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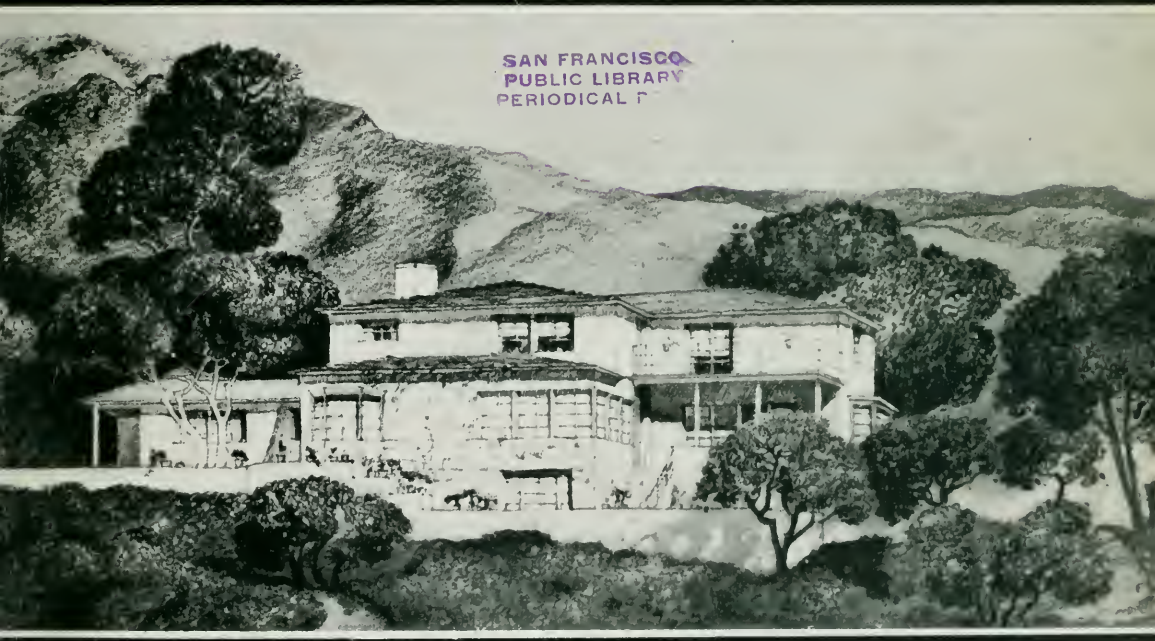

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THE ARCHITECT & ENGINEER

Contents for April, 1937

THE ARCHITECT AND ENGINEER, INC., 68 Post Street, San Francisco, EXbrook 7182. President, Edgar N. Kierulff; vice-president, Frederick W. Jones; secretary, L. B. Penhorwood. Los Angeles office, 832 W. Fifth Street. Chicago representative, Harry B. Boardman, 123 West Madison Street, Chicago, Ill. Published on the 12th of each month. Entered as second class matter, November 2, 1905, at the Postoffice at San Francisco, California, under the Act of March 3, 1897. Subscriptions, United States and Pan America, $3.00 a year; Foreign countries, $5.00 a year; single copy, $.50.

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Notes and Comments

FRESNO'S Allied Architects did a creditable job designing the Municipal Auditorium and Hall of Records, pictures of which are shown elsewhere in this issue. The architecture is pleasingly modern. A third building in the Fresno improvement program and which has occasioned comment for its more radical design, is the School Administration Unit. Glass blocks are featured over the main entrance and the modern feeling is further accentuated by a wide canopy above the entrance, metal and glass doors. The architects comprising the Allied organization were W. D. Coates, Fred L. Schwartz, H. Raphael Lake, Charles H. Franklin, E. J. Kump and E. W. Peterson.

* * *

THE engineers of California have reason to feel good over the recent turnout at Sacramento. It was the largest assemblage of all branches of the profession recalled to the memory of veteran members. A spirit of good fellowship dominated the banquet hall and to those outside the profession the size of the assemblage was most impressive.

* * *

THE dominant architectural feature of New York's World's Fair will be a white sphere 200 feet high poised on a cluster of fountains and flanked by a slender 700-foot triangular obelisk. Although both sