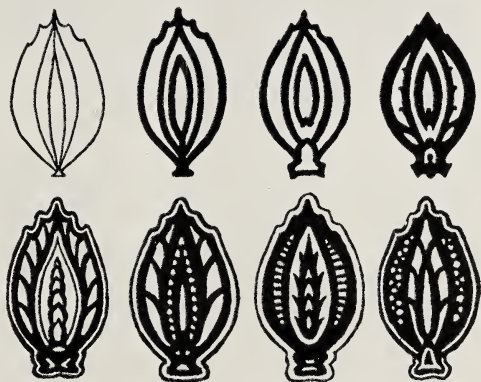
QUEEN ANNE'S LACE, OR WILD CARROT. CENTER PANEL, FROM A NATURE-CONTACT BLUE PRINT. UPPER PANEL, INFORMALLY CONVENTIONALIZED. LOWER PANEL, FORMALLY CONVENTIONALIZED.

Queen Anne's Lace or Wild Carrot is the motive of this plate. In the center is a reproduction of a blueprint by direct contact with the flower. The blossom, being too full of small radiating stems, was trimmed until only those showing in the print remained. The flower was placed in a printing frame against a fresh piece of blueprint paper and the exposure made in sunlight for the time required. Washing in water is all that a blueprint development needs. Since photographic supplies can be so easily acquired, this method of gaining beautiful nature material should be more frequently used.

The middle panel furnishes the material for the upper and lower designs. The upper one may be called an informal or free conventional treatment; the lower is a formal treatment. Each of these has its elements of beauty and each its limitations. Both types of design may be found in the art of many centuries.

The student should produce from one plant motive, as shown in these examples, each of these two types of conventionalization.

The drawings below suggested the development of a decorative unit from a plant detail. The bud leaf or seed pod can be experimented upon in a variety of ways until the pleasing results seem attained. An all-over design based on one of these units is on page 97.



UNITS FROM A PLANT DETAIL. SEE PAGE 97.



The student of design must realize the fact that the character of the material always affects the character of the design. The treatment of any design, therefore, must vary considerably according to its purpose and whether it is to be produced by weaving, stenciling, printing, painting, carving or embossing in wood, metal, stone, glass, pottery or weaving, or on paper.

Space forbids more than calling attention to these important facts and the dealing with such flat treatment of design as is adaptable to paper or textiles. In block printing and stenciling (see pages 8 and 167) we have two methods capable of attractive surface treatments. The accompanying plate offers many stencil suggestions which should lead the student to an equal number of his own designing, both of the simpler and more complex type. The skill with which the white empty parts of the design are arranged is of the greatest importance. They not only form part of the design but represent the connecting bands and ties which surround the openings and hold all together.



SURFACE PATTERN USING UNIT FROM PAGE 95.

A B C D E

G H J K L

M N O Q R

S T U V W

X Y Z

2 3 4 5 6 7 8 9

LETTERING

Good lettering must possess two features. It must be easily read and it should be beautiful to the eye. Every letter has some distinct feature which makes it utterly different from any other. You must preserve and sometimes accent these features. Other parts of the letters sometimes may be slighted or eliminated. To do this well makes for ease in reading, the chief end of lettering. Legibility is more important than beauty if you must leave one or the other out. Both should, however, be present.

Before lettering any words, the accompanying alphabet, Plate 98, should be drawn and memorized. The top and bottom guide lines of each row are first made and the letters lightly blocked in and gradually perfected.

Notice that these letters are not of equal width. They vary considerably. Notice also that there is a tendency to make the top of a letter a trifle less heavy than the lower half.

Sharp points in the letters A, N, M, V and W are usually extended slightly above or below the guide lines. The same is true of the upper and lower portions of the circular letters.

Vertical and horizontal lines must be made true in direction. The C, G and O and similar forms are best when based on the circle.

In making a line of letters, don't divide up your space into so many equal blocks. Letters vary greatly in width. Draw faint guide lines where needed. Then sketch lightly the beginning and end letter of the whole line. If the line be long a middle letter may be indicated. Other letters are now faintly sketched and tried in place. The first trials will probably not succeed. Go over the letters again without erasing, moving them forward or back in successive sketches until you get the best possible spacing. You may then make the correct letters clear and with a soft rubber clean up your work and finally finish the lettering. Don't plead that your word or words are too long for a space; lettering is elastic and you should try the same word or phrase in several different limits, short or long. Let all your first lettering be with single line letters as here shown. Such plain letters are used extensively in all sorts of best work. All the strokes may be thick in one alphabet or thin in another, but they must remain the same thickness throughout any one alphabet. Practice lettering with pencil, pen and brush.

A B C D E

G H J K L

M N O Q R

S T U V W

X Y Z

1 2 3 4 5 6 7 8 9

This alphabet differs from the last in the varied thickness of the parts. We call this a Roman alphabet because it is derived from the inscriptions on the great monuments of the Romans. In two thousand years the general forms of these characters have not been changed or improved.

The thick and thin strokes come from the wide and narrow strokes of a quill or reed pen as used by the ancient scribes or writers. These pens were much like our "stub" pens and made thick or thin strokes as they happened to be used. (Page 105.) In this way came about the usual forms of these letters. Thus: Vertical lines are thick. Horizontal lines are thin. Oblique strokes downward from left to right are thick. Opposite oblique strokes are thin. Circular letters are thick at the sides.

There are a few exceptions to these rules which you should note carefully by comparison with the alphabet.

Memorize the shapes of these letters. As in the previous page, any letter which is missing here may be easily made by leaving off a part of some other letter nearest it in shape.

One difference between printing type and lettering will become apparent if one considers that projections of letters, as the slanting portions of an A, V, W or Y, cannot in type extend over the space of another letter. In lettering this is obviated.

The following is suggested as a good method to pursue in becoming familiar with this style of letter:

Place over the straight line alphabet which you completed in ink from Plate 98 a sheet of thin paper, permitting this alphabet to show through. With lead pencil draw faintly guide lines as before at the tops and bottoms of the letters, and then in pencil redraw this alphabet, but instead of making it in single lines, supply by double lines the thick portions where they occur in the letters in the accompanying Plate 100. It will require intelligent adjusting and experimenting to make these broad double line portions of the letters in just the right place. Complete the entire alphabet thus.

Do not draw too heavily in pencil, as the work may have to be corrected. When satisfactory, it should be gone over in ink.



PATER NOSTER
QUI ES IN COELIS, SANCTIFICETUR
NOMEN TUUM, VENIAT REGNUM,
TUUM, FIAT VOLUNTAS TUA, SICUT
IN COELO, ITA ETIAM IN TERRA, PAN-
EM NOSTRUM QUOTIDIANUM DA
NOBIS HODIE, ET REMITTE NOBIS DEB-
ITA NOSTRA, SICUT ET REMITTIMUS
DEBITORIBUS NOSTRIS, ET NE NOS IN-
DUCAS IN TENTATIONEM, SED LIBER-
A NOS AB ILLO MALO, QUIA TUUM
EST REGNUM, & POTENTIA, & GLORIA
IN SECUULA, AMEN

In planning lettering to cover more than one or two lines it is necessary to plan the various masses or areas of the lettered surfaces. These should be blocked out in trial sketches without any attempt at making the letters themselves at first, these masses showing merely as gray tones. When these masses look well the letters may be substituted for them. In any well spaced and well lettered area the effect of a general uniform gray tone is preserved.

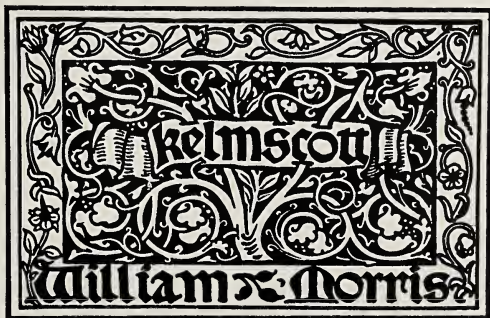
This plate is set in a beautiful style of Roman type, designed by Frederick W. Goudy. Several things are to be noticed in this composition and to be taken as models for study and emulation.

The panel itself is beautiful in proportion. Its border is chaste and dignified, lending to the lettering just enough finish without undue conspicuousness. In the border we see an application of the first problem in this book. Note that the spacing between the two pairs of lines is slightly larger than that between the outer single line and the middle pair.

How beautiful the arrangement of these letters is one cannot realize without individual effort with similar problems. There is the effect of an even tone of gray over the field of lettering which should be one of the decorative aims in such a problem.

The forms of the individual letters here vary in minor respects from the alphabet shown in Plate 100. This will be found the case frequently in other instances, as the classic Roman alphabet has many slight modifications in emphasis of shading, degree and positions of curves, style of serifs, and other details.

The design below is by William Morris, a famous English artist in many lines, who printed many beautiful books.



A B C D E F G

H I J K L M N

O P Q R S T U

V W X Y Z &

7

— $\frac{1}{4}$ —
 $\frac{7}{8}$ — $\frac{5}{16}$ —
v — a b c d e f g h i j

$\frac{1}{4}$
v

k l m n o p q r s

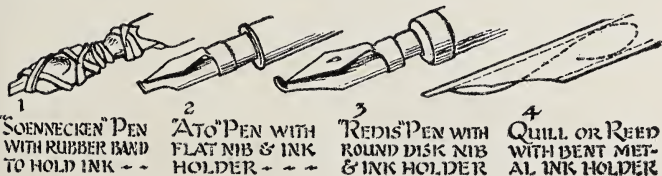
t u v w x y z 3 ::

The present problem consists of practice with the flat-nibbed pen. The pen should have a rubber band around it looped just back of the nib. This forms a pocket to contain the ink. The ink should be filled into this pocket back of the rubber band near the point by means of a brush or the quill in the ink bottle, or by another pen. The pen itself should not be dipped into the ink, nor should ink be allowed to gather on both sides of the nib. Sometimes these pens are provided with brass ink containers which slip on to the pen. See cut below.

For lettering with this pen, very smooth paper should be used, the ordinary pencil paper is not fit. The paper should be firmly attached to the drawing board, and the board should be so tipped that the position of the penholder is almost horizontal. In this way the ink flows smoothly on to the paper and will last longer. There is also less danger of a sudden blot. Guide lines should be drawn in pencil with the T-square, but letters should not be sketched in pencil previous to the pen work.

For preliminary practice try a very large number of strokes of the pen in different directions. For example, make rows of vertical strokes then of oblique strokes first toward the right and then toward the left, then a row of horizontal strokes. Try this same series of strokes both with the pen held so that the nib is horizontal and again so that it is oblique. These two positions will give different degrees of shading and develop alphabets of different characteristics.

Try to be patient and thorough in this practice until you become quite familiar with the method of using the pen and the results which come from these different positions of strokes. Following this practice, take a new sheet of very smooth paper or bristol board, lay out guide lines in the spacing suggested on the adjoining plate, and try reproducing this alphabet as shown here. Be ready and willing to try this alphabet several times, as good results cannot come from the first efforts. Follow this with exercises in lettering combinations of words in this style.



1
"SOENNECKEN" PEN
WITH RUBBER BAND
TO HOLD INK --

2
"ATO" PEN WITH
FLAT NIB & INK
HOLDER -- --

3
"REDIS" PEN WITH
ROUND DISK NIB
& INK HOLDER

4
QUILL OR REED
WITH BENT MET-
AL INK HOLDER

Cum ēēt annorum nonaginta septem.
apparuit ei dñs ihs xps cum discipulī
suis et dixit ei. Vem ad me. qua temp⁹
est ut epuleris in conuiuio meo. cum
frīb⁹ tuis. Surgens autem iohs. cepit
ire. Sed dñs dixit ei. Domīca resurrecti-
onis mee die. que post quinq⁹ dies
futura est. sic uenies ad me. Et cum
hec dixisset. celo receptus est. Ulemente

PERFECT ILLUMINATION IS ON-
LY WRITING MADE LOVELY, BUT
TO MAKE WRITING ITSELF BEAU-
TIFUL-TO MAKE THE SWEEP OF
THE PEN LOVELY- IS THE ART OF
ILLUMINATION."

This method of lettering and the broad nibbed pen are both of very great age and were probably employed in the centuries before the Christian era. Ever since that time it has been constantly in use, but especially was it the chief method of lettering with the monks and scribes during the great period known as the Dark Ages and the mediaeval centuries. The forms of the letters of the present alphabet are in many respects to be traced back to this method of lettering of the early centuries. At the present day, this method of lettering is extensively employed in various lines of commercial and decorative art.

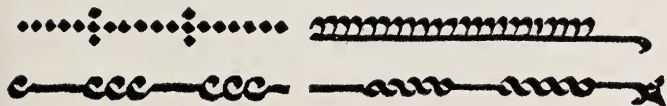
The "Soenicken" pen is to be had in several sizes for this work at most art stores. Other excellent pens for lettering are the "Ly," "Redis," and "Ato," imported by Hartmann, 28th St. near 4th Ave., New York City. See page 105.

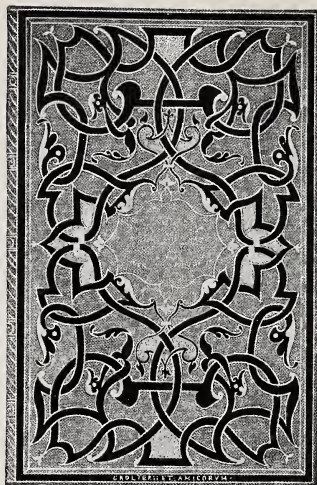
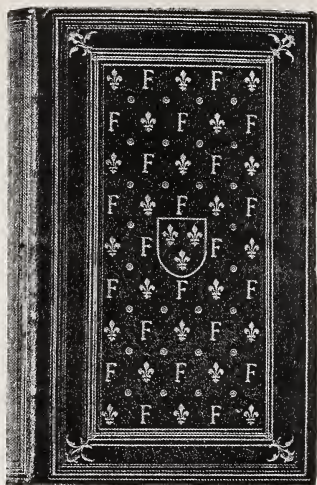
Choose an adage or aphorism that may be lettered with the flat-nibbed pen in the style of the adjoining or the preceding plate. Make your guide lines on smooth bristol board with the T-square. The paper should be fastened securely to the drawing board with thumb tacks and must be perfectly horizontal. The T-square should be held against the left edge of the board in making the horizontal lines. Be sure that your pencil is very sharp and that the lines are fine and delicate, as well as accurate in their positions.

For preliminary practice, sketch out on another piece of rather thin paper, the spacing of the letters so that you will be fairly sure where the words and lines will begin and end. Then try it on the bristol board with the ink and pen, directly. Be prepared to do this motto several times in order to get it as good as possible.

The lettering of the texts of the adjoining plate is by Miss Elizabeth H. Webb, to whom acknowledgment is gratefully accorded.

Decoration for hand lettered texts should be made with the same kind of pen, directly and freely, as below.





FOUR BOOKCOVERS OF THE 16TH CENTURY.

In this and the following two plates are presented the problem of the bookcover, the poster and the bookplate in all of which, usually, lettering and decoration are an important part.

With the invention of printing a new field was opened to the designer, in which many famous artists have worked.

We can hardly realize today, with the lavish, almost wasteful abundance of printing of all sorts and kinds, that a book was an expensive luxury a few hundred years ago. Under such conditions the book usually was bound in a sumptuous manner, in the finest leather, and beautifully decorated. These decorations were produced by various tools resembling a chisel or screwdriver. The metal, however, was of brass, each tool being cut a different form at its end. When the tool was held upright and pressed firmly into the leather the design at its end left its impress. An outfit of tools would include many straight and curved lines of various lengths and an assortment of small decorative forms. These varied with different book binders and at different periods. By the combined use of these tools, one following another, the decoration of the book was accomplished. Something of this sort is seen in the use of decorative types by printers. With three or four type units of this kind a wide variety of combinations is possible. In some cases the impress of the tool was left plain, but usually the design was stamped in gold.

Needless to say all of this work required an excellent design for a pattern and the finest craftsmanship in its execution. The French produced the most beautiful bindings in the centuries following the invention of printing. With the increasing numbers of books and the making of cheap pasteboard bindings the art nearly died. There have been and are still being made beautiful book bindings in this country and Europe. The four book covers here shown are the work of some of the finest of the French binders of the past who were the greatest masters in this craft. All their decoration was produced by the tools and methods mentioned above.

Up to a few years ago it was common for all except the cheapest books to have covers bearing designs stamped upon them in one or more colors and gold from brass dies. Many of these designs were executed by notable artists and were beautiful. The ordinary book of today, however, rarely has a cover decoration, beyond the necessary lettering with, possibly, a touch of ornament. The expense is too great. Instead the publisher provides a paper wrapper or jacket, in which the book is sold, usually showing a striking picture or decoration in colors.

GARDENS



OF BYGONE DAYS

PARSONS

COME TO THE
RIVIERA



FRENCH LINE

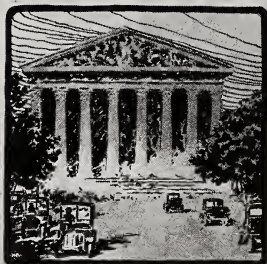
SEA BIRDS



OF OUR
COASTS

▼
LANE

PARIS



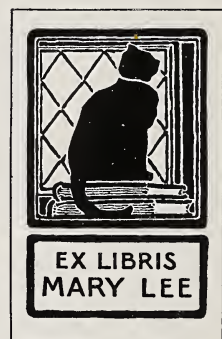
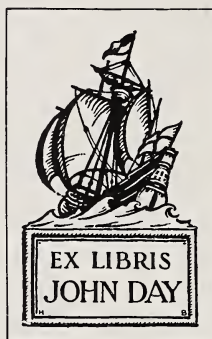
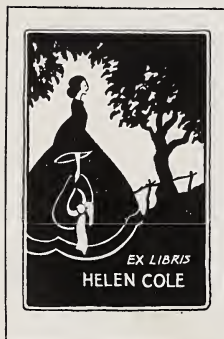
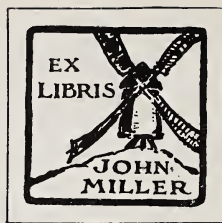
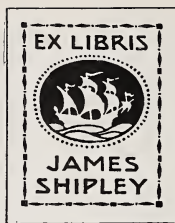
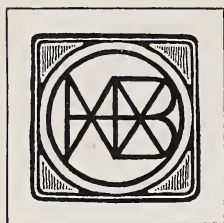
THOS. COOK
AND
SON

On page 109 we spoke of the notable book bindings of the past and the fact that rarely now do the publishers decorate their cloth covers with designs stamped in colors and gold. Good lettering and possibly a small ornament are all that appear on the cover.

In the case of paper covered books, magazines, catalogs and all advertising matter, the case is the reverse. At no time has there been so much produced, or of such an average high quality as at present. Paper book jackets also often demand good designs.

All these form a very appropriate field for study and experiment by the art student. While there is no limit to the difficult or elaborate designs which may be attempted, the simpler problems are by far the best. In the publishing and advertising field today we find a picture, decoratively treated, in combination with attractive lettering, usually preferred to ornamental designs. In the adjoining plate we have four examples of this kind. These might be used for book jackets or covers as mentioned on page 109, as publishers' announcements, or travel advertisements, either of small or poster size. The decorative character of the pictures should be noted and studied. An attractive subject is desirable. Good composition is important. All unnecessary detail should be eliminated. The essential of the picture, however, should be carefully drawn. Light and shade must be simplified. Bold outlines, solid black masses and one or two values are all that are needed. Gradation should be avoided. Flat tones of color are preferable.





The use of decorative designs, or pictures combined with lettering, to indicate authorship or ownership or the publisher of a book, or for a trade mark can be traced back for many centuries. Probably the earliest examples of this are the coats of arms which were in constant use in the Middle Ages. Ancient signs also depended on pictures to put over their meaning to a public, few of whom could read. Early printed books soon began to show printers' marks, all of which are interesting and ingenious and many beautiful.

Book plates have been used for considerably over a hundred years. The rich owners of valuable books usually displayed their coats of arms on these plates, which were pasted within the book cover. Then other devices came to be used, many of which suggested the name of the book's owner. Monograms were frequent. Objects or scenes of which the book owner was especially fond or which had a distinct association or meaning were used. The lettering on the book plate usually consists of the Latin phrase "Ex Libris,"—"from the books of"—together with the owner's name. "His Book" is also used. Mottoes are occasionally a part of the design.

Several of these types are shown here. The design in the upper left corner shows a monogram in which one may trace all the letters of the full name of the author of this book. Monograms of two or three letters intertwined are, of course, frequently used. In the other plates of the top row we have the owners' names suggested by the pictures used.

Book plates for children are not uncommon and give much pleasure. A subject and a treatment which appeals to a child is necessary in such a case, as shown in the middle design of the bottom row.

The remaining plates need no explanation. Simplicity of design, clearness, freedom from small detail, good lettering, all these are vital principles.

Designs for trade marks, small labels and letter heads are closely related to book plates, and depend on the same principles, and occupy a wide field in commercial design.



SUGGESTIONS FOR
TURNED TRAYS AND BOWLS

DESIGN IN THREE DIMENSIONS

An excellent problem for wood-turning is the tray or bowl. Plate 116 shows six suggestions for such a problem.

In considering this object, which it is assumed will be made later, consideration must be given to the size of the wood from which the article is to be made. Its thickness will regulate the depth of bowl possible; its width, the possible diameter. The shapes suggested in the plate show the simplicity of forms which is always desirable. Complicated curves and combinations of angles and curves are to be avoided. Large simple sweeps of line, based on the elliptical or on the oval curves are preferable to broken and confused contours, both from the standpoint of practical making and final appearance.

Modifications of the forms here suggested are easily made either as to depth or diameter, or both, giving wide range of shapes.

Practical details as to the exact thickness of wood at the edge of the bowl or in the center can be easily settled by a teacher of turning, whose co-operation should be sought.

Each student should, after a general consideration of this problem, produce an individual sheet of six trials of the type of tray or bowl he desires to make, made full size, the best of which shall, after correction, be carefully redrawn. A second drawing, in duplicate, or an accurate templet made of thin card, should be finished for the turning lathe. Title and maker's name should be well lettered and placed and a margin line drawn.

Objects should not be made from woods of different kinds and colors glued together before turning. In finishing these bowls or trays the wood may be left its natural color, preferably with a slight polish rather than highly glazed, or they may be colored a flat tone with enamel paint, on which when dry a bold attractive border or centre design may be applied in brilliant tones, following design suggestions elsewhere in this book. The whole may then be varnished. When finished the bowl will suggest some of the attractive foreign peasant ware.



VASE FORMS SHOWING FINE PROPORTIONS AND THE
USE OF THE CURVES OF THE ELLIPSE AND OVOID.

In the pottery shapes of the ancients we find some of our most beautiful forms. This is especially true of the Greek vases, some types of which are shown in Plate 116.

The most beautiful curves, whether simple or compound, are those of the ovoid and ellipse rather than the circle (Plate 42). In the best ceramics we find these curves used. It will also be noticed that the simple and compound curves do not merge into each other, but always, in the best examples, meet either at an angle or are interrupted by some step or fillet. See also Plate 118. The flowing of one compound curve into another without a break is usually weak and most unpleasant in appearance. The proportions of the best vase forms are always beautiful, and frequently show an adherence to some rule for the relative sizes of the parts. An application of this idea is shown in the next problem, Plate 118.

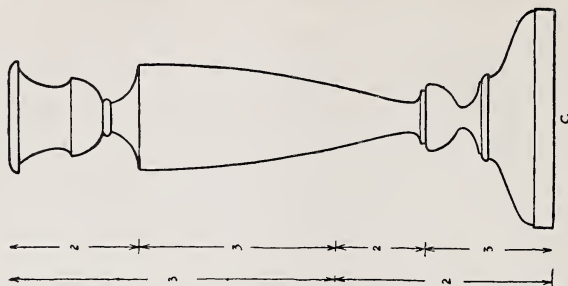
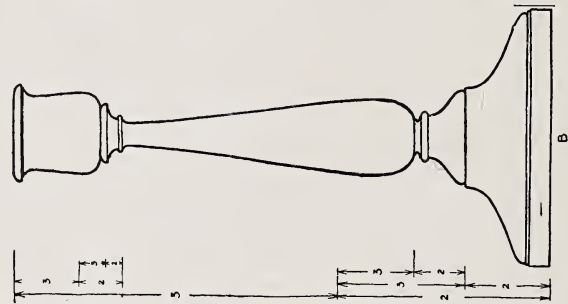
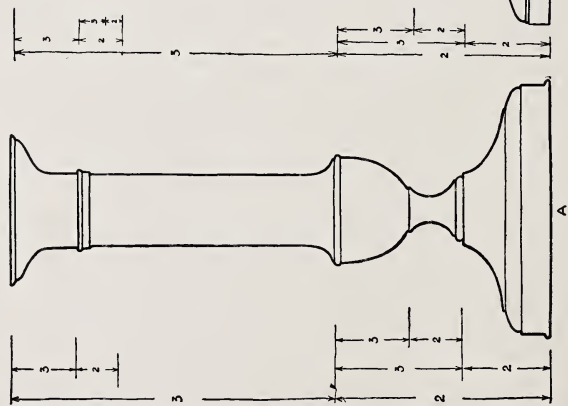
The upper part of Plate 116 shows some modern forms of bowls and vases. Many potteries today are producing very excellent wares, simple and refined in proportion and curvature and beautiful in textures, glazes and colors.

Decoration should be most carefully guarded and restricted in relation to pottery. We have had during the 19th century most distressing examples by the thousands, from all countries, of over-decorated ceramics, frequently planned as household ornaments only and so used. China intended for use in that period, when thought beautiful, was too often merely expensive in its gaudy or over-elaborate form and decoration.

This, of course, was not always the case. The less expensive wares were and are frequently the best for the simple reason that decoration is reduced to a minimum. Unfortunately space does not permit the giving of examples in either class. It is hoped that the art student may be led to look into the history of this craft, where abound innumerable lessons in design.

Plates, bowls, vases and similar objects should obey the laws of use and beauty stated at the beginning of the chapter on Design, page 13. Not only should the forms and textures be convenient, practical and beautiful, but the decoration never should obtrude or dominate. Naturalistic pictorial decorations are to be avoided.

It seems as though a better spirit is pervading our potteries today both here and abroad. Whether this is generally true or not, it is certain that wares simple and beautiful in form, in surface and in color can be found now more plentifully than a score of years ago.



In the consideration of any problem whatsoever two most important steps are those of proportion and contour. In each of these the use of material and method of construction of the object to be designed must first be considered.

An excellent problem in design and applied shop work is that of a turned candlestick. Other forms of candlesticks also offer an attractive and useful field of effort which would easily take up more space than is here available.

The use of this object entails a base, shaft and cup for the holding of the candle. The material must be such as can be turned in a lathe. The form, therefore, must be circular. While a candlestick may be low, the illustrations show tall shapes suggestive of the Colonial type.

Considering the matter of proportion, the ratio of two parts to three will be found most useful. A reference to the scales of proportions at the side of each drawing will show a method of arriving at some general divisions of the object. Such ratios can be still further divided for smaller details. Such a ratio is useful in so far as it is used with judgment and reasonable taste. It cannot produce satisfactory results inevitably.

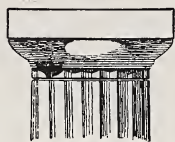
The matter of contour is of equal importance, the two main points to bear in mind being a suitable variety of curvature and an avoidance of circular arcs. See Plate 42.

The following rule is very important: Any joining of a C and an S curve, or of two S curves, must always be at a distinct angle, preferably a right angle. The addition of a small step, band, groove or fillet at such a junction is frequently a great improvement.

It will be noticed that in the base, shaft and cup of each of the drawings in Plate 118 there is a decided predominance, both in size and shape, of one part over the other two. This is a proper application of the principles of dominance and subordination. Again in each of the other two parts there is some detail or portion which distinctly dominates, bearing out the same principle.

The objection frequently raised, on account of fire risk, that a candlestick should not be of wood is groundless if a metal socket is provided for the candle. Beautiful candleholders of all kinds and sizes were made of carved wood in other centuries. A turned candlestick in wood may be cast in metal and finished on the lathe.

The general principles given above have universal application.



B



A



C



D



E



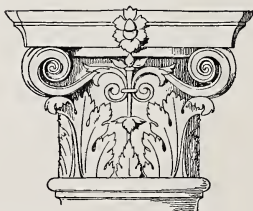
F



H



G



L



K

One of the best exercises in acquiring a knowledge of the historic styles is to make a series of drawings showing the same type of object as developed by each of the great periods of civilization. We may call this a comparison or parallel of historic styles. Such forms may be gained from various books, photographs and other sources. The form to be compared may be what you wish, a complete structure, showing the leading characteristic masses, or a detail which embodies enough of the peculiarities of the school to warrant its being shown.

In the accompanying plate is a comparison of styles of capitals from the Egyptian to the Italian Renaissance.

In the Egyptian style, A, we have a representation of the lotus flower, a sacred symbol, constantly appearing in many forms on innumerable objects.

The Greeks used three styles of capital, the Doric (B), Ionic (C) and Corinthian (D). The first was the most used, and the last, the least. The Romans were especially fond of the ornate Corinthian capital and used it constantly, elaborating it still further by adding the spiral elements of the Ionic (E).

With the breaking up of the Roman empire three styles came into prominence, the Byzantine (F), Romanesque (G) and Saracenic (H).

The Byzantine was a product of the civilization of the region of Byzantium, now Constantinople, about 500 A. D. The Romanesque developed in Southern France from the Roman remains of former centuries and spread into Germany and England from the 8th to 11th century. The Saracenic style was a product of Mohammedanism and developed in many forms wherever that religion flourished. Some of its finest examples are found in the palace of the Alhambra, Spain, built about 1200 A. D. A peculiarity of the Saracenic style is its avoidance, for religious reasons, of the use of natural forms.

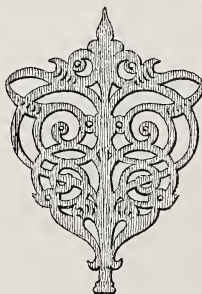
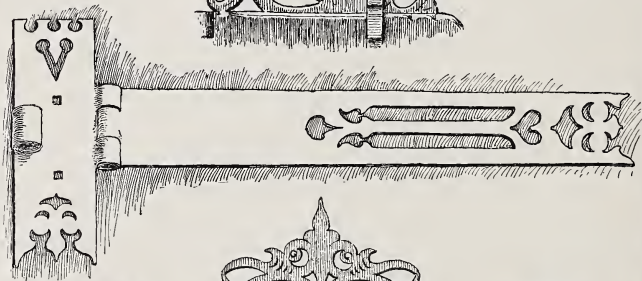
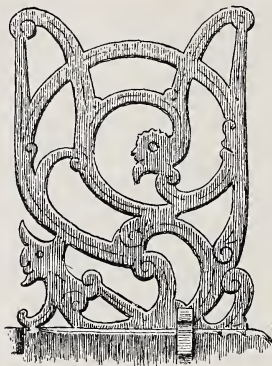
The Gothic style grew out of the Romanesque in Central France about 1150, perfected itself by 1250 and spread into other countries. Some of the ornament is very naturalistic. Many of the most famous cathedrals are in this style.

In the 14th century a rebirth of learning, called the Renaissance, occurred in Italy. Interest in everything connected with ancient Rome was intense. Thus the decorative arts showed a return to the classic styles (L) with certain modifications in each of the several countries to which the styles spread.

MEDIAEVAL
• IRON
WORK •



KNOCKERS
HINGES •
LOCK

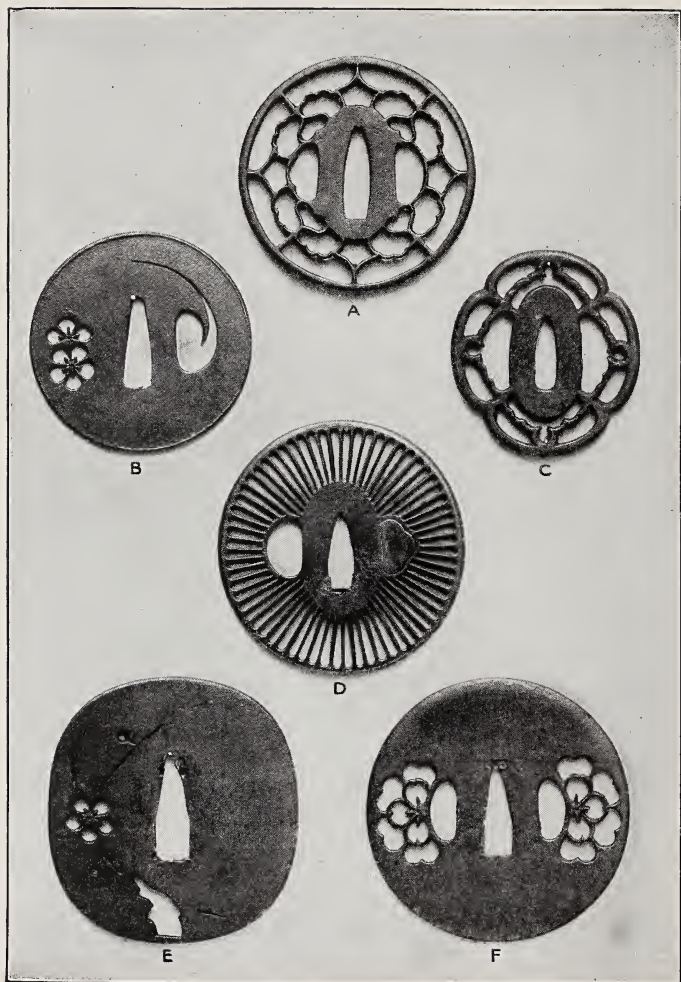


IN THE METAL WORK OF THE MEDIEVAL CRAFTSMAN
WE FIND SOME OF THE BEST EXAMPLES OF THE RIGHT
USE OF ORNAMENT.

Iron work in early mediæval times offered an extensive field to the blacksmith when strongest barriers were needed on every hand. It would seem that hinges with their accompanying straps and bands were regarded as of great importance for strengthening doors within and without. The designs are many, the crescent hinge being most plentiful. The grille also was an important protective feature, guarding sacred parts of church interiors.

As the Gothic period progressed, the blacksmith in whose hands iron had been beaten, bent and welded into innumerable forms adopted the use of prepared dies or stamps, into which the hot iron was struck as wax into a seal. The most elaborate and beautiful examples of this method, as perhaps of any iron work, are the celebrated hinges on two of the west portals of Notre Dame in Paris. They are regarded as the grandest and most colossal work of blacksmithing of that age. Another important work in the same manner is the so-called Eleanor grille in Westminster Abbey, dating 1294. The old blacksmith methods of working iron while hot were from this time on largely superseded by a use of the file, saw and drill. The pieces were held together by bolts and rivets, or they were mortised and tenoned as in carpentry. Sheet iron, pierced and hammered, comes into use also. Grilles composed of quatrefoils or trefoils are common, with tracery pierced from sheet iron frequently riveted in the lattice openings.

Doors are often covered with interlacing bands of strap iron, the lozenge openings being filled with rich ornament in sheet metal. Tracery is produced in pierced iron at first in one thickness as in a Chartres example, and then in superimposed layers. Handles, locks, knockers, bolts, hinges, etc., are now treated with astonishing delicacy, with crochets, pinnacles and other Gothic ornament chiseled and filed from the iron in full relief. Some of these works rival contemporary gold and silver smithing. Keys and nails, no less, received a full share of artistic treatment, and many of the French coffers of iron are especially notable in their reflection of architectural forms. A particularly rich piece of iron work of this time is the celebrated well cover in front of the Cathedral at Antwerp, popularly attributed to Quentin Matsys, the painter. The grapevine is remotely the motive of much of the work to this time. In the sixteenth century the thistle seems to have sprung into popularity and rapidly replaced the vine in the designs that followed. Practically all the German work between 1550 and 1650 was indebted to the thistle for motive.



JAPANESE SWORD GUARDS IN IRON, SHOWING
PIERCED DESIGNS. (JOHN HERRON ART INSTITUTE).

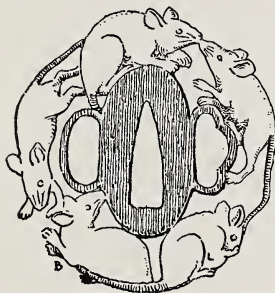
The objects illustrated in Plate 124 are known as sword guards. They are a part of the Japanese sword, coming between the handle and the blade and safeguarding the hand from injury.

Japanese ornament is remarkable in its frequent arrangements of forms which impress us unconsciously as being in balance through feeling rather than through an obvious bilateral symmetry. Entirely different details in size and shape are skillfully disposed to give a sense of repose more subtle than the evident pairing of two similar forms. Such an arrangement has elsewhere been termed occult balance. No absolute law can be given for such a balance. The eye is held by it in the center of the composition, equally attracted by the various forms and spaces. Some details, though small, may, by their complex character, exert a greater attraction than larger simpler forms. Direction of lines, both straight and curved, strongly affect the eye and thought, skillfully leading them as the designer may choose.

The range of forms chosen as motives by the Japanese artist is almost limitless. Birds, beasts, fish, insects, leaves, fruit and flowers are plentiful, while geometry is frequently resorted to. The elements, wind, snow, rain, swirls of water and cloud are sometimes represented, even in metal.

None of these sword guards measure more than three or four inches across, in which small area the artist gave his fancy play, sometimes with purely decorative forms, but more frequently, perhaps, with a touch of humor and symbolism.

These sword guards reached a degree of mastery in metal which European workmen have never excelled, and seldom equaled.

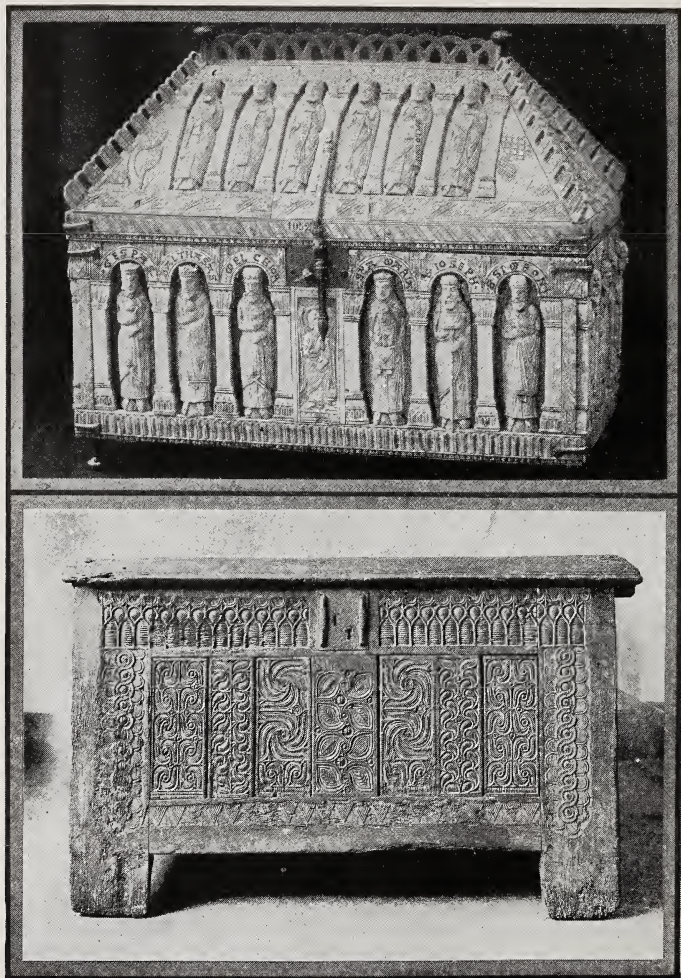




CARVED WOOD PANEL FROM INDIA TYPICAL OF THE
INGENUITY AND SKILL OF HER CRAFTSMEN.
(JOHN HERRON ART INSTITUTE.)

This carving is characteristic of the woodwork of certain parts of India. Though elaborate, its many curves are so composed that they rest rather than irritate the eye. The student should be cautious, however, about imitating the intricacies of this style. It is quite apart in spirit from our ways of thinking. Indian art often is over-elaborated and offers dangerous temptations to an ignorant enthusiast. In this panel the upper half is much the better. The lower portion is too confused in detail and unfortunate in the form and decoration of the main central stem. The differences between the many features of this piece of work and panels of other periods and peoples it would be fascinating to compare, were it possible to do so in our limited space. The way the vine grows, the peculiar shapes of the leaf forms, the beautiful running border, the rosettes in the corners, beside the beauty of the whole, are worth careful analysis. Many ornamental motives will be found in this plate, and in the designs below, from Owen Jones' *Grammar of Ornament*. See also page 49.



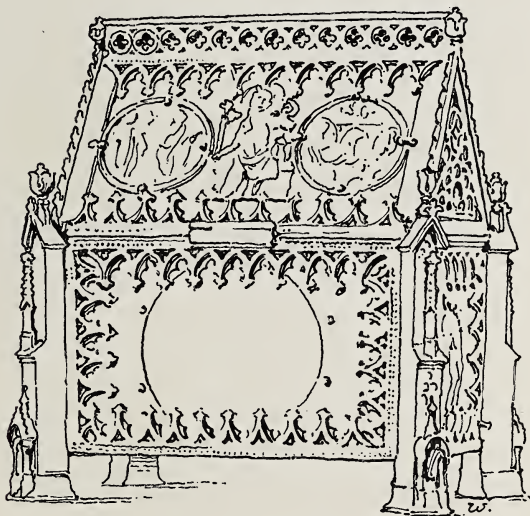


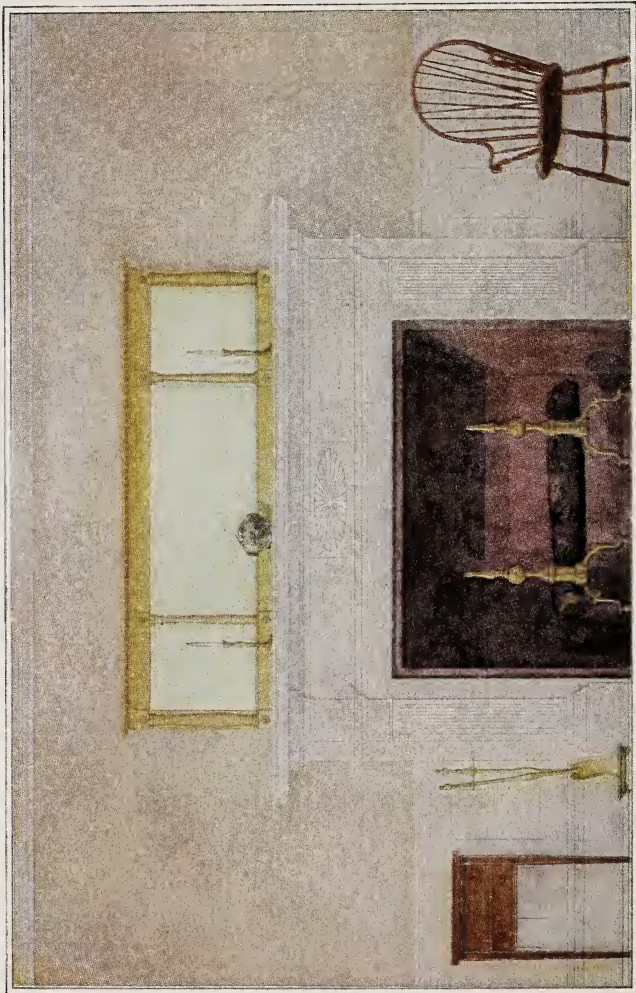
A ROMANESQUE COFFER (CLUNY MUSEUM), AND A
GOTHIC CHEST (JOHN HERRON ART INSTITUTE), EACH
A TYPICAL AND BEAUTIFUL EXAMPLE OF ITS KIND.

In Plate 128 we have two examples of beautiful boxes. The upper is a small casket of carved ivory in the Romanesque style, dating about 1100 A. D. It is in the Cluny Museum in Paris. It is typical of the style and period, with its round arches and quaint appropriate figures of saints in the niches. Such caskets contained sacred relics of the saints and were called reliquaries.

The lower object is a large chest of the French Gothic style, about 1500 A. D., in the Herron Art Museum, Indianapolis, Ind. The front alone is carved, but gives in its paneling excellent geometric designs in the Gothic spirit. This plate should help us to appreciate good types of decoration of these forms in the past. The structure of each box is here emphasized and an object of utility changed to one of beauty as well.

The pen drawing below shows a reliquary of the Gothic period in precious metal. Its forms echo the architecture of the time both in mass and details. This habit of reproducing in furniture and smaller articles many of the features of buildings appears in almost every period of ornamental history.





AN ACCEPTABLE RENDERING IN WATER COLOR OF A MANTEL
AND FURNISHINGS OF THE GEORGIAN PERIOD.

Every room should be dignified, simple and restful. Perhaps the most important means to this end is a sense of space. This must, of course, be consistent with use and not suggestive of barrenness. Most rooms are badly over-crowded.

Structural lines of a room must be considered. The vertical and horizontal lend dignity. Other directions suggest motion and unrest, and should be avoided. Furnishings should repeat structural lines. Slanting pictures, oblique picture cords, zigzag arrangements of rugs, couches, pianos, or other large articles, looped-up curtains, draperies and scarfs are all common violations of this law of structural lines.

A room must embody an idea and have a dominant interest. The living and dining rooms, the music room and the library, the bed room, kitchen or porch fail in their furnishings if we lose the sense of fitness of the contents or if the articles present are not both useful and beautiful.

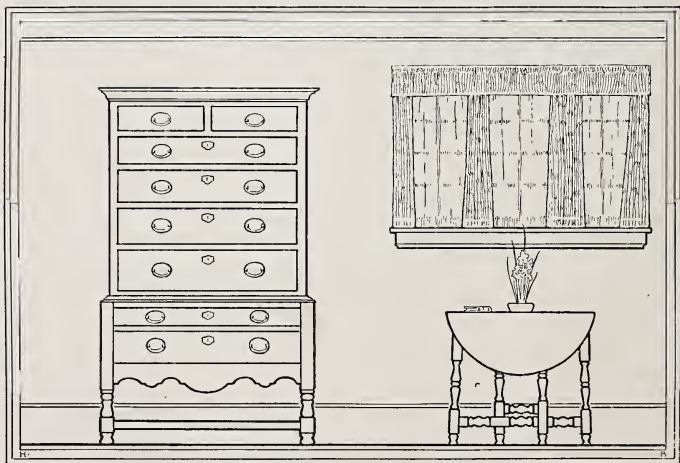
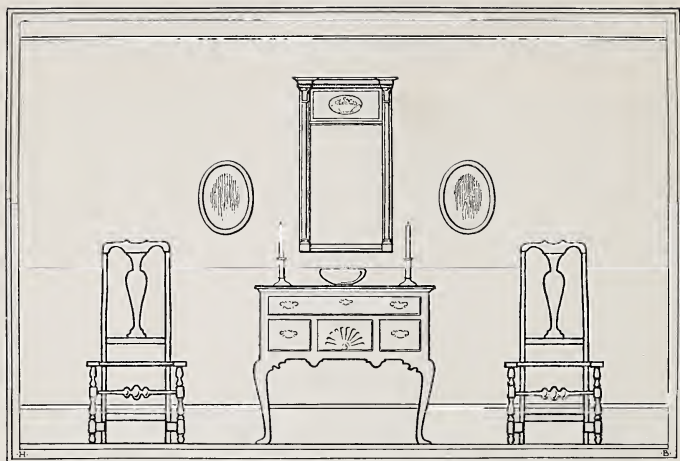
Some one feature in the room's equipment should dominate. This may be the fireplace and mantel, the book cases, a window group, or other arrangement. The featuring of one part of the room means subordinating the other parts. Again each subordinate part of the room should have its center of interest to which, in turn, its surroundings are secondary. Each part of a room, each group of furnishings, should clearly bespeak its special use and show so far as possible a thoughtful, pleasing, inviting arrangement.

In these arrangements symmetrical balance is usually most satisfactory, although the placing of objects so that the balance is felt to be good, while not actually bisymmetrical, is often necessary. This is called "occult balance."

Color treatment of rooms is also controlled by the law of dominance. One tone must prevail with subordinated harmonies. A room must be regarded as a background to the people within it—never as the chief thing. Soft, neutral colors are most desirable for large surfaces. Bright colors must be limited to small areas. The more brilliant the color the smaller should be its quantity.

Warm colors, the reds, oranges and yellows, are for rooms without sunshine. Blues, greens and purples are cool in effect and are best in sunny rooms.

Wall treatment should be as plain as possible. Pattern, if present, must be most conventional, retiring and flat. Again remember that the wall, properly, is but a background. If pattern is desired for its own beauty then it must stand for itself alone and



ELEVATIONS OF TWO WALLS, SHOWING
 FORMAL OR BISYMMETRIC BALANCE
 AND INFORMAL OR OCCULT BALANCE.

other features in the room frankly subordinated thereto. Pictures cannot be enjoyed on conspicuously patterned walls.

Plain hangings are always good, and usually the safest. Figured draperies of real beauty, may, however, look well with a plain wall. A wall with distinct pattern must have plain draperies. Lace window curtains, white, large figured and starched, are bad. Thin fabrics of soft tone and texture with little or no pattern, are most desirable. Hang curtains and other draperies in plain vertical folds. Avoid looped-up and drawn-back effects.

Dull rather than shiny woodwork is preferable throughout.

Have few but good pictures in simple frames. Gilt frames should be plain and dull.

A picture wire should pass through two screw-eyes at the top back corners of a frame, and be attached to two picture hooks. The picture will then hang with vertical wires without a forward pitch.

Hang pictures near the eye level. Keep to one type of picture and frame in a room. Don't crowd. Have abundant background.

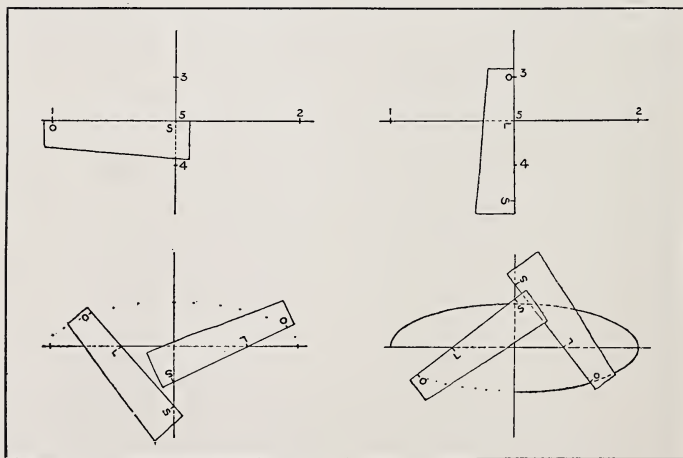
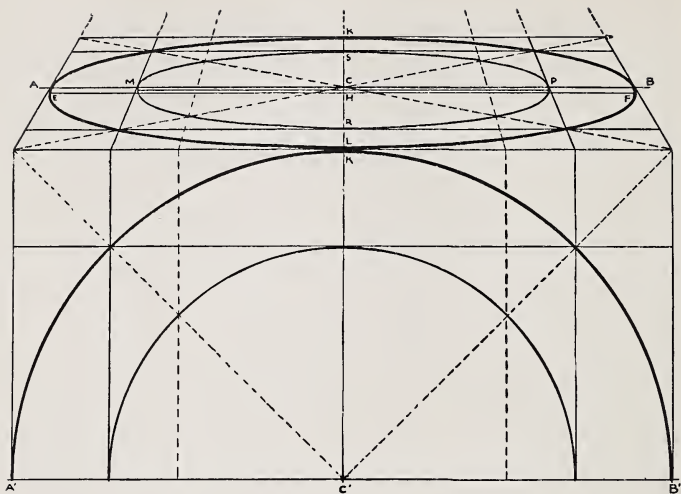
In furniture we are fortunate today in our ability to choose at reasonable cost excellent reproductions or modifications of the models of the best periods. Avoid freaks and oddities. Beautiful old furniture is most desirable, but the sentimental use and display of unattractive heirlooms is foolish. Because an honored ancestor showed exceeding bad taste in a household article or from necessity was forced to use it, one need not now advertise it through a mis-conceived sense of reverence.

Furniture should be arranged so far as possible parallel to the room's edges, and grouped for comfort, hospitality and beauty.

Bric-a-brac must be reduced near to zero. Four or five articles of genuine beauty and real quality are enough in any room. Fancy curio cabinets happily are less common than formerly though mantel pieces still labor under a heavy burden of useless trifles.

The student of interior decoration must learn as soon as possible the essentials of the different decorative historical periods. To this end, he must have abundant reference material. This at best should be through frequent contact with an adequate art library, good art museum collections, decorators' shops and stores, and as large a personal collection of fabrics, materials, books, magazines and pictures as possible. With the abundance and cheapness of the last two almost every student can start a file of most valuable matter for himself.

Elementary exercises in decoration should be drawn in elevation, as shown in the accompanying plates, rather than in perspective.



DEMONSTRATION OF THE PERSPECTIVE OF THE CIRCLE.
THE "TRAMMEL" METHOD OF DRAWING AN ELLIPSE

PERSPECTIVE PRINCIPLES, APPLICATIONS AND RENDERINGS

The upper half of the adjoining plate shows two concentric ellipses surrounded by two squares in perspective. This drawing is accurately made from a photograph of two concentric circles inscribed in two squares. Just below is half of this same diagram in full face view. Compare corresponding points in each view.

It will be noticed that the center of the circle, C' , at the bottom, and C in the perspective, is nearer the back edge of the ellipse than the front.

AB is the long diameter of the circle in perspective. It is most important to note that this diameter, AB , of the perspective circle is not the diameter of the ellipse, which is EF . Point C which is the perspective center of the circle is not the center of the ellipse which is at point H on the line EF .

Briefly expressed the diameter of the circle is not the same line as the diameter of the ellipse representing the circle, but appears a little further back. The center of the circle also is behind and apparently above the center of the ellipse.

When concentric circles are seen obliquely the spaces between the ellipses appear larger at the sides than elsewhere. The front space also shows slightly larger than the back.

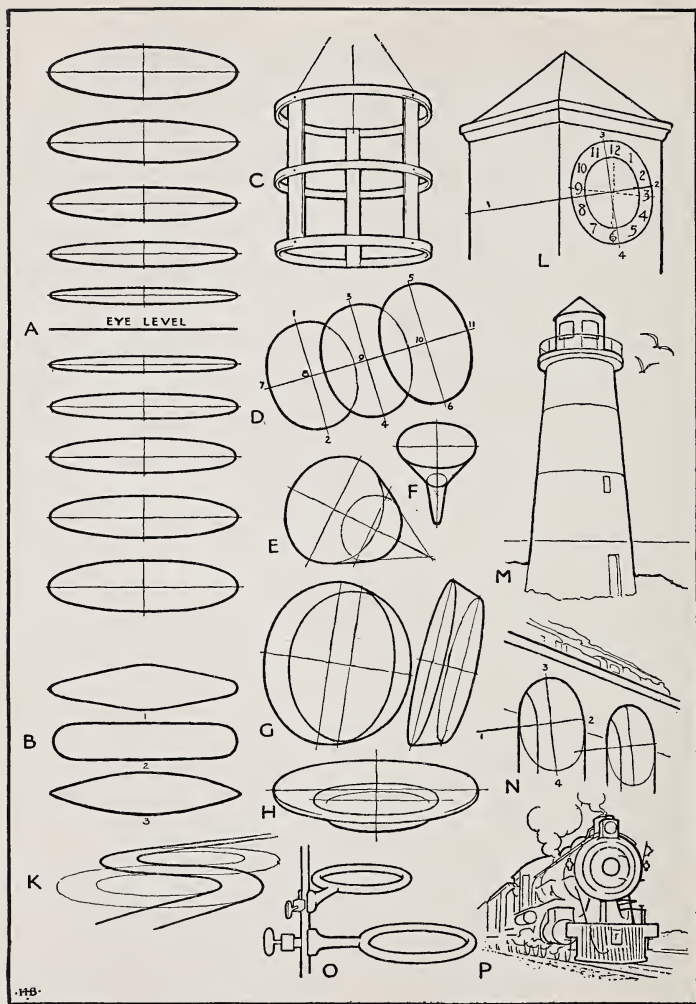
In the lower half of the plate is shown a method of constructing an ellipse with a slip of paper or card. The process is as follows:

Draw the long and short diameters marking them 1, 2, 3, 4. They should extend somewhat beyond their real lengths for convenience. Their crossing is marked 5.

Provide a straight piece of cardboard a little longer than half the long diameter. Lay the straight edge against long diameter at the left. Mark this O at point 1. This will stand for outline. Mark point 5, S , which will stand for short diameter.

In the second diagram note that our card has been turned sideways, lying along the short diameter. Point O touches point 3. Point S is on the short diameter below 4. Point 5 is marked on our card as L , which will stand for long diameter.

Our card, now properly marked, is used thus: It should be moved to as many different positions as points are desired in the outline. Point L must always touch the long diameter; point S



THE ELLIPSE AND SOME OF
ITS APPLICATIONS.

must touch the short diameter; point O will then always indicate a point in the outline of the ellipse. A careful examination of the two remaining diagrams should make this clear. With a sufficient number of points, the ellipse may be drawn free hand.

A satisfactory understanding of the ellipse and its applications and an ability to represent it is a necessity to every one who desires proficiency in drawing. Plate 136 shows many applications of the circle seen obliquely.

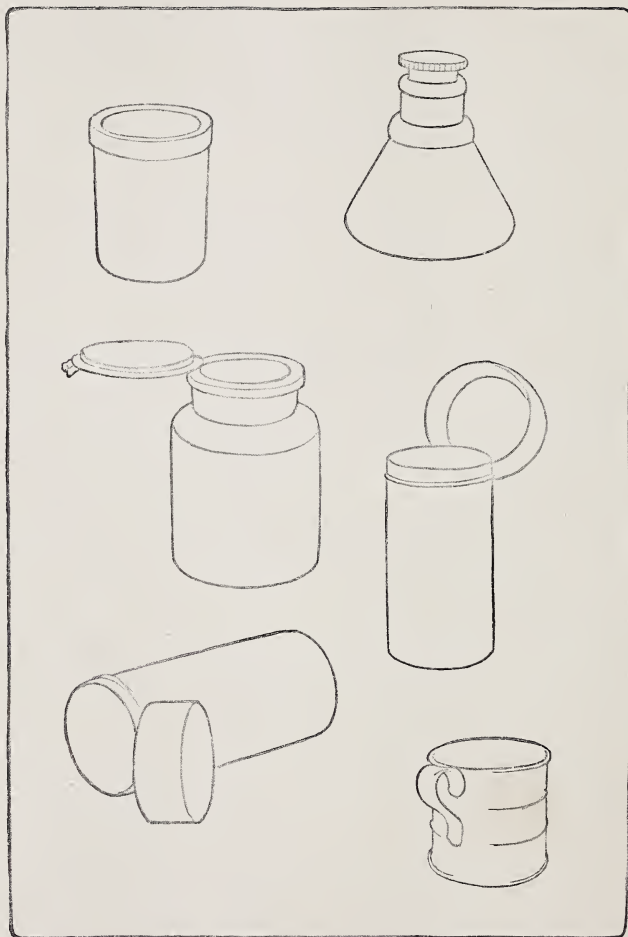
A. We have here eleven horizontal circles at different levels. The central one is assumed to be at the eye level. A circle at the eye level appears a straight line. It will be observed that the higher or lower they are from the level of the eye the rounder they appear.

B. As has been stated in the previous problem, Plate 134, an ellipse is a regular curved figure without sharp points or flat portions, whose four quarters are similar. The three drawings shown here are typical of frequent errors in ellipse drawings. A careful comparison of any of these errors with a correct ellipse should suffice as a lesson in the form of this necessary figure.

C. This figure shows three wooden hoops held in place by side strips, the whole suspended above the eye. We have an excellent model here for a study of the principles shown in A. This object may equally well be placed below the eye. A large number of common objects are based on this construction.

D. If the hoops (C) are placed in an oblique position we have a new principle to deal with. The circles are not only higher or lower as before but also nearer to or farther from the eye. An object always appears smaller as it becomes more distant. Thus in an object with two or more parallel circles, placed in an oblique receding position we find the ellipses appearing not only rounder as they recede, but a little smaller in size, also. While this fact is very evident only in large objects it is a most important point to remember and observe. In the three ellipses here shown, 5, 6, is the nearest and 1, 2, the farthest from the observer. 1, 2, is therefore the smaller and also the rounder.

E, F, G. In drawing circular objects always draw the complete ellipse whether seen entirely or not. In this way only can you avoid serious errors of curvature and position. The long and short diameters should also be drawn. In every regular cylinder and cone or objects based upon them in form, the long axis of the ellipse is always at right angles with the axis of the



COMMON OBJECTS EMBODYING THE ELLIPSE
IN SEVERAL POSITIONS.

object. In D, we find the diameters 1, 2; 3, 4; 5, 6; at right angles to 7, 11. In E, F, G, the same is true. The amount of tip a cylinder or cone may have does not affect this rule. The axis of the ellipse remains at right angles with the axis of the solid. Ignorance of this has led to some amusing errors in drawing. In E and G and you will notice that the rear ellipse cuts through the front ellipse. In the studies of pots and pans in still-life we frequently find this condition. The bottom of a pan may show on the inside. It is practically a continuation of the ellipse of the base, which appears on the outside.

K. This diagram shows the application of the principles of ellipses to the drawing of a road bending in a circular curve. Here, as in all other cases, the position of the eye compared to the ellipse controls the degree of curvature. Here it is assumed the road makes a double bend which combines two overlapping ellipses.

O. Drawings of apparatus constantly present problems of the ellipse. The two rings of a chemical retort-stand show a frequently misunderstood fact. It will be observed that these rings are horizontal. The ellipses will, therefore, be horizontal. The direction of the bar extending from the vertical support to a ring has no effect whatever upon the direction of the ring, although one is tempted to extend this bar as a long diameter of the ellipse.

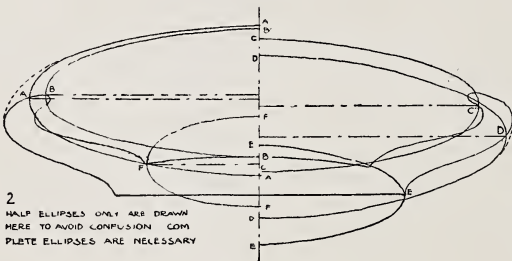
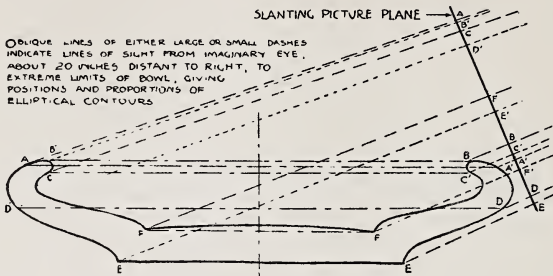
L. N. In these drawings we note a fact not often observed though constantly in evidence. A circle or part of a circle considerably above or below the eye, lying in a vertical plane retreating from the spectator, appears not a vertical ellipse but one with its long axis more or less tipped from the vertical. This possibly puzzling fact may be explained by regarding the ellipse as the front face of a cylinder. The long axis of this cylinder would, of course, slant obliquely toward the eye level or horizon. As the long diameter of the ellipse is always perpendicular to the axis of the cylinder it will slant somewhat to the right or left. In our clock-face, L, and bridge arches, N, this principle is clearly shown. In L the figures 12 and 6 on the clock-face remain in a vertical line, of course, although the axis of the ellipse is perpendicular to the line 1, 2.

M. The lines around a tower at various levels are governed by the rules shown in A.

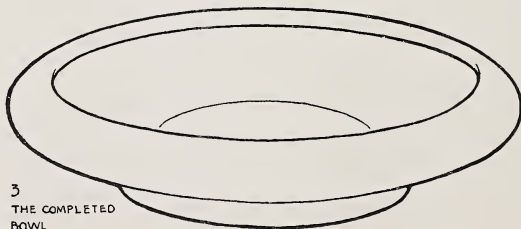
The locomotive and other types of machines present many interesting though difficult problems of circles in many positions. Make as many careful studies as possible of such objects.

SLANTING PICTURE PLANE

OBlique LINES OF EITHER LARGE OR SMALL DASHES
INDICATE LINES OF SIGHT FROM IMAGINARY EYE,
ABOUT 20 INCHES DISTANT TO RIGHT, TO
EXTREME LIMITS OF BOWL, GIVING
POSITIONS AND PROPORTIONS OF
ELLIPTICAL CONTOURS



2
HALF ELLIPSES ONLY ARE DRAWN
HERE TO AVOID CONFUSION COM-
PLETE ELLIPSES ARE NECESSARY



3
THE COMPLETED
BOWL

In the accompanying plate of three drawings the upper represents the section of a bowl from which the desired perspective is to be made. The eye of the spectator may be imagined about twenty inches distant, upward to the right. The various lines of sight from the extremes of the contours of the bowl or its distinct angles are represented as converging obliquely upward toward this imagined point of sight. These would cut through an imaginary picture plane placed perpendicular to the central ray, their points of cutting shown by numbers along this picture plane, which in this diagram is seen edgewise as a line. The front and back edge of each ellipse in this diagram bears the same letter either with or without a prime, as for example, A, A'; B, B'.

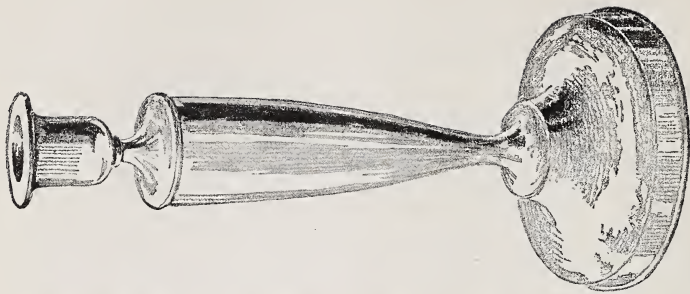
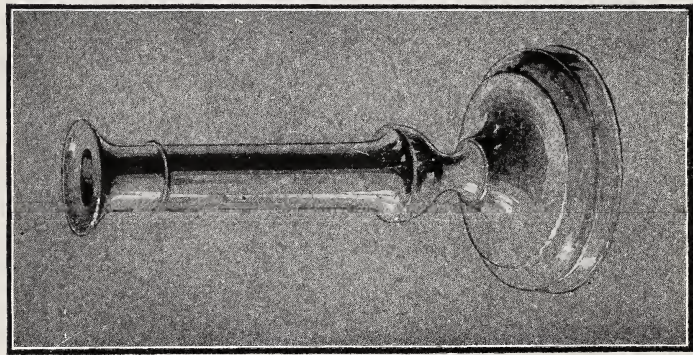
If we followed logically the scheme thus far suggested we should next require a top view of the bowl with the converging sight rays cutting the top view of the picture plane, with carefully related and numbered points; but though the logical and accurate method, we may for simplicity discard this step and apply, with small degree of error, our points along the picture plane of Figure 1 to the vertical center line of Figure 2. Points A, A', for example, should be balanced above and below the horizontal axis of the ellipse they represented in Figure 1, being kept the same distance apart as in the first figure. Points B, B', and all other pairs should be similarly treated.

The next step is to draw with care and accuracy each ellipse, as indicated in the second figure, halves of which are here left out, however, for clearness.

In the last stage, the drawing with its rather confusing number of ellipses is carefully gone over with an eraser. The invisible parts are rubbed out, visible edges emphasized in some parts or in others faded off into the surface portions of the bowl.

Edges which form rounded surfaces without sharp contours are at first puzzling. The eye sees one portion of an ellipse in front and a portion of quite a different ellipse at the back. These two different elliptical contours merge together, however, most fascinatingly in their progress around the bowl if one cares to examine the facts.





FREEHAND RENDERINGS IN PEN AND INK, WASH, AND PENCIL, FROM WORKING DRAWINGS OF CANDLESTICKS.
SEE PLATE 120

The exercises here suggested are methods of rendering in perspective from working drawings. The subjects presented are those of Plate 118, the turned candlesticks.

In making a perspective drawing from the elevation, or side view, of the candlestick, all horizontal lines representing circles in side view should be drawn as ellipses. These ellipses should be made with greatest care, with a special regard for the degree of fulness or flatness of each; such fulness or flatness being dependent upon its level compared to that of the eye.

An ordinary position for a candlestick would be below the eye. The flattest ellipse would, therefore, be that nearest the eye-level, or at the top of the candlestick, the circles appearing more and more as they become lower.

An ellipse is always a difficult form for pupils to draw well, and many such forms, of various sizes and degrees of roundness, all of which must be thoughtfully related in a single drawing, go to make up a problem demanding serious and patient application.

After a careful outline drawing has been made the light and shade may be treated as shown in the accompanying plate.

Such rendering may be in wash, pencil or pen-and-ink. Other methods of rendering could have been shown, such as wash on white paper, pen-and-ink on gray paper, touched with white, combinations of wash and pen-and-ink or pencil, etc. In the use of gray paper caution must be exercised as to the quantity of white used. A very little Chinese white or white chalk is sufficient. It is very easy to get too much, which gives a false and cheap impression to the whole picture.

The light in these renderings is supposed to come from the upper left hand, but the object being, supposedly, shiny allows of much freedom in the shading and accents of dark and light.

Instruction in such rendering should be accompanied by references to actual polished objects of generally similar shapes, and to good photographs of the same. Drawings or reproductions of renderings by able designers ought also to be studied.

Much help may also be gained from the chapter on Pencil Technique, page 177, and from many examples of outline and light and shade drawing elsewhere in the book.

Reference to files of the International Studio and other art magazines will bring to light many renderings of metal cylindrical objects, variously treated.

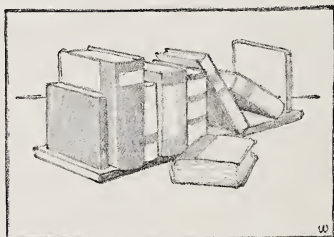
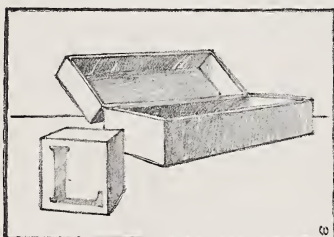
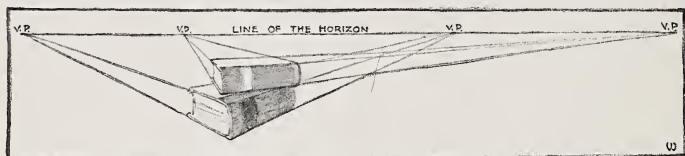
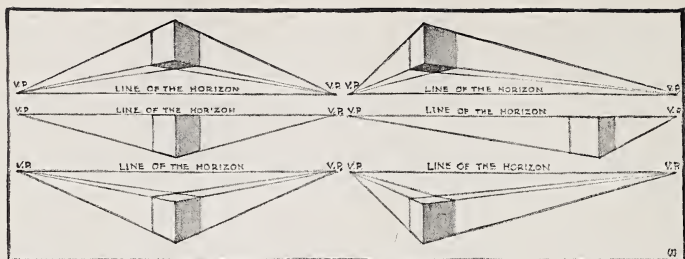
When one looks directly down a long straight street or a railroad and sees the various parallel horizontal lines apparently retreating from each side toward a single point on the horizon, the effect is known as parallel perspective. The view is supposed to include no more than can be seen without moving the eye. If more is included at the right and left of the vanishing point than could be so seen the picture becomes distorted in appearance. Drawings of single objects or groups of objects, of rooms, corridors, streets, etc., in which important axes of the object are parallel with the direction of sight are in parallel perspective.

All horizontal lines at right angles to those vanishing at the single point on the horizon will appear horizontal in the picture. All vertical lines appear vertical. In Plate 144 a small tray is represented at various heights above and below the eye; whose level is at the top on the left side but at the bottom on the right.

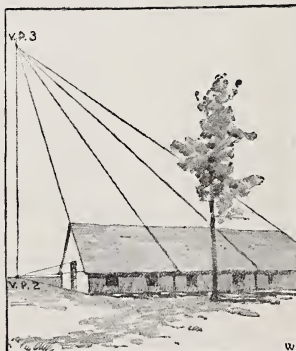
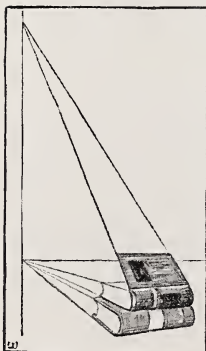
The problem of the railroad track on the opposite page offers many interesting variations. It would be well if sketches on an actual stretch of straight track could be made by pupils. Snapshots or magazine halftones are often available which well illustrate these principles. Original problems involving parallel perspective should be tried, some showing a low eye level, some high. Harmony with variety of spacing may be obtained by experiments with the ratio of two parts to three, see page 14. Any space within the boundary framing lines which needs subdivision may be thus divided and not cut at random. A horizon, for instance, may be located by dividing the area inside the frame into five parts, of which two parts are land, and three sky, or vice versa. If a very high or low horizon is desired, re-divide the upper or lower two-fifths, according to the same principle. Situate in the same way the front end of each side of the road. Other details may be similarly located.

In spacing a row of regularly retreating telegraph poles, fence posts or other objects, random guesswork should be replaced by logical system. Equal distances, retreating in perspective, diminish at a constant ratio. Suppose the position of the second pole seems to be half way between the first pole and the vanishing point, then the third pole will be similarly half way from the second pole to the vanishing point. Each succeeding pole will also be one-half the distance from the previous pole to the vanishing point. Other ratios work as well.

The finish of this sketch admits of a wide range of treatment in a variety of materials.



Ernest W. Smith



A careful study of the principles stated below and of Plate 146 and 148 will do much toward making clear the mysteries of perspective. A most important point to consider is the fact that any single view that one may have cannot cover more than about one quarter the distance between the vanishing points. This may be a little smaller than is actually the case but it is a safe limit. Both vanishing points of the same object can never be in a picture. Where such are shown on the opposite page it is for explanatory purposes only. The actual picture area in each case should be about one quarter the distance between the vanishing points of any one object.

1. The horizon line is an imaginary line directly opposite the level of the eye.

There can never be more than one horizon line in a picture.

2. All receding horizontal parallel lines will meet at the same point on the horizon line if sufficiently extended. This point is called the Vanishing Point.

3. Faces of rectangular objects when viewed obliquely appear foreshortened, and the greater the angle at which the object is turned, the greater the foreshortening.

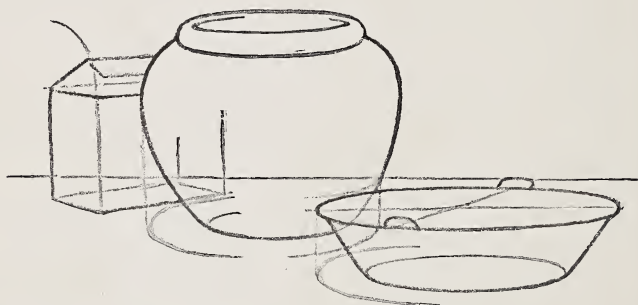
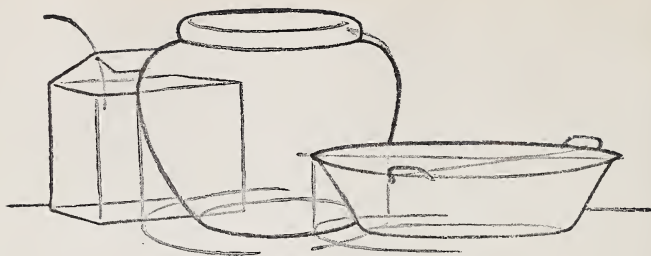
4. Parallel horizontal edges receding to the left appear to converge to a Vanishing Point on the horizon line at the left of the object; those receding to the right to a Vanishing Point at the right of the object. If the parallel edges instead of being horizontal slant upwards or downwards, the Vanishing Point appears above or below the horizon line.

5. In groups containing objects turned at different angles, each object has its own set of Vanishing Points.

6. When faces of a rectangular object are turned away equally, the Vanishing Points are equally distant from the point opposite the observer.

7. When faces of a rectangular object are turned away unequally, the Vanishing Points are unequally distant from the point opposite the observer. The greater the angle, the nearer the Vanishing Point is to the point opposite the observer.

8. We have learned that rectangular objects may be so placed directly in front of the eye that there will be only one Vanishing Point; they may be turned so there will be two Vanishing Points; or they may be turned and inclined so there will be three Vanishing Points.



ERRORS AND CORRECTIONS OF A GROUP OF OBJECTS IN PENCIL. STUDIES OF SPOUTS, HANDLES AND LIDS.

The upper two drawings at the top of Plate 148 illustrates a number of common errors. These errors are shown corrected in the drawing below.

A frequent mistake in drawing is made in the apparent placing of two or more objects so that their masses would conflict, if actually as shown. It will be noticed that the pasteboard box and the pan so encroach on the jar that they would in actuality collide. This is not noticed by the careless student until the facts are made clear by extension lines or by other means. The interlocking of the ellipses of pan and jar and the conflict of the extended invisible portion of the box and jar should make this principle clear.

The side edge of the boxcover is too long. When shut down it would overlap as shown by the arc of the circle.

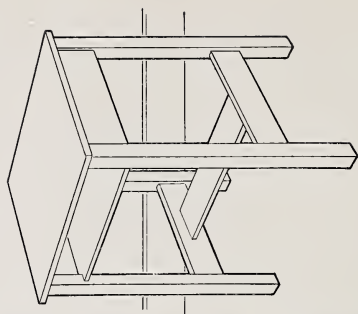
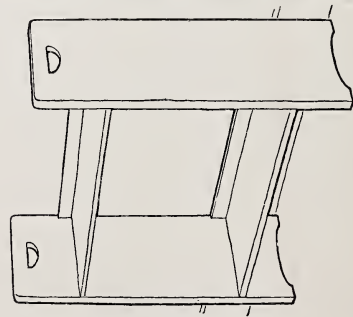
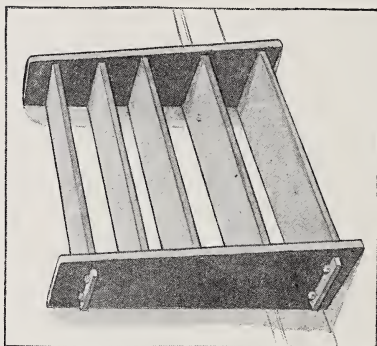
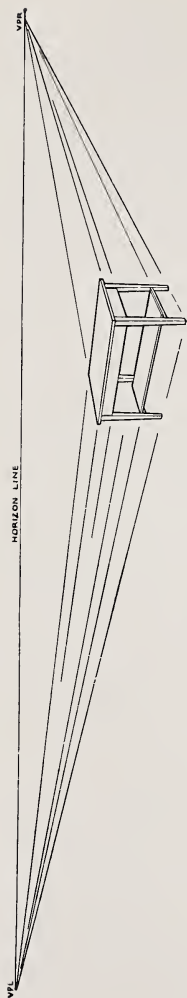
The shoulder of the jar, it will be noticed, meets the neck with a sharp right angle. The usual effect would require the contour of the shoulder to lead around to the back to join gradually with the ellipse of the neck. The faint line shows this as does the correct shoulder of the lower drawing.

In the pan the handles are not placed opposite to each other. The center of the top circle of the pan is a trifle behind the center of the long axis of the ellipse. Any two points opposite each other on the rim of the pan must be at the ends of a diameter drawn through this center point. The handles should therefore be shown as in the lower pan.

In the drawing of handles, spouts, noses, lips, rims and feet of objects we are confronted by many difficulties. It is unsatisfactory to show all of the outline in any case. A judicious choice of parts of the form to be accented and other parts to be ignored is the only successful method. An examination of the lower set of drawings here will help. Treatment of edges of circular objects will also be found in Plates 134, 136, 138, 140 and 142.

The relative positions of handles and spouts are usually decided by the same method as that explained for the two handles of the pan in the upper problem of this plate. Customarily they both lie in a diameter passing through opposite points of the ellipse of the rim.

Most students, either from ignorance or carelessness, fail to draw faintly the invisible portions of objects, upon the correct form and position of which much else depends. This we see in the upper drawing. Spouts, handles, lids, feet, need especially such thought and care.

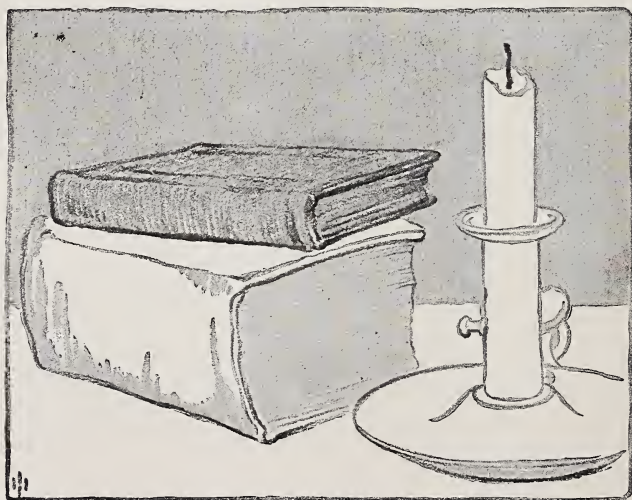
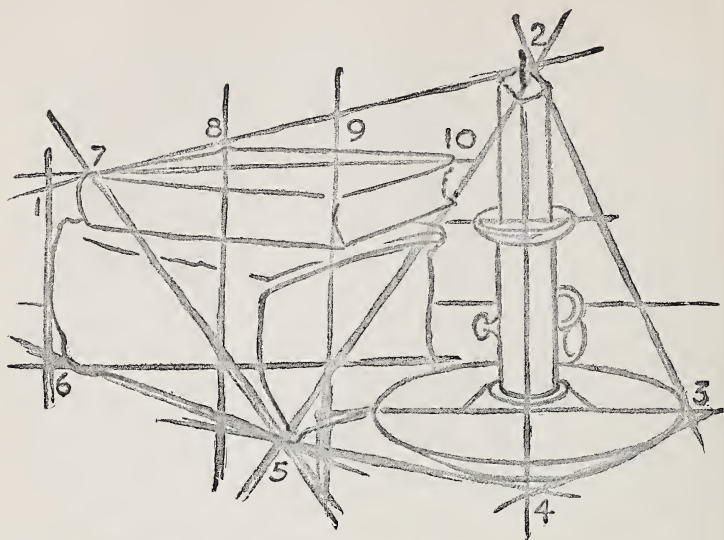


While the value of freehand sketching is here distinctly recognized and its practice urged, another phase or method of perspective rendering may also be tried for more complicated articles with good results.

Those who have worked in architects' or decorators' offices or seen others at work are no doubt familiar with the method of fixing the vanishing points at either end of the horizon line, as laid out on a large board, by means of two tacks or pins firmly driven into the board at the proper places. A long T square or straight edge having the farther end of its ruling edge resting against one of these pins can be moved into any position necessary to draw a required vanishing line. It has to be shifted, of course, to the right or left side of the board to accommodate the direction of the vanishing lines. Vertical lines of any object must remain vertical in perspective. Oblique and curved lines in perspective may be rendered by enclosing them in rectangles. By giving these rectangles their proper form and position in the perspective drawing the irregular lines or forms may be very closely plotted. See bottom of Page 21.

It should be made very clear to a class attempting the use of horizon line and vanishing points that the size of a drawing in comparison with the space between the vanishing points cannot and must not be more than one quarter. A larger size than this is apt to cause unpleasant distortions.

It is not the purpose here to describe or advise all the means employed by architectural draughtsmen for elaborate perspectives. Elaborate methods of measurements, for example, are not advisable where simpler means and approximate results will serve as well. The following, for example, will be found a helpful method in determining the amount of foreshortening of the side of an object in perspective. An ordinary footrule may be held by the pupil in a horizontal position, but retreating at the same angle as the side of the object to be drawn. The apparent perspective length of the ruler in this position may be tested by pencil measurement and a comparison made with the ruler when seen full length. The proportion of diminution thus observed may be applied to all lines retreating at a similar angle in the perspective drawing with very satisfactory results. Vertical proportions are not subject to the distortions of retreating horizontal distances. Although a distant vertical line appears shorter than a near one, its parts retain their correct relative proportions.



METHODS OF LAYING OUT AND COMPLETING A
SIMPLE STILL LIFE GROUP.

Mention has elsewhere been made of the Cross Transparent Drawing Slate. Excellent results come from the use of this article and a thorough trial is advised. See page 10.

In drawing from any object or group the pupil should start with a thoughtful survey of the whole as to relative width and height including the desired background and foreground.

The position of the paper is to be decided and the size of the drawing upon the sheet. These first steps in starting the drawing are so constantly ignored and violated that too great emphasis can hardly be given to them.

The proportion of the whole group is to be indicated lightly and massed in by block forms, using straight lines as boundaries, connecting all exterior corners. The student should imagine the object or group inclosed in a shell or wrapping, which ignores minor depressions but gives all the plain features and positions for comparison.

Unaided visual judgment should always precede mechanical tests. All the usual tests with pencil thread, adjustable card angles and frame openings should be used as necessary. In applying tests they preferably should occur in the following order, during the progress of the drawing:

Whole height compared to whole width.

Comparison of horizontal levels of important points.

Comparison of horizontal distances of important points.

Comparison of vertical relations of important points.

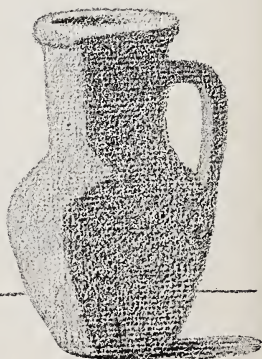
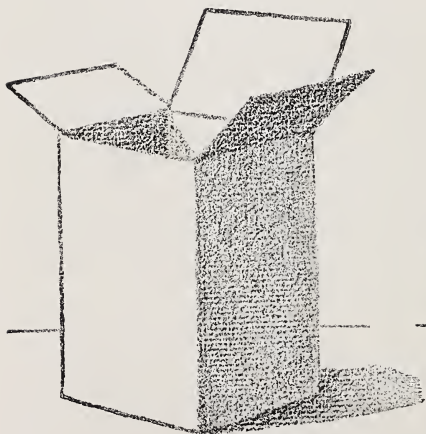
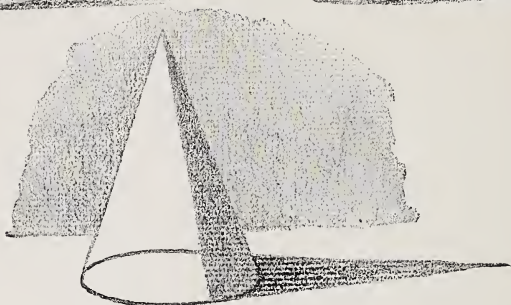
Comparison of vertical distances of important points.

Comparison of oblique and diagonal relations and distances of important points.

Further development of the drawings will bring out the perspective details of each object or part which, if the preceding work has been well checked, will fall into proper position and relation with the adjoining parts.

These tests, carefully applied, together with the use of two straight-edged cards for comparison of angles in perspective (see Tests in Appearance Drawing), should be sufficient for the making of an accurate drawing.

Numerous examples exist elsewhere in the book of various methods of finishing a drawing. Our lower picture here is a good example of pencil technique suggesting light and shade. Part of the picture has been cut off to improve the composition.



The approach to light and shade drawing cannot be made too clear and simple for most pupils.

Choose simple, unglazed common objects of rectangular and cylindrical types, of white or other uniform tone.

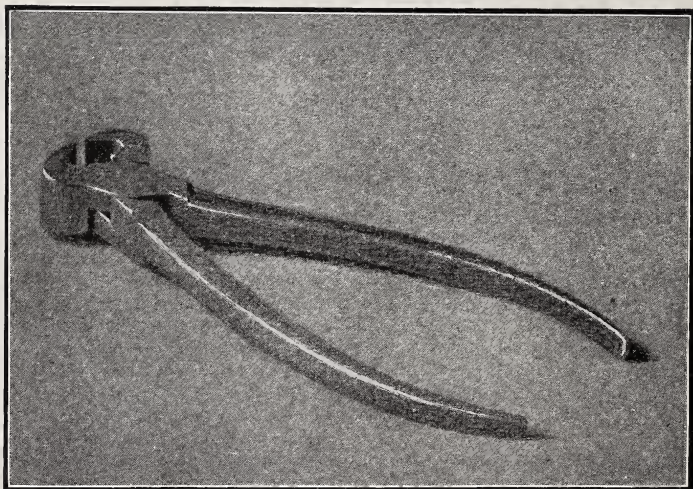
The teacher should make before the class a large drawing of an object or group, similar to that which the class is to draw, using the same materials and methods as is required of them. Do not slight this drawing. A teacher's work should excite emulation and rivalry among the pupils by its excellence.

Put your groups where they can get good lighting. You can't begin study of light and shade with any but a single, direct side light which defines light and shade sides and cast shadow. Rebellious conditions require unusual patience and ingenuity to overcome them.

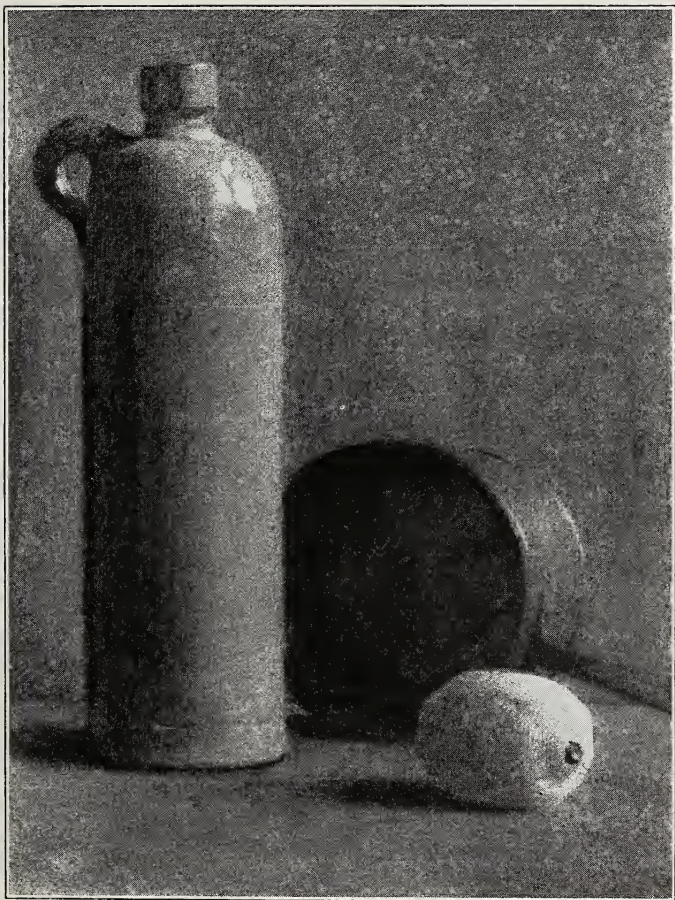
The use of black crayon, such as Dixon's or any other not too waxy or smudgy, kept to a medium point, is excellent on charcoal paper, without rubbing down. Plate 154, 156. Pupils should make all drawings large. Have all early problems such that they can be finished in one sitting.

It is well to get the first plotting of proportion and form of the object with a medium lead pencil, which easily permits of erasure. When correct erase until very faint and go over lightly with crayon. Study carefully the area and form of the shade side and cast shadow and put them in their correct value with the crayon, without rubbing of stump or finger. In early studies avoid background, foreground or other tones except the shade side and cast shadow. The unshaded parts may be defined by lightly accented outlines. Drawings of this type may be done on tinted paper with lights touched in with white. Plate 156, bottom.

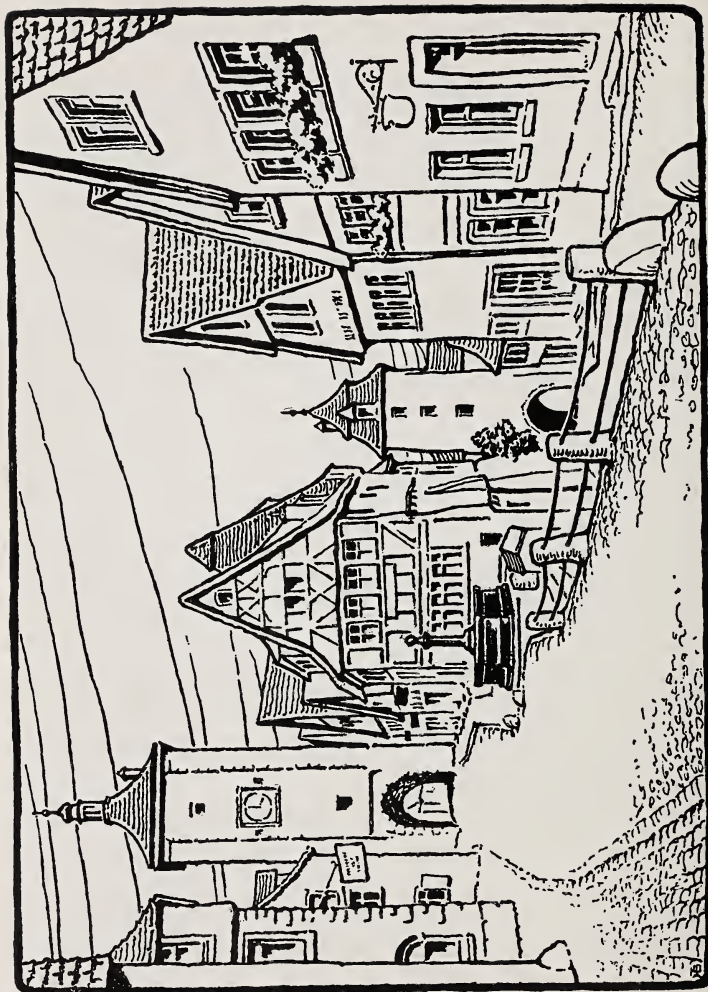
Drawings of a more advanced grade of difficulty should show shading in approximate values of all parts, with background and foreground. Plate 157. These values may be limited to five: white, black, middle, light, and dark. Many students will be assisted by the use of a strip of white paper along whose edge have been applied the values just named. By holding up this paper and comparing with half-closed eyes these values with the parts of the group definite decision as to the necessary tones can be made. Tones should be kept as flat as possible, avoiding all slight variations of modeling. The object of all this study should be the true rendition of facts and not the exhibition of tricky or brilliant technique.



A STILL LIFE IN LIGHT AND SHADE WITH CRAYON POINT.
A DRAWING OF A TOOL ON GRAY PAPER, IN LIGHT AND
SHADE, TOUCHED WITH WHITE.



A STILL LIFE GROUP IN FULL LIGHT AND SHADE VALUES
RENDERED IN CHARCOAL WITHOUT RESTRICTIONS.



LANDSCAPE COMPOSITION

In the accompanying plate we have a view of the ancient German city of Rothenburg. This is one of the most picturesque and fascinating places, preserving unchanged most of its beautiful old buildings and surrounding walls. This drawing is made in accented outline and includes a wider view than good composition should permit. It has been made this way, however, intentionally, to allow the student to select from it a number of good compositions.

Cut in the centre of a piece of cardboard, measuring about 4 x 5 inches, an oblong opening not over $1\frac{1}{4}$ x 2 inches. Use this as a finder card. You may prop up your book, holding the pages with a string, elastic band or clip clothespin, and study the picture as though you were sketching in the city. Move your finder card before you, studying different parts of the picture. Try it nearer and farther from the picture, giving different sized openings. Search carefully until you are sure that your composition includes no more than really helps to make an attractive picture. In this way choose at least four good compositions and draw these considerably larger. Each one of these compositions should then be experimented with in accented outline, flat values or colors.

Try a number of different treatments of the same subject changing in each the scheme dark and light and color. From these choose the best for careful completion.

In the photograph, Plate 160, we have a typical view of a shore with pine trees attractively formed and grouped. The view has many pleasing features but must be simplified to form a picture.

In Plate 161 are a number of compositions all based on this view. Each was selected from Plate 160 by means of the adjustable finder, which was moved over the picture until a pleasing composition suggested itself. The purpose in each has been to concentrate the attention on some especially interesting parts as to line, mass and tones, with satisfactory subordinate parts. Some liberties have been taken as will be noted. In each there is a leading feature of interest which dominates the composition. Here again we have the principle of domination which has been elsewhere reiterated.



PINE TREES AND ROCKS. A PHOTOGRAPH OFFERING
EXCELLENT MATERIAL FOR DECORATIVE USE.



EIGHT COMPOSITIONS DERIVED
FROM PLATE 160



In the three upper sketches are scenes which may be duplicated in general character in almost any city or town. In each of these it is evident that one object dominates the composition in height, a principle which has before been emphasized. Contrasts in shapes, directions of line and in dark and light, are self evident. Trees, either in summer or winter, are important adjuncts to a picture, offering a charm of contrast and variety to the rigid character of buildings.

The middle picture is a typical view of a manufacturing section of almost any city. Ugly buildings of various shapes and sizes crowd the scene, yet under the right conditions of light and atmosphere it can easily provide a number of attractive subjects.

The bottom picture shows one aspect of the remarkable skyline of New York. Such compositions are seen, almost without number, as one sails around the waters enclosing this city. Every change of position offers new and fascinating groupings of towering structures. Many other cities can show interesting "skyscraper" compositions.

Both the middle and the lower picture include more than is desirable in a good composition. It is suggested that several smaller compositions be chosen in each by the use of a small finder card (see page 159), each of which should be developed on a larger scale in varying schemes of light and dark, and color.

Compositions should also be made from subjects found out of doors. There is hardly a place or a group of buildings anywhere which at times will not offer material for a picture. The excuse that one's surroundings are not attractive or picturesque is almost always without basis. Examples without number can be cited where artists have found and depicted beauty in apparently the most barren localities.





A COLOR CIRCLE.

COLOR

The source of color is light. If sunlight is broken into its various parts by passing through some substance as water, or a prism, or by some other method, we have a spectrum, of which the ordinary rainbow is an example. In the spectrum we find the colors from which all other colors are derived. We may call these colors red, yellow, green, blue, purple. These colors are not sharply separated from each other but blend together. These blendings form combinations which we may call red-yellow (orange), yellow-green, green-blue, blue-purple and purple-red. Any color is capable of three different changes. It may change its hue by ceasing to be the same color. It may change its value by becoming darker or lighter. It may change its intensity, brilliancy or "chroma" by becoming more or less grayed.

Any color may be classified as to its hue, value and chroma. If the ten hues which have just been named are made the same chroma and arranged about the circumference of a circle they will appear as in the adjoining plate. The equal mixture of any two opposite colors gives us a neutral gray. This gray we represent by the large central disk. Any color more or less mixed with this neutral gray or with its complementary (its opposite in the circle) causes the color to be grayed or diminished in chroma. The inner circle of lines represents the same colors as those in the outer row with a mixture of gray.

In order to use colors harmoniously we must follow nature's methods. Nature's colors are usually grayed or dulled and we seldom find a pure or brilliant color covering a large surface. Although we are sometimes impressed by very bright colors in nature it will be found that they are used for very short periods of time or in small areas compared to those which are dull or gray. The rule, then, is to use colors which are softened or dulled by mixture with gray or with their opposite colors. If a bright color is used it should cover a smaller surface than that of a dull color in the same picture or design. The brighter the color the smaller the surface it should cover. A very pure or brilliant bright color should cover a very small surface, sometimes appearing merely as small spots, or points. A large area of a dull color will balance a small area of bright color.

The arrangement of the colors on the chart illustrates the principles stated above. Grays and soft-toned colors predominate. Brilliant pure colors occur in comparatively small quantities.

A harmonious color combination may be approximated by following any one of these general rules:

1. Use different values and chromas of one color (self-toned harmony).
2. Use colors lying at opposite ends of any diameter (complementary harmony).
3. Use any three colors adjacent in the circle (analogous harmony).
4. Use a triad chosen from any three balanced arms of the color circle, which form a Y, as purple, yellow and green.
5. Mix a color uniformly with each of the colors of a design (dominant harmony).
6. Black, white, neutral grays and gold combine well with any colors.

It must be remembered that no printing process can insure true color scales. The hues, therefore, in our plate are but approximately correct. It must also be remembered that the rules for color harmonies are at best but general guides and cannot offset a lack of paste. Read carefully pages 202-204, 248-252, 131, 213-226, 266-270.

Much help may be had by cutting holes from a sheet of paper or card (called a mask) which will fit on the color plate and expose only those colors desired for a harmony. Different sample masks of this kind of reduced size are shown in Plate 190. All of the colors seen through any one of these masks need not be used. Other values and chroma of the colors so seen may be used. These masks may be turned to fit any part of the color plate. The color scheme for a design should be limited to the colors seen through one mask. Students and teachers are urged to pursue the study of color beyond the bare suggestions given above.

Acknowledgment and thanks are offered to Mr. Albert H. Munsell for the idea of the circle of ten hues, whose works on color are recommended among the useful books elsewhere listed.

BLOCK PRINTING

On pages 170 and 174 are reproductions of block prints in black and white and in color.

The term block printing comes from the fact that blocks of wood have most often been used for making the impressions. The pictures or designs to be reproduced are drawn upon these blocks of wood. All the blank or white parts of the design are cut away and hollowed out, and all the lines and masses which show in the finished print are left standing.

In the earliest days of printing in Europe, even before movable type was invented, the art of engraving and printing from wooden blocks was practised. With the development of printing this art also progressed. These early wood cuts are not only quaint but in very many cases fine examples of design in line and mass and are treasured in the great print collections. Many great artists like Durer and Holbein depended on wood cuts for reproducing much of their work. The Japanese produced wood block prints in great numbers and of great beauty in the eighteenth and nineteenth centuries. Many of their makers were artists of the highest rank. Japanese color prints are today greatly prized. In recent years there has been a revival of the block print in Europe and America.

Either wood or linoleum may be employed as the material on which the picture is cut. If wood is desired any kind possessing a smooth grain free from knots is good. The engraving is made on the flat side of the board, which should be thick enough to resist warping.

Linoleum is such an excellent substitute for wood that its use is strongly recommended here.

Drawings: In the accompanying examples two types of block prints are shown. In one, the drawing is made in strong black outlines and masses, either alone, or in conjunction with color. In the other the shapes of the flat colors are given by the whites lines or spaces which surround them. Drawings for either type of print must be boldly conceived and executed. All but the most vital details must be discarded.

Preparing linoleum: The best quality linoleum is necessary, of plain color, one quarter inch thick. A piece for printing should measure at least an inch and a half larger on each edge than the

outside limits of the drawing to be cut, thus a drawing 4 x 6 inches would require a piece of linoleum at least 7 x 9 inches. The linoleum is apt to be rolled when bought. This curve must be flattened by gentle heating until the linoleum can be placed under pressure over night. Cold linoleum becomes hard and brittle, is difficult to cut and will easily crack. When flat it is advisable to fasten the linoleum to a piece of heavy wall board by small brads along the edges, whose heads must not project above the surface. Gluing to builder's board is equally permissible.

In the case of a print showing black and color, two similar pieces of linoleum must be prepared. The one for the black impression is known as the key block. For black prints only, or prints with a white outline, one piece suffices. For greater clearness in transferring the drawing and cutting, it is advisable, though not necessary, to paint the surface of the linoleum white with a thin coat of quick drying oil paint.

Tracing: The drawing to be cut must be very accurately traced on strong tracing paper. The tracing paper should be cut to fit the size of the linoleum block. The tracing may be made in black drawing ink or sharp pencil. The exact shape and width of every line must be drawn with patient care. The tracing paper should be fastened over the drawing with thumb tacks while tracing.

Register or Tally Marks: These are very important guides so that each sheet may fall exactly in its proper place and receive any printing after the first, correctly. For prints in black only or color prints with a white outline such marks are unnecessary. After many trials with small notches or other marks at the edges of the block and on the paper, in the effort to get accurate printing, the following is recommended. In the upper right corner of your tracing paper margin, one-half inch in and one inch down, make a small X. Push a pin through this X, so that it stands up in the drawing board. Lay a ruler against this pin, extending it slanting across the tracing to the lower left corner. Where it crosses the lower margin draw a clear, straight line along the ruler. This gives you a pin hole at the upper right and a slanting line in the lower left corner of your tracing paper margin.

Transferring: The tracing paper must be laid on the linoleum face down, otherwise the print will be reversed when made. The edges should fit the linoleum and be pinned to the top or side margin with thumb tacks. The register marks will be reversed, of course. A pin should be pricked through the pinhole in the X, and the corner



1. Accurate tracing from original drawing, with register marks in corners.



2. Tracing reversed and fastened to block by thumb tacks. Pin in X. Lower corner creased up showing slanting register mark, which is scratched into block. Paper is shown slightly smaller than block.



3. Block after cutting. All white parts are hollowed out. All printing parts are left standing. A margin space about $\frac{3}{4}$ " wide, is hollowed out. Note X and slanting register marks.



4. Sheet of paper on block ready for printing. Pin locates upper register mark. Lower corner is creased over and slanting line on block marked on paper. Upper edge of paper then fastened with tacks. Paper is shown slightly smaller than block.

METHOD OF TRANSFERRING AND REGISTERING.

of the tracing carefully raised and a small circle marked around this pinhole on the linoleum to identify it. The slanting line in the opposite corner should be also accurately traced, and clearly scratched into the linoleum with the knife point to avoid possible erasure. Then should follow all the rest of the tracing. Ordinary carbon transfer paper usually is satisfactory. Some kinds, however, fail to make a mark on the linoleum. In this case one must make a sheet of transfer paper by blackening the surface of a thin sheet of unglazed paper with charcoal, rubbing it in thoroughly with a paper stump or the thumb. A transfer made with this charcoal paper, however, will smudge, and must be sprayed with fixatif before it can be handled. Needless to say, the more careful the tracing the better chance there is for accurate cutting of the drawing. The tracing paper, pinned only at the top or along one side, can be carefully raised to see the progress made. When finished, remove the tracing paper and, if in charcoal, spray the tracing on the linoleum with fixatif.



BLOCK PRINTS OF BUILDINGS
AND LANDSCAPE, BLACK ONLY,
BLACK AND COLOR, COLOR ONLY.

Tools: For cutting the block, a knife and two chisels are needed. Any knife having a strong but rather thin pointed blade, of good steel, is suitable. The chisels are those used for wood carving. They should be V- and U-shaped at their ends, and measure approximately one-eighth and one-fourth inch across their openings. Another chisel or two of different shapes may later be found useful as needs dictate. All cutting tools must be of best steel and kept very sharp. An oil stone must be constantly used. The correct way to sharpen these tools must be learned from some manual training teacher or expert wood worker.

Cutting: The linoleum is held on a drawing board or table by some kind of clamp. The knife is held nearly vertical. The outside edges of every line of the drawing on the block must be accurately followed by the knife, which should slant outward away from the line being cut. The knife or the V-shaped chisel is then used to cut away the linoleum from the lines and masses, leaving them standing free. With the V- and U-shaped chisels all empty spaces may now be cut away. The larger the space, the deeper it must be hollowed out.

In the case of a print intended to show white outlines only, the greatest care must be used in cutting these narrow grooves accurately around the forms as needed. The knife point or the V chisel can be used.

The space outside the drawing should be hollowed out from one-half to three-fourths of an inch all around, leaving however the pinhole at the top corner and a $\frac{3}{4}$ inch margin uncut. It will soon be found that the wearing of glove fingers is necessary if blisters due to the pressure of tools are to be avoided.

Inking: This is done with ordinary printers' ink which may be bought by the can or tube. The latter is far cleaner in handling. A blank piece of linoleum makes a good inking pad or surface. A hand ink roller, called by printers a "brayer," is necessary. Inquire of your local printer where such supplies can be bought. Both pad, ink and roller work better when slightly warm. Great caution must be taken, however, as a trifle too much heat will melt the roller out of shape. A roller has even been ruined by being left too long in the sun.

Ink is applied to the pad in several dabs from the can by a palette knife, or direct from a tube. It is then rolled out by the "brayer" until flat. The ink must not be thicker than necessary. The proper consistency can be determined only by experiment.

More ink must be supplied to the pad as the printing proceeds. Inking the block is explained later.

Ink should not remain over night on pad or roller. Dried ink will ruin the latter. Benzine, gasoline or kerosene are the best cleaners. Turpentine will answer. Scrape off all the ink possible from the pad with a palette knife. Run the roller also over a newspaper a couple of times. Now place a little of your cleaning fluid on the pad and run your roller back and forth over it. Lay a clean piece of newspaper down on the pad and run your roller over it, thus blotting up all liquid on pad and roller. Repeat this moistening of pad, rolling and blotting, until pad and roller are clean. This is quickly done with the least possible soiling of the hands.

Paper: The best paper for block prints is of Japanese make. The Japan Paper Company, 109 East 31st St., New York City, is a good place to procure it, from which firm samples and prices can no doubt be had. Other makes of paper can also be used. Dull finished paper is preferable. Thick and rough papers are to be avoided. Paper should be examined for blemishes before cutting any sheets.

Printing: As many perfect sheets of paper as desired should be cut the size of the outside edge of the block, or a trifle larger. When these are placed in a small even pile a strong pin can be pushed through all to locate the pinhole register mark. The sheets should then be turned face down and each pin hole on the back surrounded by a small pencil circle as a guide.

A sheet of paper is laid face down on the block, a pin is put through the pinhole and pushed into the pinhole in the block and left standing. The sheet is then made to fit the margins as near as possible, and fastened down by three thumb tacks along the top or side margin. The lower corner, covering the slanting register mark, may be creased sharply over to see it clearly and its location accurately marked on the crease.

In inking the block the sheet is laid back as far as possible. The ink roller is run across the ink pad several times and then across the block in two or three directions until every portion of the printing surface is well and evenly covered. If the margin of the block becomes inked it must be cleaned. The paper may now be turned down again onto the block and carefully smoothed with the hand. It then has to be rubbed with greater pressure. The best thing that has been found for this purpose is a toothbrush handle, using the

convex side to rub with. The bristles should be cut off. By careful rubbing, the ink is transferred to the paper sharp and clear. Usually the picture is clearly indicated through on the back. The paper can be lifted, however, to observe progress. Sometimes it is necessary to apply more ink to the block should any part of the print appear faint. Great care must be taken to avoid the slightest movement of the paper, and any stretching or tearing in the rubbing. When a clear fine black print is made, the paper is removed from the block. Other plain black prints are similarly made. If color is desired, however, that has to be printed before the black, as described below. A group of prints with tissue sheets between can be hung up to dry with clip clothes pins. Drying can be quickly accomplished by pressing with a hot iron, protecting each print with a clean sheet of thin paper.

Color block: For color printing in conjunction with a black or key block, a separate block is needed. This block must retain as raised surfaces all those parts which were cut away on the black block and show white on the black print. This means that we must have a very accurate transfer to go by. To obtain this we take the second duplicate piece of linoleum mentioned under that heading and a clear new black print as made above, with the ink fresh. Lay this print face down on the new linoleum block accurately and fasten with thumb tacks. Locate your pin hole and register marks at the two farthest corners so that they show clearly on the linoleum. Scratch in the slanting mark. Now rub the back of this print very carefully with the tooth brush handle, avoiding any slipping of the paper. The black ink will be clearly transferred giving an accurate duplicate of the print on the linoleum. This must be allowed to dry. In the cutting of this color block the blacks are the parts to be removed. Small details and the thinner lines, however, should not be cut away. It is wise also to leave a thin edge of black standing around all the transferred forms. The color shapes thus will be a little larger than the spaces they are to fill, so that the blacks may be sure to touch them on all sides and leave no accidental gaps.

Color Printing: Colors must be printed before the blacks in any print. The paper must be laid face down on the color block with its pin hole and slanting line correctly registered and marked. Three drawing tacks in the margin fasten it to the block. The paper is then turned back and the paint applied to the color block.

Tube oil colors are used. They can be thinned if necessary with turpentine, but this should be used sparingly as it is apt to spread



BLOCK PRINTS OF FLOWERS
BLACK ONLY, BLACK AND COLOR,
COLOR ONLY.

and stain the paper. The oil colors are painted thinly on the desired sections of the color block and the paper turned down and rubbed with the finger or thumb only. If the color is insufficient there may be more impressions. A small portion only of the block is printed at a time. The paper may be lifted as often as desired if care is taken not to move it from its fastenings on the margin. The grooves must not become filled with paint. Color printing pursues the same method whether for the white line color print or for one which is to be followed by a black impression. In the latter case the color print, *when dry*, should be registered on the black key block by the pin hole method and a black printing made upon the color.

In placing any sheet upon any block already painted or inked, it is necessary first to lay a thin paper upon the block to prevent soiling the paper to be printed. When the sheet is registered and tacked to the margin this thin paper may be withdrawn.

Color blocks should be cleaned by a bristle oil painting brush dipped in turpentine. All grooves and hollows should be thoroughly freed of color. The block is then wiped dry with a rag.

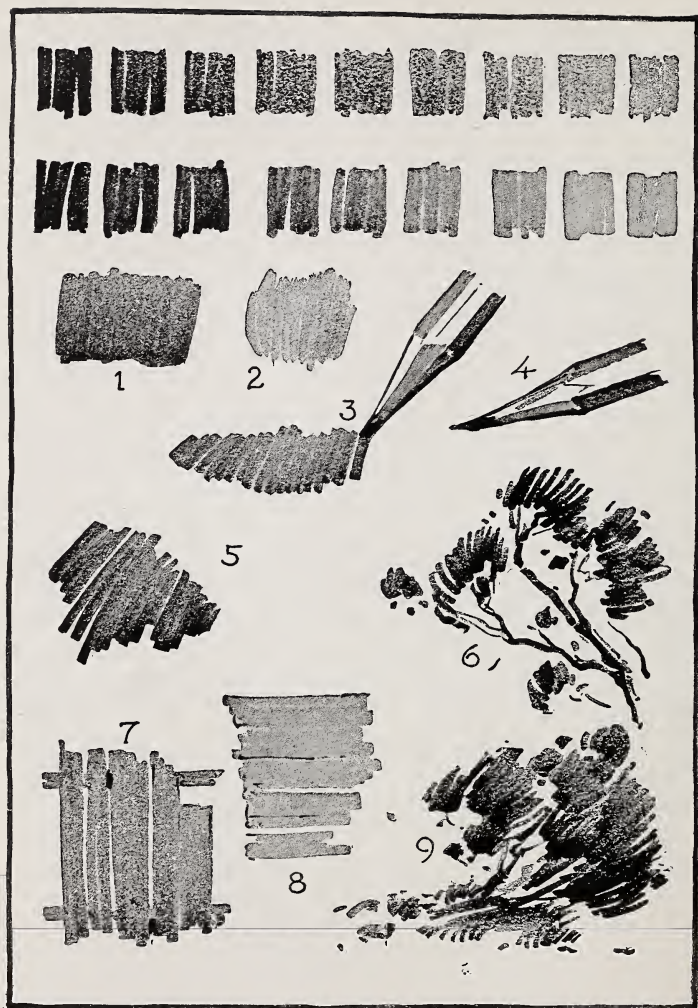
Other methods: More complicated processes than these described are used by many block printers. The use of several blocks, one for each color impression, is a common practice. In such cases the impressions often overlap each other to produce new and elaborate effects. Block prints can be produced with the old fashioned Franklin type printing press or on an etching press. The processes here described, however, produce equally good results and an unlimited variety of effects with the simplest equipment.

The Japanese method of blockprinting in water colors is also followed by many.

Textiles and other surfaces may be decorated with linoleum which should be glued to wooden blocks. The designs are drawn and cut as before described, but register marks are unnecessary. All hollows should be deeply dug out.

The fabric must be carefully arranged as described under stencilling, page 8. Pins can indicate the location of the block repeats.

Oil colors are the best, used as dry as possible. The blocks are painted as desired, placed accurately face down on the fabric and pressed very firmly. Frequently they need to be tapped with a mallet. Two or more blocks may be used in combination. Printers inks can be employed instead of or with oil colors.



SUGGESTIONS FOR THE HANDLING OF
THE PENCIL IN TONE WORK.

PENCIL TECHNIQUE

ERNEST W. WATSON

A pencil sketch must first of all be interesting. It must sparkle. It must be jolly and refreshing in its crisp, direct handling. This quality in a pencil drawing depends upon contrast. Contrast is to a sketch what seasoning is to food. It gives taste. Without striking contrasts of dark and light tones, the illustrations of this chapter would not be attractive.

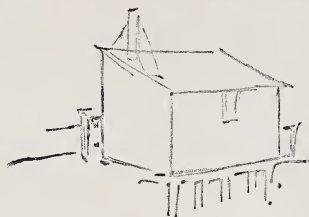
In order to obtain effective contrasts of value, pencils of varying degrees of hardness are desirable. A hard pencil will not make the darkest tones required in the sketch. Any tone may be secured with a very soft pencil as the upper tone scale on page 166 shows. It will be seen, however, that in this scale the lightest tones, all of which were made with the same soft pencil, are unpleasant. They have a mealy or woolly texture such as charcoal or crayon would give. Usually this is an undesirable quality in a pencil drawing. How much more pleasant are the corresponding light tones of the scale underneath! They were made with harder pencils and of course, with greater pressure. Good quality of pencil tone depends upon pressure, which must be great enough to bite into, or smooth out, the surface of the paper. Three pencils, hard, medium, and soft, were used for the various tones of this second scale. They are sufficient for all ordinary work.

Obviously the kind of paper has much to do with the quality of the pencil tones. Paper with too rough a surface will give poor results, for a woolly effect cannot be avoided. Neither is glazed paper suitable. Paper with a slight roughness, or tooth, is best. There should be several sheets of paper between the drawing and the drawing board, to give the elastic surface essential for free, spontaneous work.

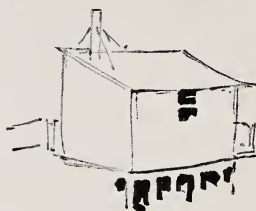
For all work in mass, the point should be worked down to a flat surface on a scrap of paper so that the stroke will be as wide as is possible with the pencil in a natural writing position (Fig. 3). The position illustrated at Fig. 4 is not conducive to vigorous work. Moreover the point is liable to break when pressure is applied.

Every stroke should begin and end abruptly as in Fig. 3.

Strokes of this character are seen in Figs. 7 and 8 which give suggestions for rendering vertical and horizontal boarding. The soft, fur-like effect resulting from a lighter pressure at the ends of



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the strokes (Fig. 2) should be avoided. Definiteness and a crisp touch is the aim. Strokes laid down with a quick, jerky movement have a brilliancy usually lacking in those more deliberately drawn. Such a treatment of the foliage (Figs. 6 and 9) gives it vigor. This is a matter of skill and must be acquired by practice.

In the most pleasing tones some of the strokes are run together and others are separated slightly from the mass by sharp, thin accents of untouched paper (Fig. 5). How much fresher is a tone thus made than one in which all of the strokes blend in a smooth, flat mass (Fig. 1). As the tones in the sketches on the various pages are studied, it will be clear that the accents of white paper, frequently left between strokes, gives a brilliancy which otherwise would be lacking. Working over freshly drawn tones covers up these white accents and spoils the effect. If a serious error be made in the sketch, it is better to start again rather than to erase or try to patch it up.

As a general rule, the strokes should follow the structural lines of the object rendered. Thus the placing of the straw covering upon the bottle (Fig. 17) suggests a vertical direction and the neck of the bottle is naturally treated with strokes in harmony with its length. In the drawing of the onion (Fig. 16) and of the tomatoes (Fig. 18), the growth lines directed the placing of the strokes.

The arrangement of strokes in the drawing of the preserve jar (Fig. 18), is a natural one. The treatment of buildings is determined by their horizontal or vertical boarding. Whenever the structure of the object does not clearly dictate the method of rendering, the student must experiment until a pleasing one is found. A diagonal direction of stroke is natural for most persons. Such a stroke is used in the drawing of the jug (Fig. 20). Unlike the bottle with the straw covering, this object does not suggest any particular direction. The diagonal treatment is pleasing and a slight curvature of the strokes near the curved outlines suggests the form nicely.

The chapter begins with emphasis upon contrast as the first requirement of a pencil sketch. It has been noted that the brilliant sparkle which is so delightful, is the result of a fine combination of light and dark values.

Objects for sketching, therefore, should be selected with this matter of contrast in mind, and those which give opportunity for a striking combination of light and dark tones can be most effectively treated. Thus the jug (Fig. 20) with the splendid dark pattern is much more attractive in a sketch than one without such a decora-



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tion would be. The bottle (Fig. 17), the preserve jar with the tomatoes (Fig. 18) and the swan (Fig. 19) are good subjects because of their interesting contrast of values.

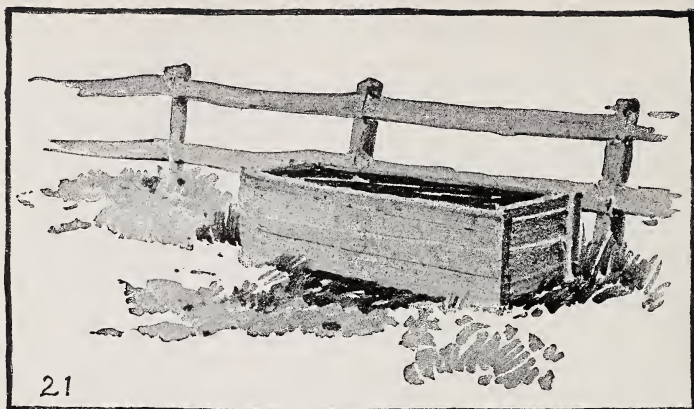
The beginner is inclined to treat white or very light colored objects in outline, believing that the white paper best expresses their value. This is sometimes advisable. But a spray of white flowers appears darker than a piece of white paper used as a background. Rendering them with a light tone gives an appearance of substance that is lacking in an outline drawing, and their light value is adequately represented by the contrast of the dark leafage (Fig. 15). The glistening white onion is likewise effective when rendered with a light gray tone (Fig. 16). The tone, in this instance, gives an opportunity for expressing the high light, which is important in the suggestion of texture. The dark touches on the stem and root emphasize the light value of the skin. It is interesting to note how well the thin, brittle texture of the skin is represented by the sharp, and black lines, which also indicate the growth lines. This character of line may be used effectively in rendering glass or objects with a glazed surface.

OUTDOOR SKETCHING

Much pleasure and considerable perplexity are sure to be found in the first sally upon nature with sketchbook and pencils. Previous work indoors, from objects or from photographs, may have developed skill, but when confronted by all out doors, the selection of the subject, the arrangement of the composition, and the manner of treatment seem like new problems.

The beginner's drawings usually include too much, are too spread out, and contain unnecessary detail. They have the same fault as the first written compositions which are wordy and indirect. The sketch must be the very essence of interest. There should be no detail in it which could have been omitted without serious loss of charm. The simpler the subject the better. A lone tree, rendered with vigor is apt to be more delightful than a whole landscape, a simple old farm shed more stimulating than an entire group of buildings. The watering trough with a bit of fence (Fig. 21) is more satisfying than it would be if much of the surrounding landscape were shown. The tent sketch (Fig. 22) is good in its restricted selection. Put as little into the drawing as is necessary for a bright, spirited, impression.

Beware of making a photographic likeness of nature. The camera reproduces everything, whether interesting or not. The



artist should do better than the camera. He should single out the object of greatest interest and emphasize its beauty by omitting all else which does not enhance it.

A series of sketches on page 168 illustrates the method of drawing from nature. The old fish house having been selected as a subject, its outline was drawn lightly as in Fig. 10. The darkest spots were next added with the soft pencil (Fig. 11). The presence of the darkest value at the start is important. It helps determine the values of the lighter tones added later, each tone being compared with it.

The importance of striking contrasts of values in a sketch should be kept in mind from the start, and the darkest touches should be as nearly black as possible.

The third step in the drawing of the fish house was the placing of the dark gray shadow tone on the left side with a medium pencil (Fig. 12). This shadow was made darkest at the near edge and gradually lighter toward the far edge, giving a true perspective effect. This perspective of a shadow tone is illustrated even more clearly in the tent sketch (Fig. 22).

The lightest tones were next drawn and the building itself finished (Fig. 13).

Up to this point all of the attention was given to the treatment of the building, because that is the important thing in the sketch. All else centers around it.

The drawing was then made to spread out and grow around was added. A foreground and a suggestion of distance was deemed necessary and these details were drawn with a few direct strokes. the building as a center of interest. The boat with its reflections

Every sketch should have a center of interest, a spot which attracts and holds the attention and which is emphasized by the subordination of every other part. The interest will be seen to center upon the poplar tree in the landscape on page 174. Its strong dark mass together with that of the clump of bushes at its base dominates the whole composition. The other details are made of less importance by their lighter treatment. A dark spot invariably attracts. The center of interest should therefore be strong in rich dark accents and in contrasts of light and dark. The strongest darks should be confined to the center of interest, for, if distributed over the sketch, the interest will be scattered.

In selecting outdoor subjects, contrast, which, throughout the chapter has been so much emphasized, should be kept constantly in mind. Without it the sketch usually will be monotonous and uninter-



A BRIGHT, SPIRITED IMPRESSION OF NATURE, NOT
A LITERAL INTERPRETATION IS DESIRABLE.

esting. Contrast may be found either in strong light and shadow, as in the tent (Fig. 22) and the fish house (Fig. 14) or in color values, as in the drawing of the poplar tree (page 174).

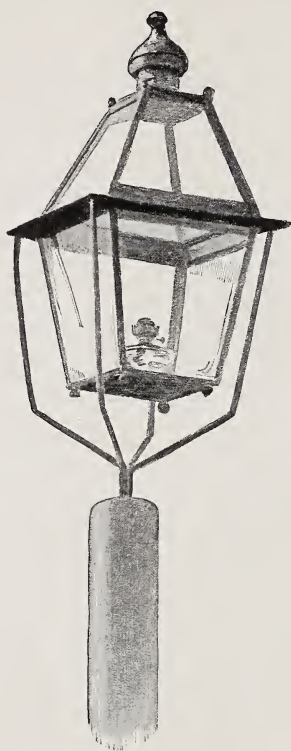
The tent and fish house depend entirely upon the sunlight for their charm, for the sunlight and shadow give the strong contrast of light and dark. The poplar tree, on the other hand, depends not upon light and shade, for there is no light and shade expressed in the sketch, but upon the beauty of the contrasting color values, the very dark foliage of the poplar, the white branches and the light gray of distant foliage and of the foreground. Outdoor subjects are most interesting on a sunny day for the play of light and shade upon any object usually enhances its beauty.

A factor which has much to do with success in outdoor work is the size of the sketch. The first ones should be made very small, as small as the sketches of the tent and water trough (Figs. 21 and 22). Such a size prevents too much attention to details. Since a quick, spirited impression rather than a labored detail drawing is desired, this is a wholesome restriction. Another advantage of the small sketch is the short time required in its making. It is far better to make five or six small drawings in a half day than to make one or two large ones.

The size of the drawings may be gradually increased with practice and skill, but it is well to remember that the pencil is not a medium adapted to covering large surfaces and that the size of a drawing should be governed by the medium employed.

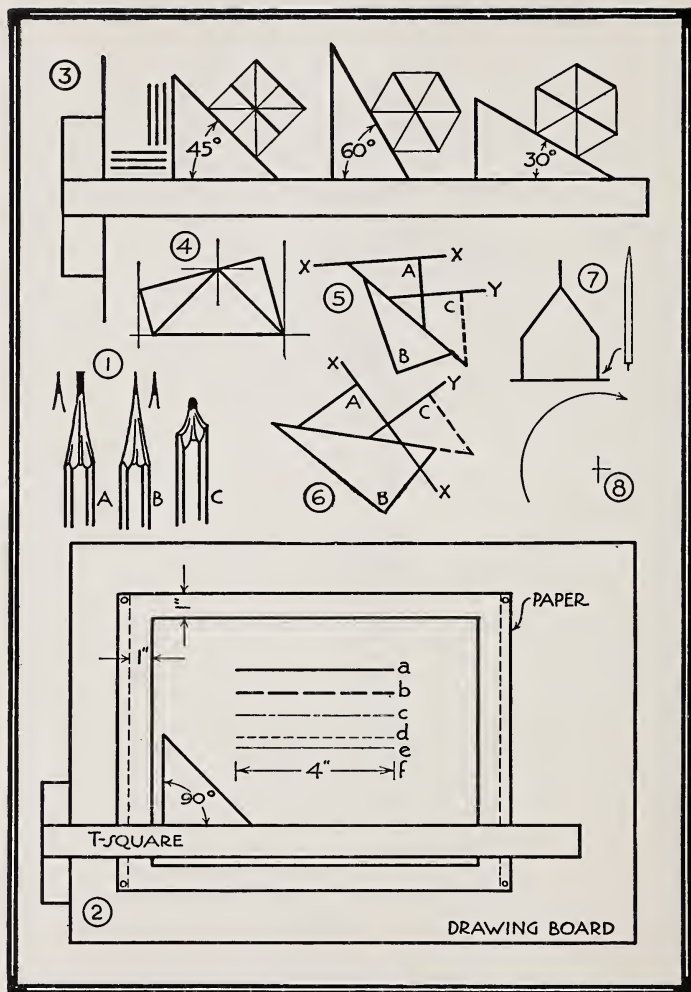
While brilliancy and crisp accent have been brought to the fore in this chapter, it would be wrong to leave the impression that no good pencil drawings have been or can be made in any other way. Artists innumerable in many different countries and periods have produced beautiful pencil drawings in which their ideals have found expression, sometimes in quiet tones of unaccented greys, sometimes in outlines slightly shaded, sometimes with values carefully and fully rendered. In the last analysis it depends upon the clear intention and technical skill of the artist. Hazy, indefinite ideas; lack of knowledge and observation; little skill with the tools required; all these together spell failure in any production. Know exactly what to do.

The two drawings which follow suggest proper uses of the pencil in studies where snap and sparkle are not the prime features desired. A careful study of each object has been made with the thought of rendering with care its distinct and detailed characteristics without losing the desirable elements of fresh directness.



•H.B. •
OLD LAMP-POST
EDGARTOWN
•MASS. •





DIAGRAMS ILLUSTRATING THE USES OF TOOLS
AND MATERIALS IN MECHANICAL DRAWING.

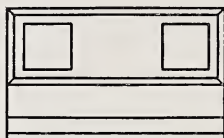
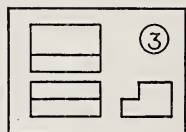
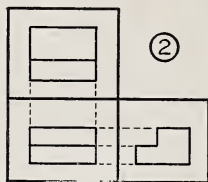
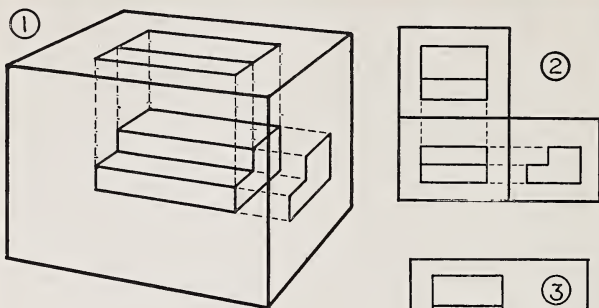
For Mechanical Drawing you are provided with such materials as are in common use by draftsmen the world over. These consist of a drawing board with perfect edges; a T-square; two triangles; a carefully graduated ruler or "scale" as it is called, with which all measurements are made, including those needed in making drawings at less than actual size; a box of instruments including compasses, ruling pen, dividers or "spacers," etc.; a very hard pencil for the accurate construction of the drawing and a medium pencil for lettering. Of course thumb tacks, erasers and suitable paper must be at hand, and for later work, drawing ink. The pencils should be kept carefully pointed as at A and B, Figure 1, never as at C. The hard pencil may have a "chisel" point as at A or like the medium pencil, may have a tapering point as at B.

The T-square is used to draw all horizontal lines, the pencil following the upper edge. Its head should be held firmly against the left side of the board. This is shown in 2 and 3, which also illustrate another use of the T-square, that is, as a support for the triangles when they are used. Each triangle has one right angle (90 degrees). One has two angles of 45 degrees and the other has one of 30 degrees and one of 60 degrees. Figure 3 shows clearly how useful are the triangles in enabling one to draw lines at various angles to the horizontal. By combining the triangles, with the T-square as a base (see 4), angles of 15 and 75 degrees may be constructed.

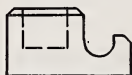
Figure 5 gives a convenient method of drawing a line parallel to a given line and 6 gives a method of drawing a line perpendicular to a given line. In each case let X-X be the given line. Place a triangle, A, to coincide with it. Set a second triangle, B, against one edge of A and hold it firmly. Slide A to any desired position, as C, when the required line, Y, may be drawn.

When about to draw a circle, bend the legs of the compasses at the joints, as in Diagram 7, so that the ends are perpendicular to the paper, and rotate in the direction taken by the hands of the clock, 8.

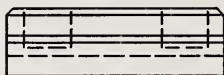
Study 2 carefully. Your paper probably measures 11 inches by 15 inches. Leave a half inch strip at each end. Place the thumb tacks through these and when the drawing is completed, trim the strips off. Leave a one-inch marginal space, drawing the margin lines with T-square and triangle. The various types of lines shown will be explained on another page.



TOP VIEW

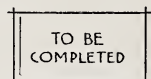


LEFT SIDE V.

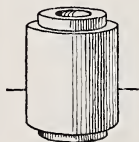


FRONT VIEW

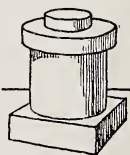
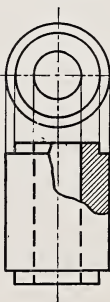
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RIGHT SIDE V.



⑤



⑥

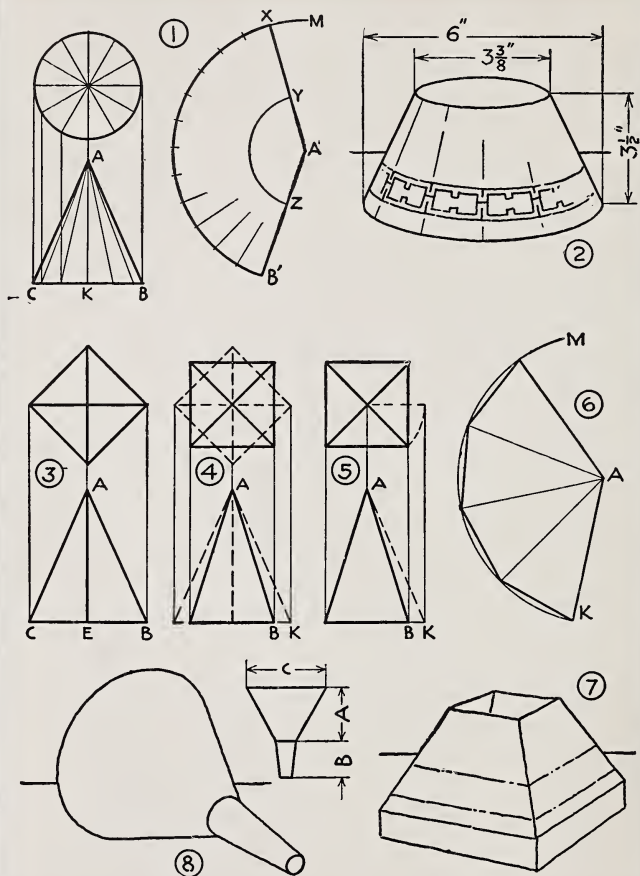
A "sketch" presents the general appearance of an object. A "working drawing" gives accurately all the facts regarding the shape, sizes and construction, so that from it a workman can build the box, the chair, the piece of machinery, or whatever it may be. Three views are usually given, front view, top view and side view, but for some objects two are sufficient, while others require several more. The proper arrangement for these on the paper, will be understood by studying Diagrams 1, 2 and 3. Imagine the object to be enclosed, 1, in a glass box or one which you can easily make, with sides of wire screen. Standing first directly in front, then at the side and then above, the different views may be seen and, if desirable, traced with crayon on the sides of the box. They should be drawn as though "projected" by lines from the various points of the object to the plane of the side of the box, and at right angles to it. In the example given, 1, the drawing of the front view has been omitted for the sake of clearness.

Now imagine the top and side of the box to be revolved into the plane of the front, 2. (If hinges have been provided, this can be actually done.) You now see the arrangement of views, 2, to be adopted in making the drawing on paper, 3. Note carefully: Three dimensions are shown, height, width (across the front), and depth (from front to back). Which dimensions are shown in the front view? Top view? Side view? The front and side views correspond in what series of dimensions? Front and top views? Top and side views? What would the left side view be like?

At 4 is given a working drawing of an inkstand. The sketch of one end may help you to understand it. Try making a full sized drawing of such an inkstand and see if you can "project," by means of your T-square and triangle, the corresponding lines and points from one view to another. You will find that you can save a great deal of time and make accurate drawings in this way. Complete the right side view? Try an original inkstand.

5 and 6 show working drawings of two cylindrical objects. How are they alike? How different? Why are no side views shown?

In order to understand the "conventional" lines used, refer to Diagram 2 on the preceding page. Line a is used to represent the visible edges of objects; b is used to represent existing but invisible lines of objects; c denotes a center line; d and e are forms of connecting lines, projection lines or working lines, as they are variously called; and f illustrates the manner of showing a dimension on a drawing. Make original working drawings.



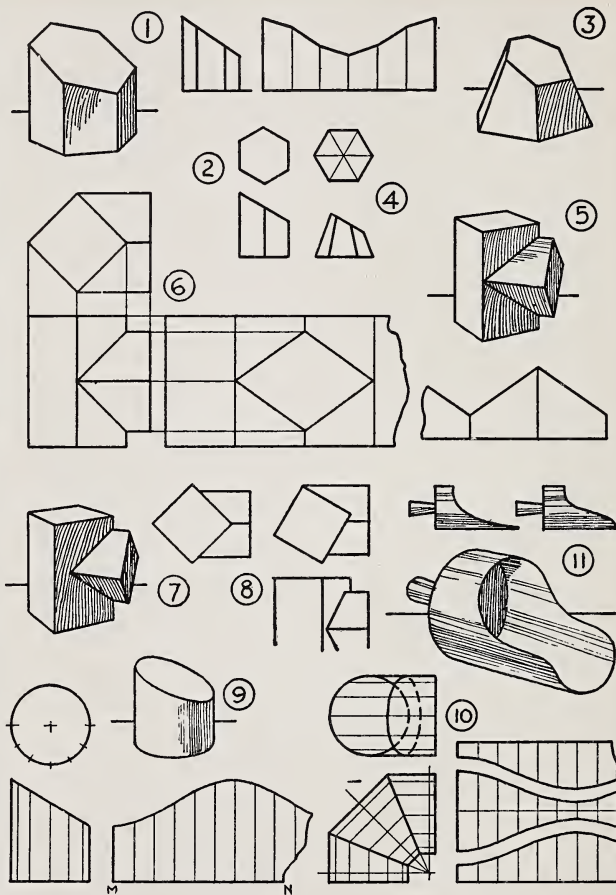
Will figure A'B'X in 1, if cut out, rolled and fastened, form a true cone? Try it and see. Make a working drawing first, of the size desired. Front and top views only are needed. Note that the actual surface dimension from apex to base, of such a cone, can not be taken as line AK on the drawing, for that is foreshortened. AB or AC give the true slant height and must be used on the pattern as the radius for laying out arc B'M from center A'. Now divide the base, as shown in the top view, into a convenient number of equal parts. Take a space on your dividers equal to one of these and apply it a corresponding number of times on arc B'M, which has been drawn indefinite in length. So B'X equals the circumference of the base. When lines A'B' and A'X have been drawn, the pattern is complete. This is called "developing the surface" of the cone.

If an arc YZ were to be drawn and the pattern cut along that line, the resulting shape, when rolled, would be the frustrum of a cone. It would be necessary to construct such a pattern in order to make a candle shade shown at 2. Make the working drawing first, as before. When this is completed and the pattern started, do you see how you must secure the measurement corresponding to A'Z of 1? Place a border design on the developed surface, making use of lines which may be drawn from A' to the division points on the base line. Can you reproduce this design, correctly foreshortened, on the front view? On the top view?

To develop the surface of a square pyramid: AB or AC in 3 must be taken as the true slant height to be used as the radius for laying out the pattern, 6. Why not AE? Suppose the original position were as at 4. AB is now foreshortened and must be revolved to the position AK before the true slant height can be determined. Compare with 3. Figure 5 shows the method usually employed, one in which unnecessary lines have been omitted. Use AK as the radius for KM in 6. Set off the base measurement four times and draw lines to complete the pattern.

Make a working drawing of a lamp shade, 7, one-half full size (if advantageous). A design may be applied to each side if desired. This must first be studied out upon the developed surface and then properly shown, foreshortened in front and top views.

Develop patterns for a funnel, 8, following these dimensions: A is $2\frac{1}{2}$ inches, B is 2 inches, C is 4 inches, and the top and bottom diameters of the small end are 1 inch and $\frac{1}{2}$ inch respectively. These exercises show how necessary patterns are.



SECTIONS AND INTERSECTIONS OF OBJECTS AND
THE DEVELOPMENT OF THEIR SURFACES.

Study the many different patterns which a tinsmith uses. He must not only know how to "develop" all sorts of surfaces, but be able to make accurate allowances for seams and joints and to cut his material most economically. The objects shown on the opposite page are typical of the problems he meets. 1 is a truncated hexagonal prism. Make a working drawing, front, top and right side views, and develop the surface. 2 shows another hexagonal prism but cut with a different section. Develop the surface. In a similar manner, work out problems as suggested by 3 and 4. Complete the top views of the truncated pyramids.

Figure 5 indicates in sketch form two square prisms, equal in cross section, and intersecting at right angles. Make front and top views as indicated, 6, and develop the surfaces. In 7 is suggested a similar problem except that one prism is smaller than the other. A more difficult problem is indicated at 8. Here the upright prism has been altered in position as is shown by the top view. Work out several other problems, using the intersecting prisms in various positions and of various sizes, developing the surfaces in each case.

Figure 9 represents in sketch form a truncated cylinder, the sectional surface of which is a true ellipse. Draw the front and top views as suggested. Develop the surface by drawing base line MN indefinitely and laying off upon it a series of spaces corresponding in size and number to previously made divisions of the top view, which represents the circumference of the cylinder. Project lines from the top view, establishing vertical divisions on the front view. Erect vertical lines on MN representing these divisions. Measure the heights of these lines in turn on corresponding lines of the front view (or project from the front view). Draw a curve, freehand, through the points determining the heights, and true up this curve with an "irregular curve ruler," if you are provided with one.

If the section through the cylinder has been made at an angle of 45 degrees to the axis, the form resulting could be taken to represent one piece of a two-part elbow such as may be seen in stovepipes. A three-part elbow is shown at 10 with the surfaces developed.

Using the explanation made for 9, make a working drawing and develop the surface of a grocer's scoop, 11. Use one of the forms suggested or examine a scoop at your grocer's and duplicate that. Try designing other profiles for the front view.

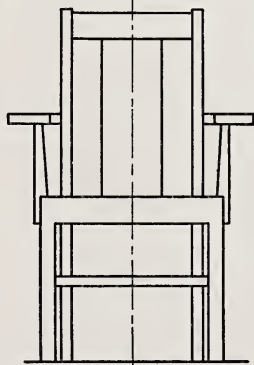
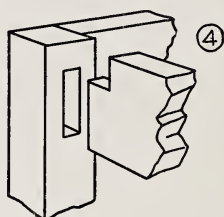
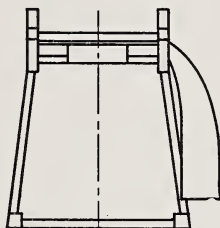
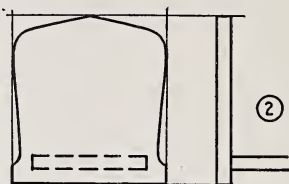
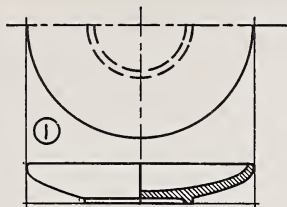


A screw thread is a form of the inclined plane. If you refer to the sketch, 1, on the opposite page, you will see how a piece of paper may be cut to represent an inclined plane. Wrapped around a pencil, this gives a good illustration of a screw thread. Try this experiment. Now hold the pencil directly in front of your eye and you can perhaps detect that the lines made across the pencil by the slanting edges of the paper are not straight, but slightly curved. This curve is called the "helix," and the drawing, 2, shows how it may be accurately worked out. The helix is sometimes described as the path traced by a point which moves with uniform speed around and along a cylindrical form. The vertical distance traversed is called the "pitch." You will see that as the point advances through 1-12 of the pitch, it will go 1-12 of the distance around the cylinder. Its location may then be found by establishing any number of corresponding divisions in top and front views and carrying projection lines from the top to the front view. Succeeding locations may be found and the entire path shown by a curved line passing through these points.

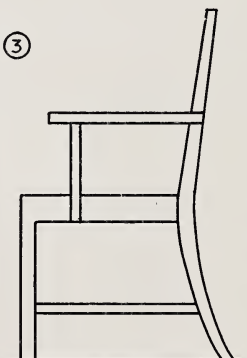
A screw thread would be represented by two series of such curves, 3, one representing the "top" of the thread and one the "root." Note the pitch. This must always be divided into the same number of equal parts as is established on the circumference of the corresponding circle in the top view.

It is seldom advisable for draftsmen to work out these curves in machine drawing. Time is saved by representing them in some conventional way as in 4 and 5. Commonly the angles made by the sides of a thread are of 60 degrees. These may be shown as in 4, or omitted as in 5. The cross lines in both cases are straight instead of curved. You should refer to some good book on mechanics for tables giving the proportions of the threads on various kinds of bolts and screws, and the number of threads per inch for each size. You will also find tables of proportions for the heads and nuts of bolts. The drawing, 6, shows two bolts worked out according to the following formula: $D = \text{diameter of bolt}$. $W = 1\frac{1}{2}D + \frac{1}{8} \text{ inch}$. $T = \frac{3}{4}D + \frac{1}{16} \text{ inch}$. The thickness of the nut is somewhat more, being just equal to D .

The drawing at the bottom of the page gives two views of a three-inch pipe "T." Work these out, one-half full size, and show the top view. As it is always best to establish the circular parts of objects first, the side or end view should be drawn first in this case, after allowing space for the front view.



③



⑤

When preparing drawings of objects which you will make in the Manual Training class, several practice drawings should be made, so that you can develop a design which is truly artistic and perfectly possible of construction. Drawing 1 is of a tray which may be turned out of wood on a lathe. Give great care to the designing of the profile in the front view. One-half of this view should be shown in section, to indicate the depth of the hollowed portions. The book rack, 2, offers interesting possibilities in the matter of design.

After you have made several working drawings of smaller objects, you will be ready to attempt the drawing of tables, chairs and other pieces of furniture. Before making a drawing of an arm chair, 3, it would be wise to try one without arms. Measure three or four comfortable and good looking chairs, so that you will know the general proportions to follow. In the top view of 3, the arm has been omitted on one side so as to show more clearly the shape of the seat. Note in the side view, that the legs extend farther back than the top of the back. They are so shown in the top view. The drawing of the back in the top view, is an interesting problem in foreshortening. To determine accurately the amount of this, measurements must be taken on some horizontal line in the side view, say at the seat level, and spaced from some established point, as the extreme front.

It is often advisable to include in such a set of drawings, enlarged details of some portions of the construction. These are often shown in perspective as at 4. Such perspective drawing in connection with working drawings is excellent training, and the ability to make them quickly and neatly should be developed. Try making a perspective sketch of some object in the room, placing measurements upon it and then lay out an accurate working drawing from your sketch. Draftsmen must often follow this procedure in their work. Sometimes the sketch, instead of being in perspective, is a freehand working drawing.

With experience you will be able to include certain refinements in your designs, as for instance, the tapering leg and "spade foot" as indicated at 5. Make careful study of refined, dignified furniture which you may see in museums or in the best shops of your city. The old English or Colonial furniture is nearly always well worth study. Compare the simplicity, good proportion and harmony of line exhibited in such examples, with the meaningless forms found on so much of the cheap furniture of today.

COSTUME

ESTELLE PEEL IZOR

It is a truism that any training that fits a girl to make harmonious, economic, and in every way wise selection of the innumerable common things which her daily life compels her to use, is a training that is greatly to be desired. In no phase of her life is a girl more constantly under the necessity of applying Art principles to daily needs than in the matter of costume. The art course which succeeds in fixing in the student's mind the fundamental relation between economy, adaptation, and artistic harmony has given her an asset for life the value of which cannot be overestimated.

The principles that underlie the designing of a dress are as old as Art itself, and must endure as long as Art endures, regardless of the instability of mere style. For this reason, no course in dress-making in school is complete or educationally sound which does not depend on the principles of Art for guidance and for final judgment. It is the purpose of this chapter to discuss, from the art side alone, a correlation of art and dressmaking in which the aim is not to give a professional training, but to give to girls a wide range of experience to the end of developing art appreciation of aesthetic and economic differences in quality, and a discriminating knowledge of what constitutes beauty in line, form, color and design.

GOOD SPACING APPLIED TO WEARING APPAREL

- A. Striped Materials.
- B. Plaids.
- C. Space Divisions in Dress.

Good spacing is the first fundamental requirement of good taste in dress. The principles of good spacing will be applied, first, to the grouping of parallel lines in materials suited for wearing apparel; second, to the use of good space divisions in the design of dress—proper.

The reason for choosing the project of space divisions in striped material is that it is the simplest form of design and enables the designer to become acquainted with and to use the principles of good spacing. As in mathematics, so in the study of costume, reading and seeing alone will not enable a designer to develop good judgment of fine proportion. It is through the actual *doing* combined with intelligent seeing and reading that the designer attains a work-

ing knowledge of good space divisions and a discriminating taste.

The grouping of a few parallel lines with intervening spaces is very simple. The designer restricted to parallel lines alone has unlimited opportunity for securing variety in expressing good spacing, in tone, in color, and in texture. The purpose of the material must govern the character of the design. Beautiful designs may be found in many kinds of striped materials, such as the gaily colored, bold stripes of awning for sea-side summer hotel; the more subdued stripes in a horseblanket; or the stripes of mellow color of a Venetian sail boat. All may have a charm and a beauty of their own and fitted to their purpose. But the purpose of this problem is to design a striped material suitable for wearing apparel only. Such materials as wash silks, cottons, linens, and various wools for winter or summer wear, give ample opportunity for designs in modest and inconspicuous stripes, or broad, self-asserting stripes; stripes quiet and retiring or bold and conspicuous, suited for the home, for morning or evening dress, or for office, school or church, for golf or the sea-side.

All these designs may vary in width of lines and spaces, in tone and color.

The principles which it is necessary to consider in good spacing, are:

Emphasis	{ Dominance Subordination Accent
Repetition	{ Linear Bilateral
Alternation	{ In Position In Size In Tone-Value
Harmony	{ Unity Interrelation Likeness Similarity

Every unit must possess a leading or dominant idea, which may be expressed through shape, size, or group of elements, or through tone or color of some part of the unit.

The dominant idea or line, as in this case, must be clearly evident, must attract attention, and other lines and spaces must be subordinated.



FIGURE 1.

Equal divisions in lines and intervening spaces can never produce beauty. They have no art value, and when spread over yards of material they become monotonous and confused. There should be variety in the width of lines, and the intervening spaces should in no way repeat the width of lines. A successful unit will always



FIGURE 2.

have one dominant element or emphasis. All other elements should be subordinated to this.

Repeating lines and spaces, or repeating rows of units across a surface of material introduces the principle of repetition. Repetition occurs in many forms. We shall consider two only; namely, linear and bilateral. Repeating a unit gives enrichment and brings in a new set of space relationships.

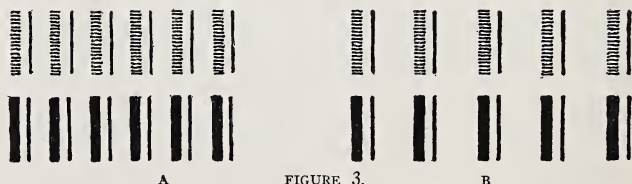


FIGURE 3.

When the spaces between units is the same or nearly the same as the size of the unit, as in (A), the design is in danger of being monotonous. If the spaces are several times the width of the unit the appearance is much more pleasing. (B) Beauty will result from a careful, thoughtful choice of unequal division in units and in space between units.

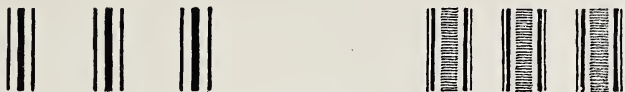


FIGURE 4.

Bilateral repetition means the same form on two sides.



FIGURE 5.

Another working principle that may be helpful is alternation. This principle may come through alternating units varying in size, in position, or in tone value.

Few or many lines and spaces may be employed to produce a unit, but each line must have its own place in the harmony of the whole. If a line or tone asserts itself to the detriment of others, or if all lines are of equal importance, there is danger of failure to achieve harmony in the whole design.

How far to go and where to stop is the problem of the designer.

The designer must not lose sight of the texture of the fabric he is designing nor of the process of its weave. Harmony results in the unity of all parts. There must be a likeness with a difference in which spaces and lines are neither too crowded nor too empty—a difference not too great, nor too startling, each part in its right place and each having some characteristic in common with all other parts.

PROJECT:

1. Make a series of units of design for striped material, using the principles of dominance and subordination. Emphasis may be in width of line, in tone or in color.
2. Choose the best unit and repeat over a small surface using linear or bilateral repetition.
3. Make a design for striped material using principles of repetition and alternation.

OPPOSITION

Another principle which the student of costume needs to know is that of opposition, or the breaking of a space in two directions such as is found in plaid materials. The meeting of lines at right angles gives the strongest contrast that can be produced. The beauty of good spacing in a plaid lies in an unequal division of the elements, lines and spaces, in both horizontal and vertical positions.

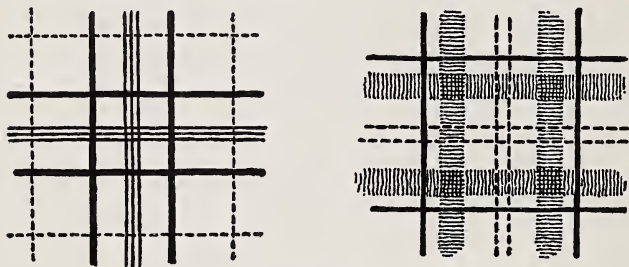


FIGURE 6.

The student proceeds as in making a unit for striped materials. A group of lines and spaces is chosen, well regulated, expressing carefully considered widths in lines and space. This same group of lines and spaces is used in two directions so that they are at right angles with each other, forming the plaid. The resulting design demonstrates the principle of opposition. The main lines of a plaid running horizontally and vertically, cut the design into smaller divisions. The width of the lines varying with the width of the space between and their relationship to the field or background, largely determine the beauty of the unit.

Emphasis is an important factor in securing the beauty of a plaid. The emphasis of a particular part may come through the accent of a line, or a group of lines, or through tone or color. Sometimes a design suffers from want of emphasis. By throwing the emphasis upon another part, the same design may be given different effect and expression.

The regular repetition of the same width of lines and spaces as found in checked materials produces monotony; whereas not enough repetition leaves a design empty and meagre. The beauty of a plaid

lies in the good spacing, in the well-balanced arrangements of unequal divisions of the elements—lines, spaces, tone, and color.

The purpose for which the material is to be used governs the design. An abundance of beautiful modern examples of plaids, in silk, wool, and cotton, pleasing in proportions differing in design, weave, and color can be secured and used to illustrate good design. A book on historic plaid—"Scottish Clans and Their Tartans" will be helpful in a class room.

Problem: 1. Make designs for a plaid material on 9" x 12" drawing paper with a lead pencil. Indicate values and weave as one page.

2. Trace the best-spaced design, and trace lightly on a colored-cover paper (neutral).

3. Use colored crayons to express color value weave, and the design.

AN APPLICATION OF PRINCIPLES OF ART TO DRESS

How do the designers of costume apply these principles of art—emphasis, repetition, opposition, rhythm (movement) balance (equilibrium),—to dress?

Secure a number of fashion plates, fashion magazines, and style books and bring to the classroom. These books may be of any date. They may be long out of date, many years old, or they may be up-to-date style-books. It will be more interesting and illuminating to have a collection of magazines covering a period of many years. Let each student look through one book carefully, with one thought in mind. Where is the emphasis placed in this gown? Is it placed in the center of the chest, or around the neck? Did the designer place the emphasis on the sleeves or in the skirt or at the waist line? Is it an emphasis of line, or an emphasis of form or shape? An emphasis of tone or of color? Where do you find the emphasis used in the same material as dress proper, and where does it come by use of other material? Are the designer's forms of emphasis, commonplace and ordinary, or are they distinctive and full of character?

Where has the designer used the principles of repetition, and how? Has he broken the main structural lines into equal divisions producing monotony? Or has he employed a rhythmical repetition which contributes charm and variety? What has he repeated? A line, a form, a shape or a surface, tone, color or a material? Is his

bilateral repetition more distinctive than his linear, or vice versa?

Where are the lines of opposition? Do lines of opposition add dignity and formality to the dress? Does the opposition come in character of materials, in textures, in strong designs, in fabric contrasts, or in opposition of tone and color?

Note well, that the principles of art have not changed through the ages. It is the individual's use of the principles that change. It is ignorance and unconscious violation of the principles that makes caricatures of costumes—that creates the ridiculous and inharmonious. Good use of principles of art in costume has produced beauty throughout all ages.

The student who designs, makes or wears dresses, as well as the student who buys ready-to-wear dresses needs to analyze these principles of design in their application to dress.

PROJECT:

1. Trace a lay figure.
2. Design a simple morning dress with the emphasis in center front.
Let the repetition come in subordinate parts.
3. Design a dress with emphasis in the sleeves, or in the skirt.

SUITABILITY OF LINE TO THE FIGURE

Before entering definitely upon the study of dress, the student must study the human form. The lines of the figure have great bearing upon what may be worn becomingly. In order to use the styles of today to best advantage let the student study her own figure, for each figure has its own individuality.

There are three general types of figures; the normal, the stout, and the slender. The two latter may be divided into many classes. There is the short heavy figure, and the tall heavy figure. They may have either a short waist with long legs, or a long waist line with short legs. There is the stout figure with full hips; also the stout figure with full bust and more slender hips. The stout figure usually has a short, thick neck and broad square shoulders, very plump short arms and legs tapering to small shapely hands and feet. Every portion of such a body expresses breadth and circumference.

The slender type may be very short, or medium height or very

tall. No matter what the height, invariably such a figure is angular, with long slender head and neck, sloping shoulders, with no bust or hips in evidence. This figure is very straight, slender, and shapeless. Every line expresses height.

Not only is it necessary to distinguish the proportion, size, and character of the figure, but also its carriage; i. e., the manner in which it stands, moves, or sits. Sometimes the tall, hollow-chested, slender girl stoops or slouches, thinking in her sensitiveness to hide her height. Certain slender girls stand with one hip dropped just like a horse asleep; whereas others stand sway-backed with the abdomen much in evidence. Some are angular and awkward in movement, others are graceful and willowy. The stout girl is frequently just as careless in her carriage, leaning forward, waddling like a duck as she walks, shifting her weight from one foot to another with seeming effort. It should be the duty of every girl who wishes to appear to advantage to be careful about the manner in which she carries her figure be it tall or short, heavy or slender. The perfect figure, stout, slender, or normal, stands erect, holding the body as tall as possible, with chest out, shoulders thrown back and hips back resting the weight of the body well forward on the ball of the foot. Girls should practice standing erect and upright. They should cultivate an elastic, bouyant step, and graceful movements. Any girl can make herself more attractive if she learns her own figure and its movements; learns her good and bad points in order that she may develop the possibilities of the good and correct the bad. Study, observation, and determination to achieve, will help a girl to gain more grace in movement and better lines in dress; for good lines in dress require correct carriage of the body.

In choosing lines for a dress it is necessary to know the fundamental principles of horizontal and vertical lines. There is a law of art as old as Art itself, that vertical lines wherever used always emphasize height, and horizontal lines express width and breadth. The application of this principle of lines is unfailing in its results whether in painting, architecture, or costume.

If in her ignorance the stout girl, whether tall or short, who already expresses circumference and breadth, chooses horizontal lines in skirt or blouse, sleeves, etc., she will appear stouter and broader than she really is. If she insists upon wearing tiers of flounces or bands, and selects skirts with shirred godets trimmed horizontally, or flared skirts with cascade of lace or georgette; if she uses wide double hertha collars, full flaring bolero jackets, or

cape coats, or coats with dolman sleeves—need she wonder why she appears to have taken on extra weight? All the dieting, exercising, or massaging in the world will not change her appearance so long as she uses horizontal lines. The stout person needs to use every vertical line that will emphasize her height and apparently decrease her width. Clinging dresses hung from the shoulder, close-fitting coats, small, tall hats trimmed vertically will exaggerate her height. Long lines, quiet colors, and unbroken silhouettes will be her salvation.

An analysis of the slender girl shows her requirements to be exactly the opposite of those of the stout girl. She needs to emphasize every line in her costume that will increase her breadth. She must avoid vertical divisions in the structural lines in dress and all materials striped vertically. She may wear admirably the ruffles, bands, and flounces that her stout sister may not wear. The cascades at under side gore of skirts—the godets, deep collars, broad belts, bolero jackets, and full sleeves will all take from her extreme slenderness and add the necessary breadth. The broad, low hats trimmed horizontally, full or flared coats will increase her breadth and break the angular or awkward contour of her figure. It is ignorance of the principles underlying the use of lines in dress that makes the stout and the slender appear ridiculous. The lines in the fashion plate are not wrong. The fault lies solely in the ignorant choice of the wearer. Let the student decide what “line” in dress she can wear becomingly, then hold to that line regardless of fads, fancy, or changing styles.

PROJECT:

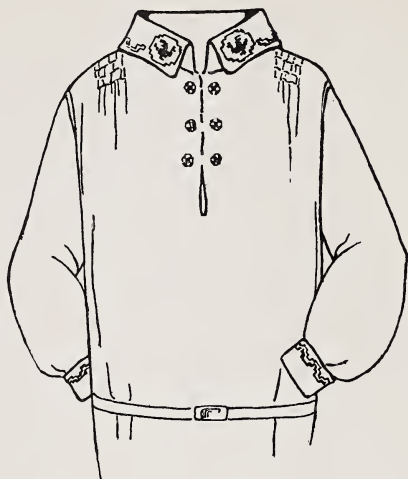
- I. Observe throughout the day.
 - A. All costumes that violate principle of line.
 - B. All costumes that are chosen in obedience to principle of line.
- II. Draw a stout figure.
 - A. Dress stout figure incorrectly.
 - B. Design a dress for this figure with correct lines, and tell why they are correct.
- III. Draw a slender figure.
 - A. Dress the figure incorrectly.
 - B. Design a dress for this figure with correct lines, and tell why they are correct.

SOURCE OF DESIGN

There are many sources of design to which the student may turn for assistance in designing a garment. One may turn to Nature for motives. Butterflies, moths, birds, flowers, etc., will furnish ample suggestions for design; suggestions in line, form, and color. The student of experience who has learned to think clearly in terms of line, form, tone and color, can work freely from an abstract idea, which may be stimulated by imagination and invention. Or the designer of costumes may turn solely to historic costume for the main lines, forms and colors of her design. Any one of these sources of design may furnish ample suggestions and assistance in study of costume. But these motives will only suggest. The student needs to use the knowledge of design she has been acquiring in previous lessons.

After the lines of the whole garment have been settled, the student's problem will be the designing and accentuating by decoration of such parts of the costume as seem most appropriate. Let us take for example a simple problem of collar and sleeve details and follow the steps in developing a design. All design begins with an idea which the designer hopes eventually to make into an article both useful and beautiful. The idea for this problem starts with a single thought—collar, for the sleeve only repeats in a smaller proportion the character, shape, and size of the collar. The designer formulates at once a group of ideas centering about the main one. She thinks of the collar as an appropriate part of the dress or suit with which it is to be worn. A number of motives in the design for a collar present themselves as do many kinds and colors of materials out of which it may be made.

The designer will begin in an orderly way. She will consider first the purpose of the collar for this will determine the choice of materials. Both will influence the style and character of the design. The purpose of all collars may be three-fold, to soften the neck line, to reflect light into the face of the wearer, or to serve as an accent or decoration to the dress. As each type of dress requires a special kind of collar, it will be necessary to select a collar shape and material with great care. Each year manufacturers produce a great wealth of beautiful fabrics. The designer has ample opportunity to express individuality, originality, good taste and to be distinctive in her choice of color, texture, and fabric. The true designer works with one thought in mind, *The Beauty of the Whole*.



At the very outset, the student will need to know certain conditions of the problem:

- (A) Know the type of dress on which the collar and cuff will be worn.
- (B) Secure accurate measurements of the size of the neck as well as the "line" or shape of neck of the dress on which it will be worn.
- (C) Know the length and the angle of the slope of the shoulders of the dress.
- (D) Know where the opening is to be placed.

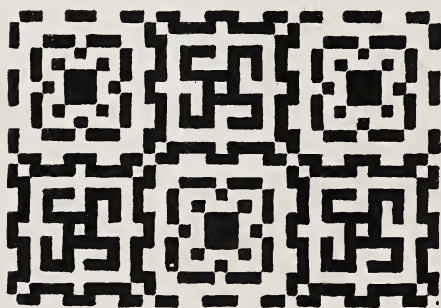
Having this definite data at hand, the student can proceed with the development of the design.

Innumerable suggestions may be gained by the student from the costumes of the historic periods of all countries. A great charm also attaches to the more direct and simple, though not less beautiful garments of the peasants of various lands. In this limitless field of ideas therefore, we can look for our inspiration. The student designer should have access to sets of books, charts, and pictures of historic and peasant costume, and become thoroughly familiar with the prominent lines of each period. One thought should be present in her mind as she looks through this material. What dominant or main lines in the costume suggest structural lines for a collar? The student needs a goodly share of common sense, imagination, and invention to do this intelligently. For example: A Russian or Balkan peasant costume may be taken as a source of suggestion for our problem.

The student designer may proceed as follows:

- (A) Choose the main lines from a historic plate.
- (B) Determine the general form of the collar and its approximate width and length.
- (C) Make a blocking in sketch which will show the shape, the length, and the style of the collar.
- (D) Decide upon the essential structural elements, the shape of the neck, such as shoulder seams, and where to place the opening, etc.
- (E) Make the lines in the drawing as descriptive as possible.
- (F) Define the main lines boldly.

The aim should be to express clearly and understandingly, the general appearance of the collar. The sleeve will repeat the character, shape and style of the collar in a smaller, simpler form. Common sense must be used in choosing the lines and styles suited



to the materials that are to be used.

The student must make constant observations, and repeated experiments, adapting the main lines to the purpose of the collar in a logical and consistent way. Careful study must be given to each line and form, and to the part it contributes to the completeness and beauty of the whole. Many motives can be found capable of arousing latent ideas, and of giving the imagination exercise.

COLOR

An important factor in the study of Costume Design is the use of color. The student needs to have a broad knowledge of color and color harmonies which will give her a knowledge of color combinations that can be worn. There are many ways to study color. A student may become familiar with color by daily association of various color combinations by observation of nature's distribution and proportion of color, in the study of color as used by old masters, or as employed in oriental rugs, or in Japanese prints. But it is essential that the student have some knowledge of color nomenclature, the six fundamentals and their intermediates, the three color qualities, in order that the student may produce color harmonies that can be worn.

There are three primaries from which other colors are derived, red, blue, and yellow. By combining any of the two primaries we secure secondaries, which are known as orange, violet, and green. By mixing any primary with its neighboring secondary we have first intermediates, which are, yellow-orange (YO), orange-red (OR), red-violet (RV), blue-violet (BV), blue-green (BG), yellow-green (YG). To carry this nomenclature farther, the first intermediate mixed with its adjacent neighbor (primary or secondary) produces a second intermediate, as follows:

YO mixed with Y produces YOY—yellow-orange-yellow.
OY mixed with O produces OYO—orange-yellow-orange
OR mixed with O produces ORO—orange-red-orange
OR mixed with R produces ROR—red-orange-red
RV mixed with R produces RVR—red-violet-red
RV mixed with V produces VRV—violet-red-violet
BV mixed with V produces VBV—violet-blue-violet
BV mixed with B produces BVB—blue-violet-blue
BG mixed with B produces BGB—blue-green-blue
BG mixed with G produces GBG—green-blue-green



YG mixed with G produces GYG—green-yellow-green
YG mixed with Y produces YGY—yellow-green-yellow

If these twenty-four colors are not produced by paint in the class room, secure them in colored papers or hand painted charts. The important point is that the student have a visual knowledge of the colors.

Colors that are complementary stand opposite each other on the color wheel. To find the complementary color of yellow, for example, remove the yellow and mix the two remaining primaries R and B. You will have violet, which is the complementary of Y. The student should become familiar with the complementaries of all the 24 colors.

Orange is the warmest color, and blue the complementary of orange is the coolest color. Any color that has orange in its composition is considered a warm color. Any color that has a dominance of blue in it is known as a cool color. Luminous colors are those that reflect a great amount of light and are found on the color wheel running through the yellows, orange and reds. They are sometimes called asserting colors. Somber or retiring colors reflect little or no light and will be found on the opposite side of the color wheel and ranging through greens, blue greens, blues, and violets. Luminous colors will make a person appear larger while somber or retiring colors seem to decrease the size.

Color has three qualities; hue, value, and intensity. Hue is the name or kind of a color, that quality by which we distinguish one color from an entirely different one, such as, R, B, and Y or distinguish the different colors of the same family, as, R, RV, RRV, VRV. There are many hues in the family of reds as well as in the families of blue, violets, yellow, green, and orange. We must know them by their names.

Value is the amount of light or dark in a color, that quality by which we distinguish a light color from a dark one. There are nine values in a neutral value scale which runs from white to black. They are known as white, W; high light, HL; light, L; low light, LL; middle, M; high dark, HD; dark, D; low dark, LD; and black, B. The values above middle are called tints; those below middle are known as shades. The Japanese are skilled in producing values. It is said that some of their rare block prints show as many as twenty-five values. The student in Costume will do well if she can produce and distinguish clearly nine values. Each of the twenty-four hues we have just learned, has nine values. If possible, have in the class

room charts showing all the hues in their nine values that the student may become thoroughly acquainted with color.

Intensity is the purity or strength of a color, that quality by which we distinguish a brilliant color from a dull one of the same value, or intensity runs from brilliancy to dullness or neutral on the same value. The student needs to see and become acquainted with all the intensities of each of the nine values of each hue. In learning this, it is not necessary for the student to produce these hues, values and intensities with water color paints. This knowledge can be gained by proper use of colored or toned papers, or by the hand-painted accurately-colored charts that are on the market at reasonable prices.

It is vital that the student know hue, value and intensity; for a wise choice in selection of dress materials and colors will depend on this knowledge.

A little child one time defined harmony as,—“when all the voices sing together as one voice,”—a remarkable definition. So with color; a color harmony is produced when all colors “sing” together as one color. It is an agreement between the parts, a combination of colors into a triad, giving unity and contrast to form a completed whole.

There are five harmonies we need to know; the monochromatic, the complementary, the analogous, the perfected, and the contrasting. The monochromatic is a one color harmony of two or more values of one hue differing in intensities. As three consecutive tones on the piano (c. d. e.) will not produce a harmony so three consecutive values in one color will not produce a harmony. Harmony will depend upon a contrast of values in the one color. Violent extremes in value are not harmonious. There should be an interval of one or more values in a monochromatic harmony. This harmony is not essentially distinctive. It must be borne in mind that the study of harmony must be directly applicable to dress and that the final test will be an affirmative answer to the questions, “Is it beautiful?” “Could you wear it?”

A complementary harmony is a two color harmony of extreme opposites, which are composed of colors directly opposite each other on the color wheel. Complementary colors can never be used in their full intensity in large quantities. Reduce the intensity of one or perhaps both and secure a contrast in values, a small quantity of pure intensity of one hue, say RO, with a large quantity of BG after the BG has been reduced slightly in intensity. A comple-

mentary harmony gives a fine opportunity to balance color, i.e., warm and cool colors, light and dark, luminous and somber, brilliant and dull. The charm of this harmony lies in the richness and brilliancy of its contrasts a "reconciliation of differences." It is a glowing harmony.

An analogous harmony is a harmony of adjacent or neighboring hues. It is a harmony of many hues on the same value and intensity; for example, light or low light, values of V, VBV, VB, BVB, BBG, BG of about the same intensities. It is the most subtle and most beautiful of all the harmonies.

The perfected harmony consists of an analogous harmony, many hues of the same value and intensity, accentuated by a very small quantity of a complementary hue. Take for example the above harmony V, VBV, VB, BBV, BBG, BG at light value and add a small quantity of RO or ROR. This will complete it, producing a perfected harmony.

A contrasting harmony includes any harmony not included in the monochromatic, complementary, analogous or the perfected. In this harmony is found the widest range of color combinations from the most delicate to the richest, from the most sparkling and brilliant to the deepest and dullest, from the most commonplace to the most distinguished.

Effort must be made to develop good judgment and a sense of beauty in producing distinctive harmonies. A costume that is beautiful in color will never blaze with color; in no way will it disturb the eye or offend good taste. While its general effect is that of subdued glow, it may be composed of colors which, though rich and sometimes daring when seen separately, are brought together in such a way that one enhances and enriches the other.

Color sense is gained through observation and experience. In the acquiring of this color sense, formulas alone mean nothing. It requires earnest effort on the part of the student, reinforced and directed by the teacher, to produce distinctive harmonies. An appreciation of finer relations is gained by basing one experience upon another, and continually striving for a finer sense of balance in color values, and for greater beauty and enrichment in color combinations.

When the time allotted to the study of costume is limited, it is not necessary to use paints and to make color charts, color scales, color harmonies, etc., in order that the student may gain a working knowledge of color combinations. This knowledge can be gained more quickly and as thoroughly through the use of colored papers

in all hues, values, and intensities; also by having at the student's disposal a large collection of samples of colored dress materials,—wools, silks, velvets, georgettes, cottons, linens, etc. With these samples the student can work out distinctive color harmonies, illustrating monochromatic, complementary, analogous, the perfected, and contrasting harmonies. Let these color schemes be worked out for different occasions and for different stations in life, especially to fit the modest purse. Let these color schemes be suited for street-wear, sport dresses, for business and school dresses, for the morning frock, for afternoon, dinner, or party gowns. The student may in this way gain a much broader range of color sense and a practical working knowledge of color combinations.

SELF-CRITICISM

If the student is to become a self-respecting, womanly woman, she needs to study herself in the same impersonal way in which she studies any object worthy of her attention. Girls should not be asked to spend more time in thought of dress, but to spend the time ordinarily devoted to the purpose, to a systematic study of self. The danger lies not in too close study, but in an undirected study of self, which may result in false standards with respect to color, quality, and cost. All girls have a degree of taste, a kind of taste, but not necessarily a discriminating one. When left unrestrained and unguided, their choice often causes not only their families but the public to suffer. Human feeling should lead every one to appear neatly and appropriately dressed, for the influence of dress acts upon the person who sees as well as the person who wears it.

Self-criticism is one of the essentials in the study of Costume. The student should study herself critically in the mirror, discovering her height and breadth, the shape and contour of her figure, her defects and her pleasing qualities. She should study analytically the color of her eyes, hair, and complexion, and the character and type of her face and head. She should study herself in the exact manner and spirit that she studies a foreign object; for example, another girl whom she intends to draw. In order to fix her own individuality more firmly in her mind, and because she has further use for the drawings, she should make careful and accurate drawings of herself, both front and back views. She needs to recall the former lesson in drawing, the different types of girls and apply this knowledge to the drawing of herself; for it is her own figure she must

learn to dress—and not a lay figure. Each girl has an individuality of her own which marks her distinctly from all others. It is this individuality, however commonplace or distinctive, that should be studied carefully with a view to securing suitability of line to the figure and of color to the complexion.

COLOR AND COMPLEXION

The beauty of a color should not be considered alone, but in relation to the effect it has upon the person who wears it. Each season brings new hues in dress materials, and blondes and brunettes alike rush for them regardless of the effect that these colors have on the individual complexion. There are many types of blondes as well as of brunettes and each one requires individual consideration in the choice of colors. There is the pink and white blonde, the colorless blonde, the sallow, and the red-haired blonde. There are as many types of brunettes, the genuine brunette, the fair brunette, the sallow, the "nut-brown maid," and the olive, each distinctive in her own way. But the color suited to one type will in no way be suited to another.

The proper choice of color for the individual can be determined by a class-room experiment—by actually applying the dress material against the face of the individual who wishes to wear it. Choose several girls representing as marked types as possible. Try in succession in the presence of the class, the dress materials of various hues, textures, and weaves (cotton, silks, and wool), across the chest and shoulders of the girls. Note the effect each piece of material produces upon the complexion of each girl. You will find that the same color upon the different types of blondes and brunettes will either emphasize or change the color of the eyes, the hair, and the complexion. For example: a piece of cardinal silk or wool, will bring out the pink and white of a fair brunette; and will emphasize the yellow orange in the face of the genuine brunette; whereas, some blondes will grow green, or ashen, or purple under the same hue. By careful testing, in this manner each student can determine the color or colors which are most becoming and which will emphasize her own natural color to the best advantage.

Before a systematic study of color is undertaken, many girls see with unobserving eyes. It quite escapes them, for example, that the color so well suited to the florid complexion of a brunette is not suited to the pale, colorless blonde and renders her more colorless.

A common error is prevalent that the pale girl should wear colors which impart color. But pronounced colors emphasize pallor. A brunette with a rich red and cream complexion should choose colors with a view to diminishing her color rather than emphasizing it. Harmonious color effects are not necessarily a question of choosing quiet colors. Some students require deep, vivid color, and for these to choose dull, neutralized colors would be to show bad taste. As a rule brunettes require much stronger color than blondes. Blondes appear best usually in dull or faded colors. The blonde with gray-green eyes will require different colors from the blonde with the clear blue eye, while the blonde with hazel eyes will be more easily dressed. It has been erroneously said that the red-haired blonde must never wear blue. Titian found several centuries ago that a certain combination of red hair with blue-green produced a wonderful harmony. The red-haired girl needs to avoid all hues of red or any pronounced colors. Faded heliotrope, dull, golden browns, peach blow, apricot, and certain other modified colors may be beautiful upon her. A color in the material which contrasts with that of her hair will produce the greatest harmony.

The brunette with her dark hair and skin and her flushed cheeks may wear brighter, stronger colors, but a sallow type requires different colors from the clearer types. The "nut-brown mayde" may be beautiful or ugly according to the choice of color made. She requires combinations entirely her own, e. g., dull russets, faded browns, and dull reds, such colors as are found in wind-tossed autumn leaves. The olive brunette, with her deep, rich, brown skin verging to a clear olive green, may also be beautiful in wisely chosen colors, such as amber, maize, cafe-au-lait, dull orange, dull rose, deep and rich, chestnut browns, etc. The no-type-in-particular girl may appear in harmonious colors if she selects with care and discrimination the colors which especially emphasize any good quality in her own individuality. There is no hair, no complexion, whether beautiful in the extreme or thoroughly commonplace and uninteresting, that does not require appreciation of essential qualities and good judgment in the selection of colors, to make the beautiful more beautiful, and the homely more tolerable.

In helping girls to choose harmonious color, choose four or five girls who are representative of marked types and place them in good light in the front of the class-room. Try on them in succession large pieces of dress materials of different colors. Watch the effect each

color has upon the girl. The moment one is doubtful about the use of a color with a complexion, it should be counted unsatisfactory and wrong. After making a careful test of all colors with each student, let each girl prepare a chart for herself similar to those found on pages 222-225. The chart should record the actual findings of the class-room test; that is, it must record the scientific and commercial names of the hues, values, and intensities of the colored materials which the student may wear, as well as those she must avoid. Each student is a problem in herself. Therefore she will have a chart different from others in her own type.

Manufacturers produce colors in fabrics through a standardized process of scientific use of color. These colored fabrics are given commercial names; for example, in the family hues of violet, we find commercial names such as orchid, lilac, wisteria, fuschia, magenta, heliotrope, plum, lavender, pansy, amethyst, prune, eggplant, etc. Each of these colors belongs to some hue, value, or intensity of RRV, RV, VVR, V, VVB, VB, BBV. Now what is true of the hues of violet is also true of the families of red, orange, yellow, green, and blue, and should be so analyzed.

One Textile Association has given some of the following names to color. In the family of reds, there are scarlet, cardinal, American Beauty, cerise, magenta, rose, wild rose, salmon, pink, flesh, burgundy, garnet, ruby, cherry, geranium, channel, claret, ashes of rose, old rose, peach blow, strawberry, and flamingo. To the family of orange belong burnt orange, tan, maize, sunset, ecru, fawn, beaver, golden brown, topaz, buff, chestnut, seal, tobacco, negro, terra cotta, mahogany. The family of yellow is represented in lemon, goldenrod, leghorn, apricot, champagne, beige, chamois, gold, old gold, and Indian. The blues are, national, Alice, Yale, saxe, electric, turquoise, sapphire, marine, navy, cornflower, Copenhagen, Delft, peacock, cadet, regimental, midnight, and imperial. The greens are emerald, hunters, myrtle, Nile, ocean, mignonette, reseda, bronze, chartruese, olive, jade-green, moss, evergreen, sage and bottle. The purpose in reducing these common names to scientific color terms is that the student may be able to distinguish these hues, values, and intensities when she sees them.

In the class-room test of color for the complexion, one student may be able to wear plum which in its scientific analysis is RV at dark, and not be able to wear hues known as amethyst or grape which belong to BV. Why? Because it requires animated, vivacious color in the face to wear any BV's. It is necessary that the student

	YG	YO	OR	RV
Blondes	Yellow YG-YYG-Y- YYO-YO	Orange OYO-O-ORO- OR	Red RRO-R-RRV- RV	
<i>Fair Blondes</i> Skin—Clear Cheeks—Flushed Eyes—Blue Hair—Light	YK } HLT-LT-D YO } Reduced Y } Intensity Russet Citron Chamois Buff Avoid Pure Yellow	YO-at-HLT, HD Amber Golden Browns Tobacco Avoid Pure	RV } HLT-LT- RO } HD Ashes of Rose Rose Old Rose Avoid Pure	
<i>Florid</i> Cream and Red Complexion Eyes—Blue or Brown Hair—Light	YYO—HLT Champaigne Ecru Avoid Pure	YO-LT-O- HD-D Golden Brown Beaver Avoid Pure	Avoid all Reds	
<i>Colorless</i> Face and Eyes Colorless Hair—Lusterless	YYG-D-Low Intensity Beige Avoid Pure	OY- { HLT-LT OR { M Reduced Intensity Old Gold Buff Cinnamon Avoid Pure	RO-M or HD Dull old Rose All Avoid Pure	
<i>Sallow</i> Yellowish-Green Skin Hair } Dull Eyes }	YO-HLT Buff Avoid Pure	OR-HD-D Russet Cinnamon Brown All Avoid Pure	hues must be	
<i>Titian Blonde</i> Skin—Clear Eyes { Blue Blue-Green Brown Hair—Copper-Red	YO } HLT-LT OYO } Amber Topaz Avoid Pure	OR } LT-LLT- ORO } HD-HLT Apricots Golden Browns Russets Citrons Avoid Pure	Avoid all Reds	

RV	BV	BG	YG
<p>Violet VRV-V-VVB-VB</p>	<p>Blue BBV-B-BBG-BG</p>	<p>Green GBG-G-GYG-YG</p>	
<p>V } BV } HLT-LT- VVB } LLT-HD Lilac Lavender Wisteria Heliotrope Avoid RV with Blue Eyes Avoid Pure</p>	<p>BG } BBG } HD BBV } Copenhagen Peacock Choose Blue to match eyes Avoid Pure</p>	<p>GBG } HD, D-LD- BG } HLT YG } Moss Mignonette Ocean G bring out Y in face Avoid Pure</p>	
<p>BBV } BV } LT-LLT-D Lilac Wisteria Heliotrope Avoid RV and Pure V</p>	<p>BG } BBG } D Delft Peacock Sapphire Avoid Pure</p>	<p>BG } GBG } M-HD Hunters Jade Avoid Pure</p>	
<p>RV } HD-Reduced V } Prune Ashes of Rose hues must be Avoid Pure</p>	<p>B } HD-Low BG } Intensity National Midnight greatly reduced Avoid Pure</p>	<p>Avoid all Gs in intensity G emphasizes Y in face</p>	
<p>BV-LLT-M-D Dull Plum Raspberry greatly reduced in Avoid Pure</p>	<p>BG-D Olive intensity Avoid Pure</p>	<p>YYG } HD-D-LD YG } Bronze Avoid Pure</p>	
<p>BV } BBV } HLT-LT- V } HD Lilac Lavender (BV) Wisteria Heliotrope Avoid all RV</p>	<p>BG } BBG } M-HD-D Peacock Turquoise Avoid Pure</p>	<p>BG } HD-D-LLT YG } HLT-LT Apple Green Jade Green Avoid Pure</p>	

	YG	OY	OR	RV
Brunette	Yellow YG-YYG-Y-YYO	Orange YO-OYO-O-	Red OR-ROR-R-RRV	
<i>Genuine</i> Skin } Hair } Dark Eyes } Cheeks Flushed	YYO } LT YO } M-D Beige Apricot Leghorn Avoid pure Emphasizes Y in face	ORO OYO } LLT-M- ORO } HD-D Golden Brown Amber Burnt Orange Chestnuts	RRV-M-HD-D American Beauty Cardinal Claret	
<i>Fair</i> Pink and Cream Complexion Eyes { Blue Brown Hair Dark	Y-YO } HLT-LT- YG } LLT YYO } Goldenrod Topaz Old gold	ORO } LLT-M- OYO } HD-D OR } Maise Burnt Orange Golden Brown	RRV } M-HD-D RV } ROR } American Beauty Cerise Burgundy Ruby Channell	
<i>Sallow</i> Skin—yellowish green Eyes { Blue or Dull } Brown Hair—Dark Lusterless	YYO-HLT-D.L.D Beige Chamois	ORO } M-HD-D OR } Tobacco Seal Terra Cotta	RRR } M-HD-D RRV } LT Ashes of Rose Old Rose Strawberry	
<i>Nut-Brown Maid</i> Skin } Nut Hair } Brown Eyes { Hazel Gray Dull-Flush	YYO-HLT-LT- LLT Dull-old-gold Chamois Champaigne All	YYO } LT-LLT- OYO } M-L-LD Ecu Fawn Beaver Russet Apricot hues reduced	ROR } RRV } M-HD RV } Peach Blow Dull Old Rose Strawberry Dull greatly in	
<i>Olive</i> Skin—Lt. Brown Tinged Olive Flushed Cheeks Eyes { Dark Velvety Hair—D. Brown	YYO } HLT- YO } LT-LLT Cafe-au-lait Old Gold Topaz Golden rod	OYO } LT- ORO } LLT-M- OR-YO } HD-D Maise Burnt Orange Golden Brown Chestnut	Avoid	

RV	VB	BG	YG
<p>Violet RV-VRV-V-VVB</p>	<p>Blue VB-BBV-V-VVG</p>	<p>Green BG-GBG-G-GYG</p>	
<p>VB } RRV } M-HD- V } D.LD Amethyst Egg Plant Purple</p>	<p>BBV } BV } HD-D Delft Sapphire</p>	<p>YG } GBG } HD-D-LD Bronze Olive Moss</p>	
	Avoid Pure	Avoid Pure	
<p>RRV } HLT-LT- VVB } LLT- RV } M-HD Pansy Orchid Fuschia Wisteria Heliotrope</p>	<p>BBG } BG } LLT-M- BBV } HD.D BV } Peacock Turquoise Delft Sapphire</p>	<p>GBG } BG } LT-LLT- GYG } M-HD Hunters Emerald Jade Moss</p>	
Avoid	<p>BBV } B } HD-D-LD BBG } Delft—Dull Navy Yale</p>	<p>GBG } LLT-M- GYG } HD-D-D Moss Olive Bronze</p>	
	Avoid Pure		
<p>VRV-M Raspberry</p>		<p>GYG } GBG } HD-D- YG } LD-M Bronze-Faded Olive-Faded Citron-Faded</p>	
intensity			
		<p>YG-HD Olive Moss</p>	
Avoid	Avoid		

should see this and make a distinction between the hues and their effect upon the individual complexion. Let each student try out all the hues of dress materials and discover what hue is becoming to her. Then if she wishes to appear becomingly dressed, she must hold persistently to the color which enhances her particular complexion and discard all the rest.

Green is restful to the eyes, but it is not always becoming, for it frequently brings out yellow, orange, or purple in the face of a girl. This is especially true of sallow blondes. Many greens lack vitality and life. Hunter's green and blue-greens can be worn by girls whose complexion is clear.

Blue is a standard color and may be classified as cool, retiring or unobtrusive. It is usually a safe color to choose, for it lends itself harmoniously to most colors in one's wardrobe. There is an infinite number of hues of blue—each of them with many values and intensities. But no one can wear equally well all of these hues. Blue needs to be tested with the complexion as surely as any other color. Quiet, unassertive blues do not detract from the charm of a complexion as do reds and greens. Neither does it accentuate the commonplace or unpleasant features nor exaggerate the size of the figure. Blue is not so distinctive nor pliable as violet.

Of the fundamental hues, red, blue, green, and orange at their fullest intensities are neither beautiful nor wearable. Choose a modified hue or an intermediate hue, reduced in intensity. For example, red at full intensity is impossible for any one to wear. RV and RO are more pleasing and by reason of a right choice of value and intensity may be beautiful and wearable.

Taste in color is largely a matter of cultivation. It is well to surround the student of Costumes with works of art in which are rich color combinations. The rich, glowing colors found in good color prints of the paintings of Titian, Giorgione, Rubens; in the color values found in Franz Hals, Velasques, Boutet de Mouvel's Joan D'Arc and in old block prints of Japanese will be helpful in developing taste in color. Old textiles such as old Italian and French brocades, vibrating with harmonious color; oriental rugs wherein daring and sparkling contrasts in color enrich and enhance each other, yet are brought together to produce quiet harmony. All will exert a subtle influence and awaken a sense of reverence for beautiful color.

ACCESSORIES

Youth itself is lovely. The costumes of youth must enhance the natural charm and freshness and not detract from it. Youth, like the bloom of the grape, when once removed can never be replaced. But the beauty and charm of youth are lost when the girl patterns her appearance after that of her elders. The dress of the débutante or the matron is not suited to the young girl in her early teens. Let youth make the most of its charms, its freshness and vivacity. Let there be no exaggerations of natural color, or affection, or attitude of posing.

A definite planning of a season's wardrobe will greatly help a young girl to discriminate between good and bad taste in dress and will enable her to choose her wardrobe as a harmonious whole and not as individual garments. She may start by taking a thoughtful inventory of what she has on hand and what is needed. Effort should be made to have the entire outfit as beautiful as possible. It is possible to be well dressed and to express good taste whether the purse be very full or nearly empty. Girls should be taught that to be well-dressed it is necessary to dress inconspicuously; to have ideals higher than the mere dictates of ever-changing styles; that beauty is based on principle, is governed by principles and is the result of principle. Simplicity is not poverty but the very foundation of beauty and refinement.

A dress of navy blue, or brown, or beige, or violet forms a good basis. Dresses of fawn, old rose, golden brown can be chosen to harmonize with those on hand. A coat of taupe, or smoke, or any neutral color will go well with any of these dresses, and be suited for many occasions. The hat should be of a more brilliant color or a combination of striking colors, so long as it harmonizes with any dress and the coat and is suited to the complexion. Occasionally one sees a girl who is untrained in the study of color, in a magenta dress, a green coat, and an orange or blue hat. Each garment had been purchased without any consideration of wearing it with the others, or without reference to the effect it would have upon the complexion and appearance of the wearer.

The harmony of a wardrobe is important. Ask yourself every-time you plan a purchase, "Is this suited to my style? Does it harmonize in color with the rest of my wardrobe? Can I wear it with the other garments that I have? Will it be out of harmony and make me conspicuous?" Avoid a hit and miss collection of clothing

and accessories, whether it be stockings, shoes, hats, beads, jewelry, handkerchiefs, gloves, or umbrella.

In purchasing a hat, the young girl should try on many of them. She should look at them on her head from every angle, from the front, from each side, and from the back. She should see that the lines of the hat flow gracefully with the contour of her head, with the prominent features of her face, the chin and the nose. She must be sure that the color is in harmony with her complexion, and with the coat and dress with which it is to be worn. Choose the hat that is distinctly girlish and strikingly becoming. Gloves, like handkerchiefs, bespeak the real taste of the wearer. Gloves must always be in accord with the costume, always clean and well-fitting.

A neat shoe is necessary for any foot. How distressing to see a shabby or unkempt shoe with a pretty dress. Dress a large foot in such a way as not to attract attention. White or light shoes with a dark dress always attract attention. Low heels are childish. There is no reason why a young girl should wear them. Pumps of good lines, with or without straps, are good. Too high heels, or square heels are not desirable nor suitable for youth. Street and sport stockings of lisle in good colors, and smooth weaves, not ribbed, are excellent taste for general wear. Silk stockings should be worn by the young girl for dress occasions.

A young girl may believe she needs face powder. She will probably use it. But she needs to choose the color of the powder that harmonizes with her complexion. If her complexion be sallow or dark, let her use Brunette powder. Few people are fair enough to use successfully flesh or pink powders. Unless these are used on a very clear skin, the effect is that of a white-wash, which disfigures any complexion. The well-bred girls do not powder their noses in public.

Most girls from thirteen to eighteen have lovely natural color in their faces. Therefore they have no need of make-up. Rouge and lip-stick do not enhance their beauty but detract greatly from it. A young girl does not need to take such recourse to disguise her years. Only age needs to be disguised. Youth has a freshness, vivacity, and charm that no rouge or lip-stick can give.

How much jewelry shall the well-bred girl wear and still be in good taste? Surely she needs a wrist-watch. She may have a bracelet and ring. A string of colored beads that accentuate the color scheme of her dress will add charm. But many rings, earrings and

strands of pearls cheapens her appearance and expresses lack of good taste.

Harmonious lines in a dress require a correct carriage of the figure to express them. Many girls permit themselves to become careless about their posture in standing or sitting. They acquire ugly, thoughtless habits of placing legs and feet. When seated the knees should never spread. The feet should always be together. It is correct to cross them at the ankles. The well-bred girl will be thoughtful of her posture, seated or standing.

What of her hair? Long or short? Whichever is most becoming. If short, it should not be shorter than a man's. Any attempt to become mannish will detract from the charm and attractiveness of her womanliness. Short hair which is becoming to most girls should be loosely waved, but never crimped nor tightly marcelled. A young girl should create for herself a standard which is distinctive and characteristic. When she has done this, the girl of fine taste will avoid all ridiculous expression in dress, because her choice is based upon her obedience to principles of art.

THE DRESS

The principles that underlie the designing of the dress are the same principles that underlie all phases of art. The student is to learn that principles never change, but that only the form of expressing them changes with a passing style. The application of these principles requires a thorough grounding in what has previously been taught.

The principal element in the designing of a dress, as in all other art problems, is good spacing. It is the balancing of masses of light and dark. It is the grace and flow of lines, and the rhythmical repetition of lines and colors expressing fine proportions. It is the beauty of space divisions. It is the subordination of parts to leading lines, to tones, and to color harmonies, so that they mutually enrich each other. Only in so far as a design embodies these qualities is it beautiful.

The chief requisite in designing a dress is good taste. Since Nature does not endow all students in equal degree with good taste or a sense of color, these must be cultivated in them. The taste of any untaught person will be easily satisfied by the usual and customary. Good taste never produces the common-place. Style and the latest fashion are not necessarily in good taste. Good taste is the suitability of line to the figure, of color of material to the com-

plexion, of dress in line and color to the occasion, and of cost of material to the pocketbook, whether that pocketbook be very full or nearly empty.

Design is the first element of good taste to be considered. It makes impossible the covering of the dress with little patches of color, or fussiness and excess of ornament, even if the materials used are marvels of beauty in themselves. It seeks, rather, the dignity of long flowing lines, and graceful curves much happier unbroken, which envelop the contour of the figure and hide the defects; a refinement in space relations; and an enrichment of color. A design is satisfactory only when it possesses simple charm, when the details of which it is composed disappear in the general harmony of the whole.

I am not unmindful that design must not be separated from the workmanship, from the finger-skill of the maker. A dress may fit perfectly so far as snugness goes, and not have a graceful line in it. All beauty may be stitched out of it. The grace and flow of a line, the sweep of a curve, involve not only the sensitiveness of the designer, but the skill of the maker. There should be a balanced and happy co-operation between the two. Happy indeed is the possible combination of the two in one person—the student.

In addition to the work on materials previously outlined, which must of course be applied in detail here, time must be spent on an analysis of textiles. To become an intelligent consumer, the student needs a knowledge of fabrics, their characteristics, their weave, their fibres, and their possible adulterations. With this analytical process, the aesthetic side must be considered. The student will combine beauty and utility by learning to recognize what effect certain textures have upon the size and shape of the individual. Rough materials, coarse and heavily woven, such as are found in "novelties," increase the apparent size of a girl. Glossy surfaces, such as are found in lustres, silks, and satins, and light or bright colors above middle value reflect the light and serve to accentuate size. On the other hand, colors below middle value absorb light and decrease the apparent size. Dull, soft surfaces, smooth and closely woven, tend to make one appear smaller. The quality of material in relation to the design of a dress needs consideration. Stiff, wiry materials will not lend themselves to folds, frills, or plaits. Draperies and tunics require soft, clinging materials.

Considering materials from the utility side, some are damaged easily by straining, by mussing, by fading, or by shrinking. Some

suffer from cleaning. Certain substantial grades of wool are excellent for hard and frequent wear at school, while finer qualities of wool more flexible and pleasing in color and in decorative quality are more desirable for afternoon dresses. Girls can easily be given a knowledge of these essential points through a series of well-planned lessons supplemented by thoughtful visits to stores.

Not only the quality of textures, but the character of the designs in textures affects their desirability. Boldness in design in materials, conspicuous color combinations, pronounced plaids, and very broad stripes attract attention. Quiet, modest figures, indistinct stripes and plaids, and rich harmonious colors are evidences of good taste. The use of simple, girlish materials which will enhance the grace and beauty of the girlish form should be encouraged. A young girl should not be permitted to spoil her youth and charm by wearing materials that belong to an older generation.

Let us take as a specific problem All-Year-Round-Dress. Many girls and women can have but one good dress a year. It must answer all purposes, and is to be worn on all occasions, suitable alike to business or for afternoon. By addition or removal of collar set, or accessories, the dress may appear well at a modest dinner, for evening, for church or the theatre. It has to be of excellent material for it must stand excessive wear and being cleaned frequently. It is to be worn in all seasons. The style must be attractive and inconspicuous, for if it be too plain or too elaborate, or conspicuous or too fussy the wearer will tire of it. The student needs to avoid extremes in design and color.

Of what material shall such a dress be made? Surely not of wool, since the dress must be worn in late spring and early autumn, and during the summer as well as winter. Even a fine light weight challis is too warm for a garden party in July. Nor can it be made of cotton or linen for these are not suited for every occasion. There seems little left for the girl to choose, except silks, silk-crepes, and satins. Moire and taffetas are too old for the young girl in teens. So the student is practically confined to a good quality of silk in the quiet colors for both the summer and winter wear.

As to price, not always the cheapest material is the most economical. A very good durable quality of silk crepe or smoothly woven silk will cost a little more and will be cheaper in the end for the reason that it will outwear two dresses of cheaper material. Economy without cheapness should be the aim.

In choosing the style of the All-Year-Round-Dress the student

may proceed in the manner outlined under caption Source of Design. A historic costume plate may readily suggest the main lines, the type, and character of the dress. The student must apply all the principles of design already acquired and must proceed in much the same way mentioned in previous lessons. In the analysis of fashions as set forth in up-to-date style books they must note the radical changes of the season, first in the dress as a whole and then in the separate parts of which all dresses are composed—blouse, sleeves, skirt, etc. Such study naturally involves a consideration of types of skirts, the different kinds of flares and flounces, the constructive lines, the placing of opening, the length and type of waist line.

The student must know the limitations as well as the possibilities of her materials and how to display her materials to the best advantage in order to produce the greatest beauty. In the use of these ideas the student is given ample opportunity to express her individuality and power of independent inventiveness as she applies to the problem in hand the knowledge of design she has already gained.

In the designing of a dress as in all other problems in design, we begin with a central and dominant idea, which controls the basic forms and lines of the dress. It is what establishes character and style in the dress. The unity of the design will depend upon the simple and definite disposal of this main spacing. The direction and the arrangement of the constructive as well as the aesthetic elements should be pronounced enough to maintain interest and hold attention. The principles of subordination must be considered; what parts there are to be and where the parts are to be placed depend upon their relation to the dominant idea. This includes the repetition of certain lines and masses of color with the direct intention of producing fine harmony and good spacing—a subordination and repetition which produces not mere patches and spots, but which causes parts to merge into one harmonious whole. To the student who has ready invention combined with an appreciation of what is meant by good spacing, subordination to leading lines and color harmonies, there will come a certain joy in the achievement. It should be the student's earnest effort "to make beauty the commonest instead of the costliest of experiences."

The measure of success of such a course as is here outlined is the character of the impression made upon the girls who take it. The aim is to make them realize that it is to principles rather than

to fashion plates or personal opinions that we must turn if we wish to be distinctively dressed. Money standards must be abandoned, a slavish following of that which for the moment happens to be the vogue must be made impossible, and the futile endeavor to appear to be that which we manifestly are not, must be replaced by a fixed practice of considering from the highest ground possible our own individual limitations and possibilities of every kind. When this has been accomplished, girls in every walk of life from the humblest to the highest will have acquired what may be precious to them beyond price—a power to express self in a fine form unhampered by sordid or other unworthy considerations. Knowledge is power, but knowledge applied in a true way becomes wisdom, and it is wisdom in dress which we have striven to attain.



DETAIL FROM 16TH CENTURY TEXTILE.

ART APPRECIATION

A NOTE FOR THE TEACHER

The Aim of the Chapter—The following chapter aims to give in very condensed form, a course in art appreciation or picture study which has been successfully given year after year in a typical high school. While the chapter is written for the pupils to use as a text, it is assumed that the teacher will consider that its most effective use will be as a basis for developing the various points presented. Each major topic should furnish material for several lessons, if the kinds of study suggested are fully worked out.

A Collection of Reproductions of the Masterpieces—Every school should possess a collection of photographs or cheaper reproductions of the work of the great artists. In the bibliography at the end of the chapter will be found the names of several publications which bring such pictures within the range of any school or teacher. Pictures are most useful when they are mounted on cards of uniform size and arranged in alphabetical order of the artists' names. Such a collection of cards can be kept in a filing case made for the purpose, in a deep drawer, or in a box with a cover to keep out dust. The cards are kept on edge after the method of a card catalog and, alphabetically arranged, they catalog themselves.

Notebooks—Each pupil should make a notebook which should be illustrated both by tracings and sketches and by half-tone pictures of such master works as he chooses to illustrate each point studied. The teacher should guide the class constantly and suggest the best examples for study. While many definite examples are referred to in the text, the teacher will add many other suggestions in her teaching. The chapter may be made a definite basis for the pupil's notebook, his original work being comparisons and studies from examples, the selection and mounting of pictures, and the making of tracings and sketches for the book.

Notebooks should be of a uniform size and of unruled and fairly heavy paper. Only one side of the sheet should be used. Time is well spent by the teacher in giving definite directions in

regard to the form in which notes should be kept, the matter of margins, and the way to trim and mount pictures. A notebook on art appreciation should be something of a work of art. At least, it should be neat in appearance.

Collateral Reading—A great many of the pupils can be interested to do a considerable amount of reading along lines which are directly suggested by the study of pictures. Thus some knowledge of the history of art may be gained, and general history as well as literature may be related frequently to the art study. The list of books at the end of the chapter will be suggestive in this connection.

INTRODUCTION

The Arts of Form Have Much in Common—The student who learns to appreciate any one of the fine arts must gain a point of view which will help him greatly in acquiring the power to appreciate the others. For example we would expect one who understands and enjoys painting to enjoy sculpture with some degree of intelligence, since both these arts deal with the representation of form. It is not quite so obvious how an intelligent interest in architecture can grow from an intelligent interest in painting. If, however, we understand that architecture is an arrangement of forms for the sake of beauty, it becomes clear that it must have much in common with the other two great "arts of form," painting and sculpture.

Reasons for Beginning With the Study of Painting—Probably the majority of young people take more interest in painting (and pictures in general) than in sculpture and architecture. Moreover, photographic reproductions of paintings generally give better impressions of the originals than do photographs of statues or buildings, and much of our study must necessarily be from photographs. For these reasons it has seemed best to begin with the consideration of painting, in the belief that an appreciation of pictures may serve as a foundation upon which to build an appreciation of the other arts of form and color including those minor arts known as the "arts and crafts."

Painting Is a Language—Painting may represent something actually existing in the visible world, as for example a portrait of a person or of a place, or it may give us a composition which

the artist has imagined. In any case painting must be thought of as a language which the artist uses to express an idea. His idea may be his impression of something he has seen, or it may be a creation or arrangement of his imagination, but the picture is built up by means of lines, spots of dark and light, and color. These are what make up the language of painting. The aim of a painter of worth is to use his language so that it expresses some emotion which he has felt. The observer who understands and responds to the language of painting will feel something of the artist's emotion.

Painting Can Express Only Ideas That Can Be Shown by Form and Color—Beside the arts that appeal to the eye (the arts of form), are the two great arts of music and poetry which appeal to the ear. Each of the arts has its own appropriate subjects and the wise worker in any one of the arts sticks to his own field. There are plenty of examples of attempts on the part of painters to express ideas that could be better expressed by poetry. The painter is limited to the representation of things at a selected moment. The scene at that moment may suggest in a measure what has gone before or what is to follow. Strictly speaking, however, a picture cannot tell a story, represent movement or reveal in any definite way the conversation or thoughts of characters depicted. This does not mean that a painter should never paint a subject borrowed from literature, but if his picture is good art, it will be interesting as a painting even if the literary reference is not taken into consideration; in fact, it will be complete as an expression in form and color of a given subject which in itself commands attention.

A Comparison of the Fields of Poetry, Sculpture and Painting in a Given Subject—Take for example the subject Paul Revere. In the poem, Longfellow gives us the landlord's narrative told in the Wayside Inn. We are taken back in imagination to Revolutionary times and introduced to the hero and his friend who hung the lantern signals. We get a series of vivid night pictures, we climb the belfry tower and share the emotions of the watcher. Then we are with Paul Revere impatiently waiting, then furiously riding to spread the alarm. We have glimpses of him during the night as he gallops from village to village arousing the farmers. We are told briefly of the next day's battle, and as a climax we are made to feel the far-reaching significance of Paul Revere's ride.

Now it ought to be easy to see that "Paul Revere" might serve admirably as a subject for either painter or sculptor, but that in each case there would be severe limitations to what could be expressed. In the case of sculpture,* an equestrian statue is suggested embodying as far as possible the physical characteristics of the Revolutionary hero with appropriate costume, and a spirited horse. As for the story nothing can be actually told, although to those who know it the sculpture will stir many thoughts and associations. If the sculpture is successful it will give in its lines, masses and proportions a sense of the heroic. But the spectator should feel this whether or not he had ever heard of Paul Revere.

The painter who seeks a subject in this narrative may choose a dramatic moment when form and color in a group of figures with characteristic background will contribute pictorial elements of interest. For example he may show Paul Revere pulling up before the door of a village house. The whole family have rushed to the door in night attire. The village street is seen dimly in the moonlight with the fields beyond. Now in the hands of a painter of ability here are the materials for an heroic canvas.** The night garbs which at first thought might suggest something grotesque may be given almost the dignity of Greek drapery. Paul Revere and his horse are the center of interest. Moonlight bathes the landscape and contrasts with the warmer candlelight thrown from the open door. These are elements of form and color suited to the painter's language. But his picture when seen cannot possibly tell to us the story of Paul Revere. Yet it may be an admirable interpretation of a given moment of the story and if it is a worthy work of art it will be beautiful, inspiring and complete as a picture, regardless of the story of Paul Revere.

To Understand the Painter's Language Requires Study—
From the example just considered we can see that the painter, though less limited than the sculptor, is far more limited than the poet in the range of ideas that he can express in a given work of art. On the other hand those ideas which fall within the painter's field can be expressed so definitely that it might seem, at first thought, that anyone should be able to understand

*We are speaking of statues only, not of sculptural work in relief which permits the introduction of accessories.

**Cf. the mural painting Paul Revere's Ride by Robert Reid (American 1862—) in the State House, Boston, Mass.

a painting without training. This is true only to a very slight degree. To appreciate fully what a painter wishes to express requires an understanding of the language of painting that can come only after considerable study.

How to Study the Language of Painting—Since the language of the painter is a language of lines and of spots of paint, there is probably no better way of learning to understand it than through actual practice of the art, that is, through learning to draw and to paint under the instruction of a cultured artist. But this course for the majority is out of the question, since it requires considerable time and a certain degree of interest and aptitude that is not possessed by all who wish to become intelligent appreciators of pictures.

Verbal Analysis—For this majority, there are three ways left by which it is possible to learn to understand the painter's art.

(1) Through a systematic study, comparison, and discussion of selected examples, taking up in order the various topics—line, light and dark, drawing, color and composition. This may be called a literary method, or an analysis by words.

Graphic Analysis—(2) Through making sketches and tracings from master works to gain an understanding of the separate elements, line, light and dark, types of composition, etc. This may be called a graphic method of analysis. It is a method which should be followed from time to time in connection with the first. It does not require any ability to draw beyond the simplest, and yet it cannot fail to give a clearer understanding of the structure of a picture, than it is possible for one to gain through verbal expression alone.

Demonstrations by Painters—(3) Through seeing artists at work. More can be learned of certain phases of the painter's craft through seeing a demonstration than in any other way. It is assumed, of course, that the worker is a thoroughly trained artist whose methods of work are typical of the best practice. Doubtless occasionally a first class painter would be willing to give a demonstration in his studio to a class in art. It should often come within the range of the art teacher to illustrate certain points.

Art Appreciation Rather Than Art Criticism—The aim of the student should be to enlarge constantly his field of interest.

When a good picture which he has disliked or disregarded becomes interesting to him he should be glad that his mind has grown just so much. To appreciate a master work is to live over the mental experience of the artist who produced it. Artists are discoverers of beauties which are passed unheeded by the majority. So art appreciation is a means of enlarging our sympathies and appreciation of the world about us. Thus Corot (French, 1796-1875) showed us a fresh beauty in the trees. Millet (French, 1814-1875) gave a new meaning to the labors of the farm, Whistler (American, 1834-1903) revealed the colors of night, and Childe Hassam (American, 1859—) taught us to see the picturesque aspect of a wet day in the city.

If the study of art causes one to be unduly critical and fault finding, it is a sign that something is wrong in the viewpoint of the student, unless it be simply a phase of his growth where he is testing his own judgment. It is a good rule always to look for the good thing and so far as possible to shut one's eyes to the inferior things. Where you have a chance to choose, of course you will aim to choose the best, but pay no attention to the things that do not concern you, unless you are sure you can replace the inferior with the excellent. As a citizen you ought to be alive to all matters of civic improvement and help in every way to make your town more beautiful. But after you have done all in your power there will still remain much in the world that is not beautiful. I have read somewhere of a great architect who on the way between house and office passed twice each day a certain building. A friend asked him once if he didn't think that building a very poor piece of architecture. The architect answered, "I have never seen it."

The aim of our study should be to learn to see more beauty than we have seen before.

LINE

In considering painting, we must include its beginning as well as the more highly developed art of today; and the art of the east must receive some share of attention.

Drawing is so closely associated with painting that we shall consider the two as one. In fact, painting is drawing with the brush, with the problems of color generally added.

The Importance of Line—An outline is the simplest form of pictorial representation and is found in very early art, among



FIGURE 1

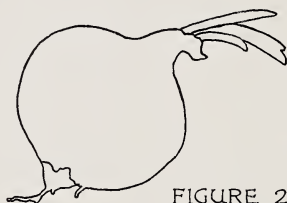


FIGURE 2



FIGURE 3

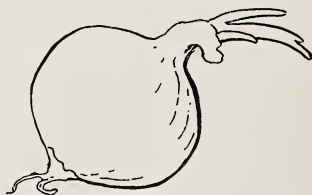


FIGURE 4

savages, and in the drawings of children. While we do not see nature defined by outlines, it seems perfectly reasonable in drawing to use them to define contours and shapes. Line has at all times been a fundamental consideration in painting. It is a convention by the use of which much can be said. In fact, many important examples of Greek art are primarily outlines. Chinese and Japanese art also furnish many fine examples of the masterly use of the line alone. The perfect understanding of line constituted the underlying strength of the Florentine School of Painters in the time of the Renaissance.

Kinds of Lines—Therefore since art in its simplest form deals primarily with outline, and line still forms a fundamental part of painting at its height, it is well that we should consider some of the possible kinds of line.

1. Lines can be straight or curved and the curves may vary greatly (Figure 1). If you trace an outline around the shadow of a profile of a person, cast sharply by bright sunlight on a wall, you will notice that there are practically no straight lines, although some approach straightness. The portrait is made up of curved lines varying in curvature and in length. These are the only variations of line which you have consciously aimed for. If your tracing is accurate you will have told certain truths.

2. Lines may vary in width. If in the tracing of the profile you have used an ordinary lead pencil or pen you will have a rather fine line. If you have used a medium sized brush and ink a wider outline has resulted. If you try both ways on separate drawings you will see how different are the effects resulting from the different widths of line. Now an outline may be varied in width throughout so as to suggest roundness, and to a certain extent texture (Figures 2-4).

3. Lines may be lighter or darker (Figure 5). The effect of a drawing is distinctly different according to the degree of darkness of the outline. In the case of pencil or charcoal much of the beauty and expressiveness of a line may come from a skillful variation in its darkness, obtained by greater or less pressure upon the point by the hand of the artist. Whatever medium is used, a certain variety in the value of the lines is often an important factor in the result sought.

4. Lines may be smooth or rough. In the suggestion of texture this distinction is one of importance. A very simple



FIGURE 5

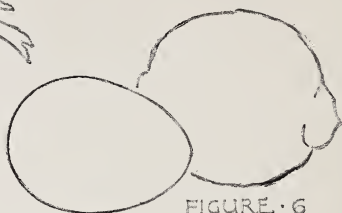


FIGURE 6



FIGURE 7

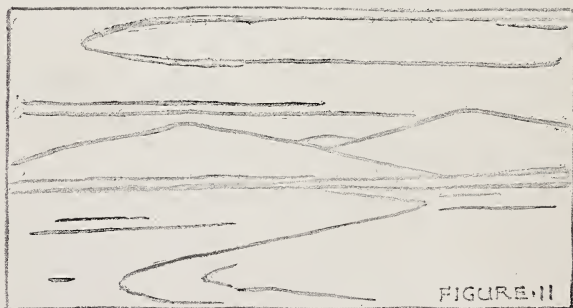


FIGURE 11

example is given in the illustration of the egg and the lemon (Figure 6).

5. An artist may draw firmly and with finality or with a sketchy tentative touch. Each may serve a distinct purpose in the same work of art. For example in a simple landscape with house and trees and cloud, it is easy to see that firm and decisive lines in the house would indicate its stationary character, a less defined, more broken outline might suggest the contour of the trees blown by the breeze, while in the case of the clouds, very rigid lines would certainly fail to suggest those ever-changing forms (Figure 7).

Thus we see that when we consider lines as to their varieties, there is a considerable range possible; and that by means of this range of lines forms can be represented to give different pictorial effects and to a certain extent to suggest roundness, texture and other individual characteristics.

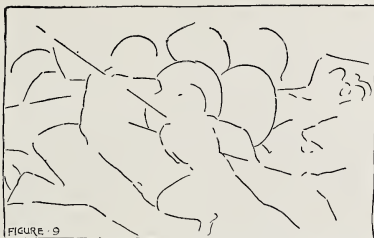
Line May Suggest Movement—Now because we associate with lines in certain positions and in certain combinations the ideas of various movements, it is possible through the composition or putting together of lines to suggest movement more or less vividly. This can be shown by skeleton sketches of running human figures, the slanting lines of the bodies and the positions of the legs conveying at once to our minds the idea of rapid movement. This idea is enhanced by the varied positions of the figures which taken together reinforce the idea of speed. Just how successful at different periods the arts of drawing and painting have been in suggesting motion is perhaps an open question. How each observer answers that question depends in part upon the quality of his own imagination and how far it is stimulated by lines of certain kinds and certain relative positions. Look, for example, at the drawing by John Flaxman (English, 1755-1826) called the Brazen Age from his famous illustrations to Hesiod. While of course there is no question that violent action was intended by the artist, it is doubtful if a very vivid sense of motion will come at once to your mind. Flaxman ranks high as a master of line, but his technique is so different from that of the modern illustrator that this reason alone may stand in the way of your appreciating the picture at once. Now compare with this picture the floating movement expressed by the sinuous lines of the composition called *Pleiades* by the same artist. A comparison of the tracings (Figures 9-10)



THE BRAZEN AGE
BY JOHN FLAXMAN.



PLEIADES
BY JOHN FLAXMAN.



in which some of the more important lines have been selected, should help to an appreciation of the great contrast in the line composition in these two drawings. It will be seen that they have power to awake the imagination to a sense of movement, just as soon as you begin to comprehend the artist's language. It may be true that some other lines would affect you more strongly. It would be well for you now to look through some of the best illustrated magazines and papers of today with the purpose of studying the expression of movement by means of skillful arrangement of lines. Some of the modern illustrators attempt very difficult problems of this kind.

Decide for yourself how far each of several selected examples is successful in suggesting movement by means of line. You will find that other factors besides line may contribute to this suggestion, but for the present consider only the factor of line.

Lines Suggest Ideas of Repose—Lines at angles generally suggest unrest, and different curves may suggest different movements as shown in the tracings. It should be equally evident that vertical lines suggest as a rule the ideas connected with stability and immobility, and horizontal lines connect themselves in the mind with the recumbent position, the position of sleep. In the



PORTRAIT BY HOLBEIN
SHOWING HIS MASTERLY USE OF LINE.

landscape (Figure 11), all the lines are horizontal except those of the mountains (which balance each other and so offset any ideas of movement), and the lines of the river and cloud. These suggest just enough movement to give interest to the composition.

Lines Suggest Moods and Arouse Emotions—Through association of ideas, lines may also suggest moods and arouse emotions. For example *The Angelus* by Millet, shorn of its light and shade, and of color, still gives by its main lines the mood of evening, the idea of humility and the religious spirit of the occasion. The nearly horizontal and parallel lines of the fields suggest by their repetition and monotony something of the quiet, almost drowsy spirit of the time of day. The generally vertical figures with the distinct lines of the bowed head and shoulders of the woman and also the lines of her arms convey to the mind distinctly the mood of prayer in which the man and woman join.

The moods of sorrow and mourning are aroused by the lines of bowed figures; of joy and exaltation by the lines of upward radial character, the lines which one sees when a boy throws up his cap, or a crowd waves handkerchiefs and cheers. Arthur Rackham (English contemporary) has used lines very eloquently in his illustrations. *Undine* for example contains an illustration of "Bertolda in the Black Valley" where the claw-like line repeated in the delineation of dead branches and echoed throughout the picture's details helps powerfully to suggest the fear that clutches at the girl's heart.

In the picture of *Undine* walking by the water, every erratic line of hair, drapery, trees and water helps to produce the idea of a whimsical irresponsible creature, the mood of the water sprite.

Individuality in the Lines of Different Artists—It is just as easy to recognize the works of an artist by the individuality expressed in his lines, as it is to learn to know an individual's handwriting or to recognize the sound of a person's voice. The individuality and distinction of line in the works of such an artist as Whistler form a very great part of their artistic value. This is especially true of his remarkable etchings.

Holbein's Line—It would hardly be profitable to attempt any extended analysis of the qualities of line characteristic of different artists. Indeed it would be almost as hopeless to try to characterize them fully as it would to attempt a satisfactory descrip-



FIGURE FROM SISTINE CHAPEL
BY MICHEL-ANGELO.

tion of an individual's speaking voice. We can best learn to appreciate quality of line by looking again and again at the work of some of the great artists. Take for example the famous portrait drawings of Hans Holbein (German, 1497-1543) which can be studied pretty well in the reproductions. At once you feel an intimacy of draughtsmanship which carries with it the conviction that a sincere portrait has been given. But there is a charm in the exact thin lines of Holbein which is more easily felt than described. Even though Holbein's subjects were usually people of distinction, and his portraits therefore interesting as portraits, yet it is safe to say that the great interest in Holbein's drawings lies in their beauty of draughtsmanship. The distinction of Holbein's line has made his drawings artistic treasures for all time.

Michel-angelo's Use of Line—If we consider the work of Michel-angelo (Italian, 1475-1564) we should have no difficulty in appreciating something of the incomparable power of his lines. Tremendous strength and eloquence of line are in evidence in his drawings and in his paintings command no less attention. In the figures of the Sistine Chapel our eyes are forced to follow the mighty sweeping contours of draperies, bodies, arms and legs. In the power of the outlines lies a great part of the irresistible power of appeal which these God-like figures possess. The genius of Michel-angelo has expressed itself in every line he has left, and it would be hopeless and ridiculous for anyone to expect to imitate the individual character of Michel-angelo's lines, though much can be learned by copying his work, or even by tracing the main lines of composition in one of his figures in order clearly to realize the line as distinct from the light and shade effect.

The drawings and paintings of Ingres (French, 1780-1867) offer an opportunity for the study of line by a master whose distinction is undisputed. A comparison of his portrait drawings with those of Holbein would be helpful in emphasizing the idea of individuality as expressed by line. How different are the qualities of line in the work of these two artists, and yet both use lines that are fine and precise.

Altogether different, yet suited perfectly to his subjects are the lines of Millet. They are simple, rugged, almost rough at times; they are charged always with meaning, and with the great personality of the man.



Doubtless many of you now recognize the work of certain magazine illustrators at a glance. In some cases perhaps you have learned to recognize them by their individual qualities of line. You ought to be able to enjoy the line qualities of such men as Arthur Rackham, Charles Dana Gibson, Albert Sterner and Arthur Keller. Be sure you understand just what this means. It means that your eyes follow the lines and contours with a pleasure just as keen as is felt by a trained ear when it follows the rich modulations of a fine voice. Be sure that you can separate in your mind pretty sharply the pleasure that the lines themselves give, from the pleasure that you take from other qualities, especially the grace and beauty of the subjects depicted. Referring again to Holbein, we should be able to appreciate his line expression just as keenly in a portrait of an ugly face as in a portrait of a beautiful one. This leads to the last point to be discussed here in connection with the subject of line.

Beauty of Line Apart From What Is Represented—In the past few years the interest in Japanese prints has become rather widespread. A large number of people of good taste have found them very pleasing decorations for certain rooms. Yet these admirers of Japanese prints, in many instances, are unacquainted with the subjects depicted, and they would not pretend to think the faces or figures other than grotesque. Those who have not studied art often wonder why these strange and ugly subjects find a place in the homes of their art loving friends. The answer to this question is perfectly simple. The Japanese print designers were masters of line, of dark and light, and of color composition. In short, they were artists of remarkably fine feeling, and the lines in themselves are beautiful to look at, beautiful considered as individual lines, and beautiful in their composition. This brief reference is made to Japanese prints because they are more widely known than are Japanese paintings, which also embody to a marked degree the quality of beauty of line which in itself is satisfying apart from what is represented. The lines themselves are decorative and beautiful as an abstract arrangement. We may admire them in the same way that we admire a fine design which is not pictorial.

In looking at the work of certain European and American painters, it is necessary to regard the line arrangements from this purely abstract standpoint if we would appreciate their pictures fully. Botticelli (Italian, 1444-1510) for example gives

us draperies arranged in impossible folds, but none the less charming from the "decorative" point of view. Unless we appreciate arrangements of line for their own sake we shall miss a great deal of the beauty in Whistler's work. It would be easy to name many other artists whose work is distinguished by decorative qualities of line. Indeed we might say that all the best work possesses a beauty of linear design to a greater or lesser degree. In some work, however, it is the chief distinguishing quality.

Summary of the Topic—Under the topic of line the attempt has been made to show first the principal varieties of line possible for anyone to draw; as straight, or curved in various ways; of various widths; of differing degrees of darkness; smooth or rough; firm or sketchy. Lines may vary also in length and position. With these possibilities of line, form and texture can be expressed; and because of association, movement can also be suggested, and emotions can be aroused.

An artist expresses his individuality in the quality of his lines and this quality while difficult to analyze is an important quality.

The composition and character of line in some works of art is so distinctly the chief aim, that we must even consider the lines somewhat apart from what they represent, and regard them as a design is regarded.

Suggestions for Sketches and Tracings—1. Illustrate the various kinds of lines.

2. Make tracings from some masterpieces of composition where line expresses repose, and where it expresses different kinds of movement.

3. Make tracings from compositions where line expresses distinct emotions, e. g., Millet's *Angelus*.

4. Make a tracing from a composition illustrating the decorative use of line.

LIGHT AND DARK (VALUES)

A. Use in Drawings to Give to Outlines a Sense of Reality; to Suggest Color, Distance, Etc., and as an Element of Beauty

The Silhouette—Dark on Light—The simplest kind of representation has already been referred to as an outline such as one can trace around the shadow of an object. It is a very natural

step "to fill in" that outline with a flat wash of black, gray, or color. The outline thus becomes what is known as a silhouette. True, the term is applied strictly to portraits in black, but it has been extended to include any drawing in one degree or "value" of dark on a lighter background.

Light on Dark—We will extend the meaning a bit further and speak of a white or light silhouette, meaning a perfectly flat one-value drawing against a darker background.

Examples in Historic Art—Perhaps the finest examples of silhouette art, both in dark on light and in light on dark, are to be found among the many large collections of Greek vases.

Japanese art also furnishes excellent examples of the powerful use of the silhouette and several modern French artists, notably "Caran d'Ache" and Henri Riviere, have worked out wonderfully beautiful and impressive compositions in one value against a background.

Nature's One Value Effects—At evening, the trees against the sky, or a line of figures or animals on the crest of a hill give us impressive illustrations of the silhouette in nature. Dull indeed must the person be who has not been impressed by the beauty of the silhouette of some skyline of town or city or architectural mass. This time of simplicity, when details are lost and the mass is therefore accentuated, has been the inspiration of many artists. Moreover, it will be found that a fine silhouette is fundamental in art of any degree of elaboration, therefore let us look with respect on those artists who have glorified the silhouette.

Limitations of the Silhouette—While with one value it is possible to represent much of power, grace and beauty both of action and of repose, and while the method is suited to the decoration of a surface, yet it fails to suggest varieties of color; it cannot go far in suggesting perspective; and obviously it is beyond its scope to express any of the many beauties that depend on gradations of values. The limitations of the silhouette should be clearly understood, and then we can appreciate the more fully such beautiful examples as have been referred to.

The Use of Several Values of Monochrome—It is assumed that all who have reached the high school have become familiar with the scale of five "values," white, light gray, middle gray, dark gray and black. Of course it is possible to make a scale

where the contrasts are less, but still equal, and thus extend the scale very greatly. The next logical step beyond the silhouette which we have discussed, is the introduction of several values from the scale of grays. By this means a suggestion of various colors can be given. This method was employed in early art, and by the Japanese in a masterly way. It is also employed by several modern illustrators. It is what may be called a decorative method of employing lighter and darker values. For example let us imagine the figure of a child painted in five values, including the background.

Values May Suggest Colors—The background is middle gray; the hair and shoes are dark gray; the face and hands are light gray; the dress and stockings are white; while certain ribbons are painted black. Now the amount of each value used and its shape and place in the picture are very important factors in the success or failure of the picture, considered as a work of art. The various values in some instances (for example, in face and hands) definitely suggest color. In other cases we are left freer to choose what color if any was translated into a given value.

A Painting Having Fine Color Values Reproduces Well in Monochrome—"A fine feeling for values" is a phrase that is sometimes heard in reference to such work as that of Mr. Whistler. If you look at "The Mother" in any good photographic reproduction, you will see how suggestive of color the various values are, and also how wonderfully they are arranged or distributed throughout the picture. In the original painting the artist displayed his ability to strike the values of each subtle note of color with a wonderful sense of truth on the one hand, and a masterly sense of composition on the other. Light and shade is introduced but it is entirely subordinate to dark and light contrasts arising from variations of color values in the different objects and surfaces.

Values May Express Distance—On a hazy or foggy day, or in a city with a smoky atmosphere, it is easy to see how figures in dark clothing appear a lighter and lighter gray as they go further and further away down the street. To mention another simple example, probably on a dull foggy day you have all looked out on the landscape when trees or buildings appeared to be in two or three distinct values of gray. There are days when the colors almost disappear in the mantle of fog, and near objects

appear a flat gray, objects in the middle distance a lighter gray, and then a fainter gray still in the distance. These examples are striking ones in which almost everyone has recognized variety of value resulting from the atmosphere in which everything is placed, and the distance at which an object is seen. The examples, however, are crude. Distances need not be great to change the value of a mass in a picture, and the weather conditions need not be unusual. The important point to be recognized is that distance affects the values of color masses, making them appear lighter or darker according to circumstances. This is a second cause, then, of variety of value in nature, the first being, as already stated, actual difference in the darkness of various colors. Corot's landscapes, in the photographic reproductions as well as in the originals, illustrate excellently the beautiful variations of value, which give such wonderful impressions of distance.

The beauty which comes from the subtle relation of values in nature is a beauty which the painter must utilize in composing his pictures; a fine sense of values is a necessary part of the equipment of a modern artist. Velasquez (Spain, 1599-1660) was perhaps the first great painter to appreciate the question of values fully.

But a study of the reproductions of the paintings of Giotto (Italy, 1267-1337) will show that he had a fine feeling for the arrangement of color values in a composition.

B. LIGHT AND SHADE

Light and Shade Is Required to Represent the Third Dimension—So far the use of different values of gray or of color has been referred to without any reference to light and shade. Much excellent art has been produced without the representation of the third dimension, that is without light and shade. This is true of the majority of Japanese prints. It is also true of some of the modern illustrations, which practically disregard the matter of solidity, and represent objects as if they were without thickness. So accustomed have we become to such pictures that we do not miss the light and shade, and there is often a gain in interest from the simplicity of effect. But in serious modern painting we expect to find some adequate suggestion of the solidity of objects, and this can be given only through the representation of light and shade.

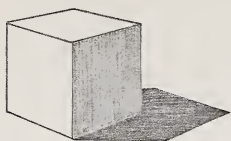


FIGURE · 12



FIGURE · 15

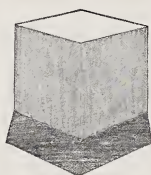


FIGURE · 13



FIGURE · 16

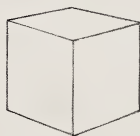


FIGURE · 14



FIGURE · 17



FIGURE · 18

Principles Explained—The Cube—Perhaps the simplest way to illustrate the principles of light and shade is to experiment with a cube or white box placed near a window, the light from all other windows being shut out. First, place the cube so that the top and two sides are seen and so that the light comes from the left downwards at 45 degrees. The effect is illustrated in Figure 12. Here we see that the left side and top receive the light, while the right side is turned away from the light and is therefore in shadow. We also notice the cast shadow at the right, which is thrown by the cube on the horizontal surface.

In Figure 13 the cube remains in the same relation to the window, but we have changed our place to one where we face the window. We now see the two sides of the cube which are turned away from the light, and the cast shadow extending towards us. We see the top in light as before.

Figure 14 shows the same cube unchanged in position, while we look at it from a point where we can see only the three surfaces that receive the light. These three figures are only diagrammatic and therefore the values are represented flat. Nature generally shows very subtle gradations in her masses of light, shade, and cast shadow, and such gradations are a matter which concerns painting, but just here we will consider the principles in the simplest way. What is true of the effect of light on a cube is true in a general way for all rectilinear solids, which of course include most of the forms found in architecture and many found in furniture. So the principles observed in the cube and illustrated in these figures should help in appreciating the light and shade of a city street or of the interior of a room.

The Sphere—Next, let us experiment with a sphere, placing it in the same relation to the window as we did the cube and looking at it first so that the light comes from the left and downward as before. Figure 15 shows one-half of the visible side of the sphere in light and one-half in shadow. Figure 16 shows how the effect will change if we move around so that more of the shade side is seen. In Figure 17 we have moved around so that more of the light side is seen. The dotted lines indicate the dividing line of light and shade on the invisible side. Now of course you cannot see any such sharp lines of demarkation in the object as these figures show. Between the light and the shade is a graded area of half light. There is really only one point on the surface of the sphere that is in full light. This is

called the high-light. Every other part is illuminated in a less degree. The shade side is modified by reflected light, that is, light thrown back to the sphere from surrounding objects. Thus the effect becomes more like Figure 18. We have now illustrated these terms: light, shade, half light and cast shadow; high light and reflected light. The observations which we have made on the sphere are true of the many objects of nature and of manufacture which have curved surfaces. A portrait painter must observe the principles of light and shade with the utmost care and skill if he wishes to attain to solidity of effect.

Suggested Study of Types of Lighting—It would be well for you to compare several modern portraits and several by such masters as Raphael (Italian, 1483-1520), Titian (Italian, 1477-1576), Rubens (Flemish, 1577-1640), Van Dyck (Flemish, 1599-1641), Velasquez (Spanish, 1599-1660), Reynolds (English, 1723-1792), and Raeburn (Scottish, 1756-1823). Notice what kind of lighting each artist preferred. See what pictures were painted in a side light; which ones in a light coming from above (a studio light); which in full light, which in shadow, etc. Some painters prefer a diffused light, like the light out-of-doors on a gray day, or light sifting through an extended ground glass skylight. Decide which effects particularly interest you. What is lost or what is gained by each type of lighting?

The Emotional Use of Light and Shade—But the use of light and shade simply to give the effect of solidity or roundness is by no means its only use in art. In the hands of a master, light and shade is one of the most powerful means of expressing emotion. One example of this emotional use of light and shade which is familiar to many is the painting of the "Nativity" by Correggio (Italian, 1494-1534). Rembrant (Dutch, 1606-1669) was peculiarly a painter who used light and shade in a powerfully emotional way. His favorite method of lighting was characteristic of his work. A small area of light surrounded by gloom is a typical arrangement with him. Many of his portraits exemplify this method, and also his famous composition generally known as "The Night Watch." With light and shade Rembrant was able to produce a wonderful feeling of mystery and charm regardless of his subjects which in some instances were commonplace.

Summary of the Topic—We have now touched upon the principal uses of values as a part of the language of drawing and

painting. They were discussed under two heads, first as a means of expressing things other than light and shade, and second as a means of expressing light and shade.

Under the first head we found that two values (including background) can be used effectively in light or dark, massed effects. More values can be definitely employed in a monochrome painting to suggest colors and to give a pleasing pattern of grays. Rightly employed flat masses of definite value will also express distance and atmospheric effect. All these matters are considered by the painter who also uses values as a means of expressing effects of light and shade.

Under the second head, light and shade, it was shown how solidity could be expressed by working according to simple principles. Lastly, light and shade was considered as a means of expressing emotion.

Suggestions for Graphic Analysis—Make tracings or sketches from good examples to illustrate the following:

1. Silhouettes of two types, that is dark against light and light against dark.
2. The use of three values to suggest color.
3. The use of three values to express distance.
4. A simple object with light, shade and cast shadow.

DRAWING AND ALLIED TOPICS

A. DRAWING

What Is Meant by "Good Drawing"—It is not easy to express in words the meaning that the phrase "good drawing" conveys to a trained artist or critic. To say that Millet was a great draughtsman of the figure is not only true but it is also high praise if the full meaning of the terms drawing and draughtsmanship are understood.

Let us try to get at the significance of the word "drawing" when it is used to indicate a significant product of pencil or brush. Let us suppose that one unskilled in art traces carefully around a shadow cast on the wall, by a head, and that the result is a fairly accurate outline of the profile. The question arises, is this a good drawing, and if not why not? The answer to this question lies in the fact that a good drawing always involves a conscious selection of important lines, and conscious thought in regard to the quality and significance of every stroke. Good drawing must be more than careful mapping of outlines in a mechanical way. A rough sketch by a master like Millet suggesting life, character and action simply but powerfully (as his rough sketches always do) is a good drawing in the best sense of the word. Good drawing is the placing of lines or masses in the right positions to express what is in the artist's mind.

Academic Standards—The usual training in drawing in the European and American art schools has consisted in long practice in drawing from the model. Oftentimes the student works each half day for a week with the model posing, and the result which he attains when he is successful, is a pretty accurate portrait, "well constructed" and "well handled." To acquire the ability to draw well in this "academic" sense of the word is no small accomplishment. It means that the student has learned to see proportions and to record them with truth; that he has learned the anatomy of bones and muscles, so that he knows just what he is representing by every line and touch; that he recognizes and appreciates subtle differences of value; and that he has learned to use his materials with skill. Only a few of all those who enter the art schools attain to mastery in academic drawing. Such French painters as Gerome (1824-1904) stand out

as supreme in good drawing in the sense that it is, academically speaking, perfect. It is excellent in craftsmanship, shows a perfect understanding of the figure, and is refined at the same time that it is realistic.

A Higher Type of Drawing—But the drawing of Millet, as shown in any of his studies of peasants at work, is of a higher order. It is more concerned with the expression of character than with the literal facts. The handling is often rough and unfinished, but strong and in harmony with the homespun men and women which he draws. While we are impressed by the firm construction of his figures, yet this construction is shown often by an omission of details and an emphasis of some significant line. Those who have had the power to draw well in this larger sense are among the great names in art. Greatest among all is Michel-angelo, a giant in draughtsmanship.

The Evolution of Drawing—Early painting was not worked out from the model. The painters were simply skilled decorators who had learned to draw certain types. They drew these in the main as they were taught by their masters, varying the poses of figures and the types of faces scarcely any from generation to generation. Cimabue (Italy, 1240-1302) was one of the first of the Italians to improve his types and make them more lifelike. His pupil Giotto (1267-1337) made a great advance in draughtsmanship. Giotto's figures were far more human, more dramatic, more true than those of his master or of his other predecessors. It is an interesting study to compare the drawing in the works of the followers of Cimabue and Giotto up to the time of the greatest masters of Italian painting, Raphael, Michel-angelo, Leonardo de Vinci (Italian, 1452-1519), Titian, etc. This can be done in any good collection of photographic reproductions. It is not hard to see how the knowledge of the figure grew through scientific study of nature and of the master works of the Greek sculptors. Finally after the greatest of the Italian painters came a period when the accumulated knowledge and technical skill was all that was left, and the painters produced work skillful in its realism but lacking in real power.

Drawing in Landscape—We must recognize the fact that good landscape art also involves good drawing. Trees and clouds and earth cannot be drawn without consideration for their characteristic constructions. Moreover, there is a complexity in land-

scape which requires a far greater degree of simplification than is required in figure painting. Clouds are constantly changing their forms. They must be drawn from memory after keen observation of typical shapes. The leaves of trees and the grass and vegetation of the fields cannot be drawn literally. The landscape painter who knows what drawing means, is skilled in selecting the few lines of cloud, or tree or hillside which will express the more important truth of form. Corot was a master in drawing trees so as to express just the character of growth with which he was impressed.

Decorative Drawing—The drawing of such artists as Botticelli or Burne-Jones (English, 1833-1898) must be judged from a different standpoint than has been considered in this section. In the section on Line, the use of line for its decorative quality alone was mentioned and Botticelli was named as an example of an artist whose lines must be judged apart from what was represented. In his figure drawing Botticelli often departs from anatomical truth and it would be hard to justify his drawing from the standpoint of representation. Feet, hands and heads may look queer in the way that they are attached, and hair and drapery would often have to be accepted as such by courtesy. Yet judged as a creator of graceful forms Botticelli takes his place as a draughtsman of a high order.

The drawing found in the paintings of Burne-Jones must be judged not with reference to its realistic success, but as a means of expressing his fanciful ideas. The conventionalities found in the drawing of such artists are not to be criticised because of their departure from nature, but rather they must be accepted as something intentionally adopted by the artist because suited to the expression of his ideas.

B. PERSPECTIVE

Linear Perspective—It ought to be hardly necessary here to dwell upon the matter of perspective as the term is usually used. In the drawing classes it is not usually a popular topic, probably because it requires a good deal of care and patience to make a perfectly correct drawing even of a common object like a book. Probably, however, most of you have at some time in your lives been overcome with wonder as you watched the effect of increasing size in an on-coming train, or watched some other ex-

ample just as familiar which vividly illustrates the principle of the apparent decrease of size in objects as they move away into the distance.

Probably, too, at some time in your lives you have wondered at the fact that a photograph or a drawing can give the effect so vividly of a vista of perhaps miles, for example, looking down a long avenue in a great city or park. Recently a venerable and highly educated old gentleman who had, however, never studied drawing, showed me a picture of the interior of a large room and expressed a child-like wonder that "you seemed to be able to look forty feet into the room!" He asked me how such wonders could be accomplished on a flat piece of paper. I was reminded of the enthusiasm with which Paolo Uccello (Italy, 1397—) pursued the study of perspective when the science was new to Italy, and how he even painted pictures apparently simply to bring in problems in perspective. This is not the place to enter into the science of linear perspective, and probably most of you think that you understand what perspective is. Even if you cannot always make a correct drawing, you probably would notice any glaring perspective errors in the work of a painter.

Aerial Perspective—But there are other changes than those of size, which distance makes in the appearance of objects. These changes were not taken into consideration by Uccello nor his followers down to very recent times. Figures and buildings in the distance were made smaller, that is to say, they were correctly represented so far as linear perspective could assist, but they were often drawn with as much detail as if they were supposed to be near at hand. The distances of the old masters remind one of distant objects seen through a telescope, so sharply are they defined.

Details Disappear in the Distance—Now a modern painter, for example, the American, Hassam (1859—), in painting figures in the distance represents them with less detail than he puts into nearer figures. The same thing would be true in the representation of any other objects; but in the case of figures which are supposed to be walking, there is an added reason for suppressing sharp contours and details, since a moving object presents a somewhat blurred image to the eye.

Effect on Values—In discussing values reference was made to the changes which distance makes in the apparent darkness of objects.

Effect on Color—Colored objects generally appear grayer in the distance and sometimes lose all trace of their actual hues. For example, green trees may appear gray or purple under certain conditions of atmosphere. Regard for aerial perspective or the changes of effect for which the atmosphere is responsible belongs to the art of comparatively recent years. It has developed with the modern schools of landscape painting. Beautiful effects of aerial perspective were attained by painters of the Barbizon School (Rousseau, Corot, Millet, Diaz and others) and those who followed. The so-called Impressionists contributed something, and among the contemporary landscape painters are several whose works are remarkable for outdoor atmospheric effect.

C. TEXTURES

The word texture is used in the discussion of painting to signify the distinguishing appearance of any surface which the painter undertakes to represent. There is a vast difference in the degree of skill displayed by able painters in the matter of representing textures. It may often be true that a painting possessing really great qualities is not particularly good in its textures. On the other hand there have been painters whose chief distinction lay in their ability to paint textures exquisitely. Nevertheless, the adequate and beautiful rendering of textures cannot be disregarded in the appreciation of painting, whether we consider it as a major or a minor quality.

Textures in an Indoor Subject—The painters of the Dutch school who were known as the "Little Dutchmen" are noted for wonderful texture painting. Terburg (1617-1681) and Metsu (1630-1667) are good subjects for study. Take for example "The Apple Parer," which is typical of Terburg. Even in a reproduction you are at once conscious of the beauty of the different materials and surfaces portrayed. You know that each would feel different to the touch of the hand. How characteristic are the surfaces of the china dish, the apples and the paring, the candlestick and the candle, as well as the various textures in the clothing of the lady, the hat of the child, and the faces and hands! The question arises, how is texture attained? It is partly a question of good drawing, especially as it concerns the exact shapes, of lights, shades, high lights and reflected lights; it is

partly a question of true value relations; and it is also a question of the way the paint is put on or the "handling." To appreciate good texture painting fully, you should be able to study some fine examples in the originals. This can be done in the art museums. Among our American painters who have excelled in this matter are Wm. M. Chase (1849—) in his still-life groups. He is especially fond of giving us the sheen of fish and the glint of metal.

Texture in Landscape Painting—In landscape painting, textures are one important factor in success. Some artists cannot paint an atmospheric sky or clouds that look of the right texture. Water—still water, or water of a flowing river, or of a rippling brook, or water stirred by the wind—present difficult problems in texture. Besides these are many others hardly less difficult, for example a sandy road, or a traveled country road of heavy soil; pasture land with rock and grass, bush and semi-bare ground; and trees with their greatly varying foliage and bark. Just to name these few examples should cause you to look with enquiring eyes to see how far the different landscape painters concern themselves with textures. The answer is not an easy one, for the landscape painters have other, and perhaps more important problems in mind; but a study of landscape art for the rendering of textures will be worth your while.

Summary: Drawing, Perspective, Textures—The topics drawing, perspective and textures have been grouped because all may be thought of as primarily connected with good draughtsmanship; that is, the placing of the right line or spot of value in exactly the right place.

The first important point made was that significant drawing is greater than merely correct drawing, although correct drawing in the scholarly sense is no common or small accomplishment. Highly significant drawing is concerned with the expression of an idea and such drawing eliminates certain facts and accentuates others.

The drawing of some painters must be considered from the standpoint of design rather than from the standpoint of realism. In other words their drawings are purposely made untrue to nature, for the sake of creating a fanciful impression.

The phenomena of linear perspective are more or less familiar to most people in these days of the camera, but the effects of aerial perspective are not so generally appreciated. In painting, most of them were disregarded until the nineteenth century.

The skillful representation of textures applies to all subjects, indoor and outdoor. While it may not be one of the great aims of art, it is a matter that cannot be disregarded in the study of paintings.

COLOR

What Is Beautiful Color?—I remember vividly a lesson in seeing color which I received from a cultivated Japanese collector of art objects. I was familiar at that time with the Japanese pottery of lively hues which has been made in such quantities for the American markets, but I had not had my attention called to the fine old pieces, found only in choice collections. My Japanese friend took me into a room containing many rare forms and I was surprised at the dull browns and grays that predominated. But my surprise was greater when the collector took up what seemed to me a dull brown jar and holding it near the window said, "Isn't this one full of exquisite color!" From that time I took a new interest in searching for color, and I soon began to appreciate better what the Japanese gentleman saw to give pleasure to his color sense. My color education received another impetus at about that time when I talked with a landscape painter about outdoor sketching in the autumn. "November is a better month for color than October," he said, "because the colors then are toned down to where they are paintable." After that I came to the conclusion that nature might have great charm of color in her less brilliant moods. If we stop to use our eye and to consider, we shall probably conclude that fields, woods and skies, beasts, birds and flowers are not generally brilliant in color. Nature uses a brilliant note here and there amid much that is not pronounced in hue. In fact the more we use our eyes, the more we shall see how seldom occur large masses of strong color, and the more we shall see that what we had passed as brown or gray is full of delicate color suggestions. Those who are artistically uneducated fail to see color except in its cruder notes, and so they cannot possibly understand why anyone should admire color where no color is to them apparent. It takes cultivation of the color sense to see the beautiful grayed colors in a landscape by Corot or in one of Whistler's extraordinary "arrangements," as he called many of his paintings.

It by no means follows from what has been said that all the dull colored paintings are good, or that a rug with faded

colors is necessarily harmonious. But the lesson should be clear that the first step toward color appreciation is learning to see colors in their less pronounced notes.

When Bright Colors Are Satisfactory—At the present time there is a fashion for using brilliant notes of color in combination, both in pictorial work and in design. Where these are most satisfactory they are generally combined with a generous amount of neutral surface, that is white, black, gray or all three. It may be pretty safely asserted that the human eye does not take the highest kind of satisfaction in the contemplation of large masses of bright rainbow colors unless they are balanced by neutrals or by neutralized notes of color. This point is illustrated by certain of the mediaeval stained glass windows, which though composed of brilliant hues, appear only like jewels of bright color in the midst of the gloom of the vast cathedral interiors.

Harmony—The word harmony and harmonious are much used in speaking of color, and sometimes they are used with vague meaning. Perhaps the best definition of harmony is one which implies that where there is harmony there must be a common factor present throughout the work. For example, we may have a harmony in yellow, and yet introduce all the colors of the rainbow into a composition. Each of these colors, however, must be modified more or less by the harmonizing color, yellow. This effect may be seen often in nature when all the landscape is bathed in a warm glow from the west, in the late afternoon. On a gray, foggy day all colors are modified or harmonized by the gray mantle of the atmosphere. Harmony of color in the true sense implies that all the colors in the composition have been brought into relation through the domination of one color or of a neutral which has been used to modify all.

Opposite Colors—If you fix your eyes on a spot of vermillion for a short time and then look at a white surface, you will see a spot of very light bluish green. This color seen is the opposite or complementary color of red. Every warm color has its opposite cool color, and opposite colors used side by side tend to enhance the effect of each other. What has been said on the subject of harmony, however, remains true, even when opposites are used.

While these general statements cannot go far in suggesting how to combine colors (which is the study of a lifetime) they

ought to be helpful to those who determine to look for color and to appreciate more intelligently the art of the painter.

Color May Express a Mood—If we turn the pages of Boutet de Monvel's (France, modern) color compositions illustrating the story of Joan of Arc,* we can scarcely fail to appreciate how remarkably the color schemes in certain of the compositions express the mood of the picture. What a contrast of mood is there between the cool colors of the pastoral scene where Joan tends her flocks, and the hot hues of the battle scene. The color in the latter is sanguinary throughout the picture, and speaks of bloodshed before we have begun to study the composition. While not all painters have utilized the possibilities of emotional appeal which colors possess, yet you will find that the great painters invariably use color schemes which reinforce their ideas. Millet's and Corot's paintings are good material for study in this connection. We should expect to find rich and sombre color schemes in Millet's paintings for his themes are serious; and Corot's happy mood is well expressed by his silvery colorful grays.

Local Color and How It Is Modified—If you are asked to name the color of a daffodil, you at once answer "yellow." You have named its local or actual color. We are generally thinking and speaking of local colors when we use color terms, but the modern painter knows that local colors undergo many changes of color effect according to circumstances.

First of all there is the effect produced by light and shade. Look carefully at the folds of some drapery which receives a strong side light. Notice the differences between the color notes of the light parts, of the parts in half light, and the parts in shade. Then study drapery as it is painted by different painters of the art galleries. You will probably be surprised to find so little of what can be considered the local colors in these pictures, so great is the modification produced in local colors by light and shade.

That distance modifies local colors has been mentioned in another connection. Probably most of you have seen distant hills which appeared blue or purple, yet if you stopped to think you knew that they were covered with green trees. The distance had made green appear blue. Not quite so far off the green trees may look a bluish green. The trained eye which notes very

*Published by the Century Company.

slight changes of color, will see that even a slight distance will effect an apparent change in local colors.

Another cause of change of color from its local character is reflection. You have all tried holding a buttercup under the chin of a playmate "to see if she loves butter." Generally the yellow is vividly reflected so that the chin looks yellow indeed. In the same way all colors are reflected more or less on to adjacent surfaces, and so for example, a yellow object may be made to appear a greenish yellow or a green, by the reflection from a green or blue surface.

Color in Decorative Art—While in general all these modifying influences are considered in modern art, decorative art is more or less an exception. The art of the mural painter, aiming chiefly to enrich a flat surface, does not necessarily call for the introduction of light and shade in a realistic way, nor for other realistic effects of color. The paintings of Puvis de Chavannes (French, 1824-1898) are comparatively flat in their color and value treatment, suggesting somewhat the work of Giotto. Puvis deliberately returned to a more primitive kind of painting, believing that the flat treatment was more in harmony with wall decoration than a more modern and realistic treatment.

Color Used to Express Light—In some modern outdoor paintings, you will notice a free use of yellow and purple, yellow predominating in the parts representing sunlight and purple in those showing shadow. Your first question is naturally, "Are such colors found in nature?" The answer might be made that the aim of the painter has been to give the strongest possible effect of sunlight that colors will give. So he has used freely strong light yellow and its complementary purple, not because nature's colors looked just that way, but because with these colors he can give at the same time the greatest contrast of both color and value. By this means he strives to suggest the blinding effect of sunlight. This use of color with various devices of handling the paint, to give the effect of outdoor light is one of the interesting contributions of modern times to the art of the painter.

SUMMARY: COLOR

Since the uneducated eye sees only bright colors, the first step toward acquiring the appreciation of fine color, is to learn to see the less obvious colors in nature and in art.

Nature uses her brightest hues rarely. Sunsets and brilliant autumnal pageants are of short duration. Bright flowers and birds are but small spots in the landscape. Art at its best has generally been sparing of strong colors. When they are successfully employed, it is with considerable surrounding neutral surface.

While there are many ways in which colors may be grouped effectively by an artist, to attain harmony he must manage to introduce some common factor into his color scheme so that all colors will be tied together in effect by a dominating color or a neutral.

Colors, through association of ideas, may suggest moods. Color has an emotional appeal. It is commonly accepted as a fact that red in large quantities is irritating to the nerves, and that grayish green or soft brown may be quieting.

While we are prone to think largely of the local colors of objects, local colors are changed in effect through various causes. A painter generally takes all these modifying influences into account. In decorative art, however, colors may sometimes be treated conventionally in practically flat masses.

In modern outdoor painting colors are sometimes used, not realistically, but scientifically, to produce effects of sunlight.

COMPOSITION

What Is Meant by Composition in Painting—To compose means literally to put things together. The purpose of composition in painting is the creation of a picture. The things which the painter puts together are lines and forms, and we might add the spaces which he leaves among the forms, for these spaces create in themselves lines and forms which have their effect in the composition.

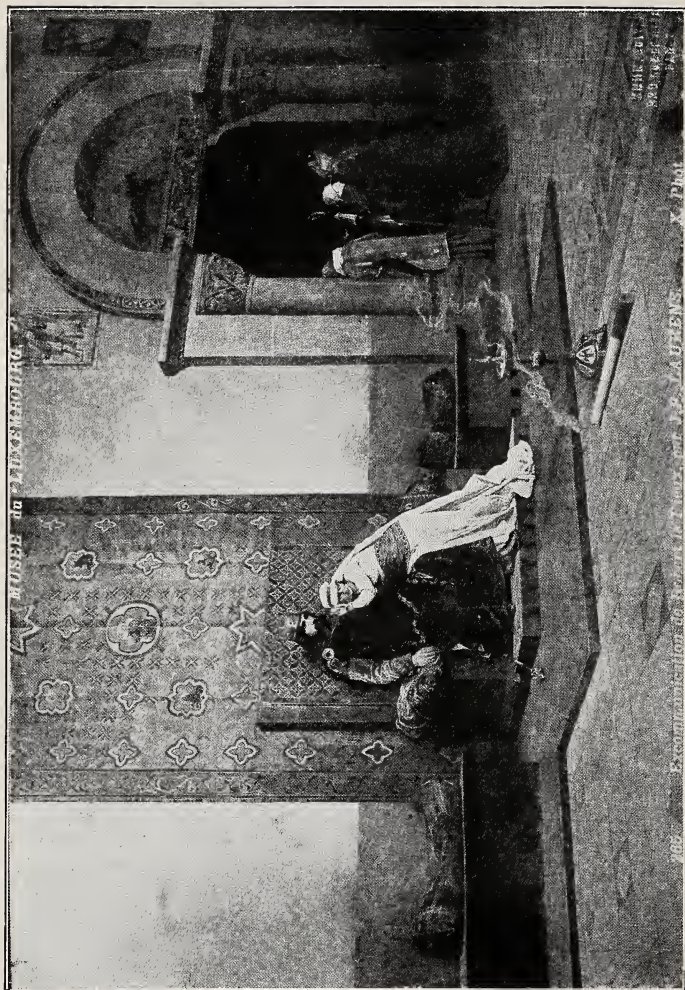
Formal Composition of the Early Painters—If we glance at the compositions of the earlier painters, for example, those of Cimabue and his contemporaries, we shall see how rigid and conventional the painter's art was at that time. Nevertheless, such a composition as Cimabue's famous Madonna is in certain respects excellent, and in a simple way exemplifies fundamental principles which must always be followed in certain decorative types of pictorial work. First there was the central group, the Madonna holding the Child. Second there were three angel figures at the left, balanced by three angel figures at the right.

In childlike fashion, the Madonna is made large because she and the Child are of course all-important. The angels placed in a vertical row are small. Each angel is slightly different in pose and in details, but they are very similar. The whole composition is an example of pictorial balance approaching very near to symmetry.

The Formal Type of Composition Modified—If you look through the Madonna compositions, the altar pieces of the Italian painters, you can see how as time went on their compositions became less and less formal, they got further and further away from the convention and nearly symmetrical arrangement which had long been used, and yet they kept a perfectly balanced composition with the central figure of the Madonna. If you compare the Sistine Madonna by Raphael with the Cimabue Madonna, you will see how wide apart are the two in most respects and yet that each is a formal arrangement on a central axis.

For certain spaces, for example, a central panel or the end of a room, the painter is practically forced to adopt the type of compositions we have been discussing.

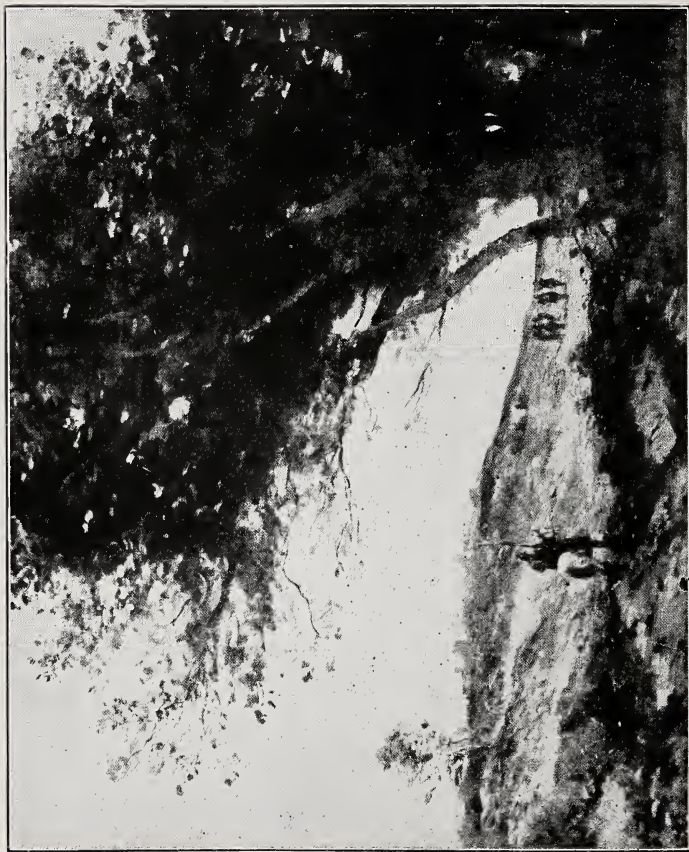
Study of a Supreme Example of Formal Composition—We will consider an example involving a much greater problem, many figures and wonderful light and shade. Look at Titian's Assumption of the Virgin first with your eyes nearly closed so that you can see at a glance the leading lines and masses. You will see three principal masses, the dark mass of the figures at the bottom of the picture; the festoon-shaped mass of the angel throng supporting the Madonna on the clouds; and the smaller mass at the top containing the figure of God, the Father. The general symmetry of the whole composition is perfectly obvious, but the pose of the Madonna and the arrangement of the drapery are wonderfully free. In fact the freedom and dramatic action of the figures throughout the picture at once impress us. Here is a formal composition, most informal in its details; and yet a little study will show how carefully the figures in the lower group have been composed to balance, and to lead the eyes up from this group to the rising figure of the Virgin. Every line helps. Then all the lines of the central mass lead finally to the top of the picture. Our eyes are made to rise with the Madonna from earth to Heaven. Now let us consider the light and dark of the picture. The large dark mass is at the bottom; the central mass is a brilliant play of light and dark, the figure of the Virgin



EXCOMMUNICATION OF ROBERT THE PIUS
BY J. P. LAURENS.

coming out in strong relief against the large light space of the picture; and the upper mass is not so dark as to attract too much attention, but is dark enough to serve in the general arrangement. Titian was a great colorist and this picture is a wonderful example of color composition, but to study the color we should be before the original in the Academy, Venice. As a beautiful composition of line and of light and dark, it will repay repeated study in the reproduction.

A Story-Telling Composition—The formal type of composition which we have considered is perhaps first decorative in its aim and secondly pictorial. We will now examine a modern painting, an easel picture by Laurens (French contemporary) which is strictly pictorial in aim. The subject is taken from French history. Robert the Pious was king of France about the year 1000 A. D. and for marrying a relative, Bertha, he was excommunicated by Pope Gregory V and sentenced to do penance for seven years. The painter has chosen the dramatic moment just after the delivery of the Pope's message. How well the whole feeling of the picture conveys the idea! Now let us see how far the arrangement of lines and masses helps the mood of the picture. The large empty hall is expressed by the long lines of floor and throne leading off to the right, where the representatives of the church are just disappearing. The upright oblong of tapestry behind the throne helps to isolate the figures of king and queen. The great candle, emblem of the church, lies prostrate and extinguished. It points accusingly directly toward King Robert, while its curling smoke leads the eye over to the departing churchmen. Other lines lead our eyes to those of the guilty king, the lines of the patterned stone floor that run parallel to the candle, the king's sceptre which he has dropped to the floor, and the long lines of the figure of Bertha who clings to her husband in fright. The king is the center of interest of the picture and everything in the composition is arranged so that our eyes constantly return to the king's face with its haunting expression of mingled fear and defiance of the church and of love for his queen. The picture is a fine example of unity and of the domination of one center of interest. While the line composition of the picture has been dwelt upon, the darks and lights are no less a factor in directing our eyes and fastening our attention. The light dress of the queen placed beside the dark robe of the king forms the strongest contrast of the picture and so forces



A TYPICAL LANDSCAPE
BY J. B. COROT.

us to look first at the royal pair. Other lights and darks of the composition are skillfully balanced and made of subordinate interest. The balance of this composition, although not accomplished by the obvious means such as we have found employed in the bi-lateral arrangements of the Italians, is a perfect balance. Every line and spot is thoughtfully and skillfully placed to help the structure of the picture.

Composition Must Be Practiced by the Portrait Painter and by the Landscape Painter—You may think, however, that the painter of a portrait or of a landscape is not concerned with composition. A little thought and the careful observation of fine examples of landscape and of portrait art will convince you that in both composition is of the utmost importance. For an example of splendid composition in portrait art, study Titian's "Man With the Glove." Notice how wonderfully the artist has arranged the pose and the placing of the head and body upon the canvas. Study the simplicity of the leading lines of the picture and see just how darks and lights are balanced. If you doubt that that picture was consciously arranged on the canvas, trace the masses and then try placing the head slightly higher or lower or more to right or left and see whether these changes make a difference or not.

A successful landscape, no less than other subjects, must emphasize one object, must express one idea. A landscape, for example, may be painted principally for the sky. Then the sky must dominate the composition, and other things must be subordinated. The camera does not choose certain things for emphasis, and so a photograph is seldom completely satisfactory as a picture. Compare Corot's landscapes with the best photographs of landscapes that you can find, and you will be convinced that Corot was a great composer. Trace the principal outlines of one of Corot's landscapes and you will not doubt that the lines were arranged by him to give unity of effect. Place the photograph of the landscape at some distance so that the masses only are evident, and make a sketch in brush and ink of the general shapes of the darks. These exercises should help you to appreciate the meaning of composition of line and of mass in landscape.

Summary of the Topic—Composition in painting amounts to the arrangement of lines, values and colors for the purpose of making a picture.

A composition may be balanced formally or informally, according to the aim of the painter, but in either case he must attain unity. There must be a dominating idea, a central interest.

The eye is directed in a picture by the composition of lines, and by the composition of masses of dark and light, for the eye is compelled to follow the principal lines and to see first the strongest contrasts of dark and light.

Every picture that is worthy of being regarded a work of art involves composition. Even the artist who paints directly from nature must pick and choose, emphasize and subordinate. This becomes an act of composition, although sometimes it is practiced in part unconsciously.

Suggested Exercises in Graphic Analysis—1. Make a tracing of the leading lines from a formal composition.

2. Make a tracing of the leading lines from an informal composition.

3. Paint roughly in ink the masses of dark, making a sketch of the "spotting" of Titian's Assumption of the Virgin."

4. Make a tracing of the leading lines of a portrait showing its line composition.

5. Make a tracing of the leading lines of a landscape showing its line composition.

6. Make a sketch of the dark and light composition of a landscape by Corot.

ARCHITECTURE AND THE INDUSTRIAL ARTS

Architecture Distinguished from Mere Building—The “science of the artist” as well as the knowledge of the builder are necessary in the production of a structure that properly can be called architecture. The old authorities tell us that good architecture should possess firmness, fitness and beauty. In other words, whether great or small, a nation’s capitol or a country cottage, a building may be considered seriously as architecture if it is well constructed and suited to its use, and also beautiful in form and color. If the aesthetic aim has been omitted it is a building and nothing more.

An Interest in Architecture Should Begin in the Home Town—Probably to most well educated persons, especially to those who have traveled abroad, the word architecture calls at once to the mind’s eye the world famous buildings; the Parthenon at Athens, St. Paul’s in London, and the great Gothic cathedrals of England and of France; the Coliseum at Rome, and the Opera House in Paris; the Roman Forum and the Parliament Houses on the Thames; and the many others well known in photographs and engravings. Now it is certainly well for you to become familiar with pictures of the world’s great buildings, including those of our own country, such as the Capitol at Washington, the Boston Public Library, the Columbia University group, the Union Station in Washington and others. But your real interest in architecture begins when you first look with interest at the buildings in your own town and commence to take keen pleasure in looking at the good ones every time you pass them. Most towns have some good architecture, and the interest you can develop in a building which becomes thoroughly familiar to you, is pretty sure to be more genuine than the interest which you may develop through the study of photographs alone of the great masterpieces of architecture.

Domestic Architecture—Since everyone of us must live in a house of some kind, we ought all to be interested in domestic architecture or the architecture of dwellings. Yet it is safe to say that everywhere in the United States there are far fewer homes that are worthy to be considered as architecture than those which

must be classed merely as buildings, often as very ugly buildings. This unfortunately is true even of houses which cost a great deal to build, especially of many ornate structures erected in some cases a generation or more ago. Taste has been improving and today in most cities and towns there are at least some dwellings that are worthy of study as types of good American domestic architecture. If you look for them you can find houses which are beautiful and which cost comparatively little, for a small cottage well designed may be appropriate and charming. A more stately and impressive character is of course in keeping with the mansion of the millionaire. The architecture of apartment houses (the homes of so many city dwellers) has been improving in some cities, and occasionally even among the more modest buildings there appears one of considerable charm. By rights we should expect the better architecture where the more money has been spent, but too often lavish expenditure has failed to produce beauty. This shows how important it is for each person to train his taste so that he can know how to get the most beauty as well as the most convenience for the money he spends.

How to Study Buildings—How shall you learn to judge of architecture and to become appreciative of the best buildings wherever you see them? The first step is to make an independent choice as often as you can. After you have made your choice try to find good reasons for your preference. A good plan would be to choose six of the best residential streets in your town, and walk through each in search of the most beautiful house in that street, taking one street each day for six successive days. Having chosen according to your own judgment the six best houses, take a fresh view of each of the six and make a decision as to which is the best one of all. In choosing, it will perhaps help you to think of some of the principles which have been discussed in connection with pictorial art, although it may not at first be easy for you to apply what you have learned to your judgment of an architectural composition. Nevertheless, remember that the architect composes lines, masses of light and dark and colors, no less than does the painter, although the materials used are so different. In your early selections of buildings, it is not likely that you will always select wisely. But as time goes on you will use your eyes more intelligently, and you will gradually find it easier to make a choice and to justify your choice with good reasons.

After the study of dwelling houses, a similar plan can be followed in the study of the public buildings of your town.

Become Familiar With the Best Examples—As you become interested in the houses of your own town, you will find that pictures of good domestic architecture in other places will take on for you a new interest. Several of the popular magazines as well as those devoted to architecture alone, are constantly bringing out pictures of the interesting houses that have been recently built throughout the country. With these you should become familiar for they will help to give you standards of comparison by which you will make your judgments. You should also become acquainted with some of the best examples of the old Colonial or Georgian houses of New England and the South, for these are perhaps the most consistent and beautiful dwellings that have been built in the United States. Beside these, you should look up in the books on architecture and travel pictures of some of the beautiful houses of other times and countries. For example, you should know the half timber houses and thatched cottages of England, as well as the stately homes of the English aristocracy. Look up the delightful houses of old Germany—of Nuremberg and Rothenberg—and the Chateaus of France. Try to realize how these different styles of building grew out of the needs of the people who built them, and also in part from the nature of the materials which they had to use.

Some Principles of Architectural Composition—As you become used to looking for beauty in buildings of all kinds, you will be prepared to understand some of the principles which must always underlie good architecture.

(1) Not only should a building be suited to its use, but in its masses and in its details it should be in character with its use. For example a beautiful church or cathedral expresses the idea of worship, and its portals seem to invite you to enter. A country house should suggest by the character of its lines the idea of shelter and protection from storm and from sun. A city dwelling should give one a sense of being a retreat from the noise and distractions of city life. So does every successful piece of architecture interest us and claim our attention by its expression of the character of its use.

(2) A building should harmonize as much as possible with its natural surroundings. For example a stone church upon a

rocky hill should appear to grow out of the rock. A country house both in form and in color should impress us as belonging to the landscape, as is true of so many English cottages. How do we see this principle disregarded in the obtrusive structures of our own country-side!

(3) Like other works of art, a piece of architecture should impress us as a unit, as one thing, not as several. All the parts should be related to each other and to the whole, so that the whole appears just as truly one thing, just as organic as does a fine tree. If in looking at a building you see some projection (perhaps a tower or a dormer) that seems too insistent, then you should raise the question as to whether that projection is not a mistake.

(4) Fine proportion is one of the chief essentials of architectural composition, but only by making many comparisons will you become sensitive to fine proportion. Make an attempt to sketch rapidly from a photograph the general outlines of the Parthenon or the main lines of the facade of the Notre Dame of Paris, and then compare the proportions of your sketch with those of the photograph. The chances are that no argument will be necessary to prove to you that the proportions of these master-pieces are finer than you have been able to suggest them in your sketch. In many a dwelling house a slight variation of the proportions—possibly a little greater overhang of the roof, or windows a trifle wider or smaller—would have changed a commonplace house into one of charm.

(5) Ornament usually should be used with reserve, and to glorify important parts. In the best examples of our Colonial dwellings, the ornamental touches were generally confined to the fine moldings and to the accessories of the front entrance, such as the porch with columns, the leaded side-lights and fan-lights, and the panelled door with its decorative brass latch and knocker. In a cathedral exterior, the main doorways generally receive the greatest share of sculptural adornment.

The Arts Connected With Furnishing the Home—Thus far in discussing architecture, exteriors only have been mentioned. That is the part of the building that is seen by everybody. Nevertheless we should all know that the interior is the more important part from the standpoint of use. The inside of a house is the part we live in, and a good designer of houses begins with the plan and fits the outside of the house to the inside requirements.

A well thought out dwelling house should have a charming exterior suggestive of comfort and beauty within. The rooms should be attractive when seen singly or in relation to each other. This necessitates not only good architectural design but appropriate and well considered furnishings. Thus in considering the architecture of the house, we are forced to consider a number of the industrial arts—furniture, rugs and hangings, wall papers, table dishes, pottery for decorations, etc. It has been truly said that "Architecture is the mother of all the arts."

How to Acquire Good Taste—Since practically everyone must sooner or later buy home furnishings of some kind, it is evident that good taste in their selection should be generally cultivated. This is not more difficult than to acquire good judgment in other matters. The power to judge is acquired by exercising the judgment. When you look at a display of furniture in a store window or elsewhere, make a choice and then find your reasons for that choice. Do the same thing in the case of rugs, of pottery, and of the other industrial art products. Take advantage of museum collections to study the best examples of different periods. Learn something of the history and of the processes of important crafts. Then you will come to see how in every craft an object in order to be satisfactory must be so made as to serve its purpose perfectly, to bring out the beauty of the material fully and to result in fine form and color. Among chairs, for example, how many times are found failures in all these respects—chairs hard to sit in, hard to move, and hard to live with because they are lacking in grace of form or appropriate treatment of the wood! But what a delight is a really fine chair!

Summary—It seems reasonable for everyone to be interested in architecture, and especially in the architecture of dwelling houses. An intelligent interest leading to good taste in architecture and in furnishing can be acquired only by a conscious exercise of the judgment. The habit should be formed of choosing the best from a number of examples whenever an opportunity presents itself.

Museums and libraries should be used to acquire knowledge of the best examples that the world possesses in the various arts. This knowledge of fine examples, together with some understanding of the processes of the crafts, will help to develop good taste through a growing appreciation of a few great fundamental principles which never change with the fashions.

LIST OF HELPFUL BOOKS

REPRESENTATION.

Author	Title	Publisher
Cross, A. K.	Freehand Drawing.	Ginn & Co., Boston.
Cross, A. K.	Light and Shade.	Ginn & Co., Boston.
Dunlop.	Anatomical Diagrams.	Bell & Sons, London.
East, Alfred.	Art of Landscape Painting. in Oil Color.	Lippincott, Phila.
Hatton, R. G.	Figure Composition.	Scribner, N. Y.

DRAWING.

Bement, Alon.	Figure Construction.	Gregg Publishing Company.
Maginis, C. D.	Pen Drawing.	Bates & Guild, Boston.
Mathewson, F. E.	Perspective Sketches from Working Drawings.	Baker-Taylor, N. Y.
Norton, D. M.	Freehand Perspective.	The Author, Pratt Inst., Brooklyn.
Day, L. F.	Nature the Raw Material of Ornament.	Scribner, N. Y.
Vanderpoel, J. W.	Human Form.	Inland Press, N. Y.

DESIGN, DECORATIVE.

Batchelder, E. A.	Design in Theory and Practice.	Macmillan, N. Y.
Crane, Walter.	Bases of Design.	Macmillan, N. Y.
Crane, Walter.	Line and Form.	Macmillan, N. Y.
Crane, Walter.	Decorative Illustration of Books.	Macmillan, N. Y.
Day, L. F.	Ornament and Its Applica- tion.	Scribner, N. Y.
Day, L. F.	Ornament, the Finished Product of Nature.	Scribner, N. Y.
Day, L. F.	Pattern Design.	Scribner, N. Y.
Day, L. F.	Windows—A Book About Stained Glass.	Scribner, N. Y.
Dow, Arthur.	Composition.	Doubleday, Page & Co., N. Y.
Jackson, F. H.	Lessons in Decorative De- sign.	Scribner, N. Y.
Midgely & Lilley.	Book of Studies in Plant Form.	Scribner, N. Y.
Ross, Denman W.	Theory of Pure Design.	Houghton Mifflin Co., Bos- ton.

DESIGN, CONSTRUCTIVE.

Binss, C. F.	Potter's Craft.	Van Nostrand, N. Y.
Hambidge, Jay.	Dynamic Symmetry—The Greek Vase.	Yale University Press, New Haven, Conn.
Izor, Estelle Peel.	Costume Design and Home Planning.	Mentzer, Bush & Company, Chicago.
Wood, Harry E.	Prevocational and Indus- trial Arts.	Mentzer, Bush & Company, Chicago.

LIST OF HELPFUL BOOKS (Continued)

Author	Title	Publisher
Clifford, C. R.	Period Furnishings.	Clifford & Lawton, N. Y.
Cockerell, D.	Bookbinding and the Care of Books.	Appleton, N. Y.
Daniels, F. H.	Furnishing of a Modest Home.	Mentzer, Bush & Co., Chicago.
Day, L. F.	Art in Needlework.	Scribner, N. Y.
Jack, Geo.	Wood Carving.	Appleton, N. Y.
Meyer, F. S.	Handbook of Ornament.	Hessling, N. Y.
Nye, Alvin.	Furniture Designing.	Comstock, N. Y.
Parsons, F. Alvah.	Interior Decoration.	Doubleday, Page & Co., N. Y.
Payne, Arthur F.	Art Metal Work with Inexpensive Equipment.	Manual Arts Press, Peoria.
Rathbone, R. L. B.	Simple Jewelry.	Van Norstrand, N. Y.
Robinson.	Architectural Composition.	Van Norstrand, N. Y.
Rose, A. F.	Copper Work.	Mentzer, Bush & Co., Chicago.
Wilson, H.	Silversmithing and Jewelry.	Appleton's, N. Y.
Davidson, P. W.	Educational Metal Work.	Longman's, N. Y.
LETTERING.		
Brown, F. C.	Letters and Lettering.	Bates & Guild, Boston.
Day, L. F.	Alphabets, Old and New.	Scribner, N. Y.
French, T. E.	Essentials of Lettering.	Varsity Supply Co., Columbus, Ohio.
Johnston, Edward.	Writing, Illuminating and Lettering.	MacMillan, N. Y.
HISTORY.		
Reinach, S.	Apollo, Manual of Art Through the Ages.	Scribner, N. Y.
	Ars Una Series (All Periods and Countries).	Scribner, N. Y.
Gardener, Helen.	The Art Through the Ages.	Harcourt, Brace & Co.
Fletcher, Banister.	History of Architecture.	Scribner, N. Y.
Glazier, R.	Manual of Historic Ornament.	Scribner, N. Y.
Hamlin, A. D. F.	Hist. of Architecture.	Longman's, N. Y.
Lester, Katherine.	Historic Costume.	Manual Arts Press, Peoria, Ill.
Marquand & Frothingham.	Hist. of Sculpture.	Longman's, N. Y.
Tarbell, F. B.	Hist. of Greek Art.	MacMillan, N. Y.
Van Dyke, J. C.	Hist. of Painting.	Longman's, N. Y.
Eberlein & McClure.	Practical Book of Period Furniture.	Lippincott, N. Y.
Mumford, J. K.	Oriental Rugs.	Scribner, N. Y.
Lewis, G. G.	Practical Book of Oriental Rugs.	Lippincott, N. Y.
	Master in Art (Monographs of Great Artists).	Bates & Guild, Boston.
	Classified Half-tone Pictures of the Hist. of Art.	Bureau of University Travel, Boston.

LIST OF HELPFUL BOOKS (Continued)

COLOR.

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Munsell, A. H.	A Color Notation.	Munsell Color Co., Baltimore, Md.
Munsell, A. H.	Color Balance.	Munsell Color Co., Baltimore, Md.
Munsell, A. H.	Atlas of the Color Solid.	Munsell Color Co., Baltimore, Md.
Ross, D. W.	Theory of Pure Design. (Chapters on Color.)	Houghton Mifflin Co., Boston.
Ross, D. W.	The Painter's Palette.	Houghton Mifflin Co., Boston.
Sargent, Walter	Enjoyment and Use of Color.	Scribner, N. Y.

GENERAL.

Boas, Belle.	Art in the School.	Doubleday Page & Co., N. Y. Garden City, N. Y.
Bonser & Mossman.	Industrial Arts for Elementary Schools.	Macmillan Co., N. Y.
Balfour, H.	Evolution of Decorative Art.	Rivington, London.
Caffin, C. H.	How to Study Pictures.	Century, N. Y.
Cox, Kenyon.	Old Masters and New.	Fox, Duffield Co., N. Y.
Cox, Kenyon.	The Classic Point of View.	Scribner, N. Y.
Emery, M. S.	How to Enjoy Pictures.	Prang Educa. Co., N. Y.
Hamerton, P. G.	The Graphic Arts.	Little, Brown & Co., Boston.
Hogarth, Wm.	The Analysis of Beauty.	J. Reeves & Turner.
Ross, Denman W.	On Drawing and Painting.	Houghton Mifflin Co., N. Y.
Van Dyke, J. C.	Art for Art's Sake.	Scribner, N. Y.
Viollet-le-Duc.	Learning to Draw.	Putnam, N. Y.
Sturgis, Russell.	The Appreciation of Architecture.	Baker & Taylor Co., N. Y.
Sturgis, Russell.	The Appreciation of Sculpture.	Baker & Taylor Co., N. Y.
Harrison, Birge.	Landscape Painting.	Scribner, N. Y.
Wilson, Della F.	Primary Industrial Arts.	Manual Art Press, Peoria, Ill.
Wood, Harry E.	Progressive Problems in Mechanical Drawing.	Mentzer, Bush & Company, Chicago.

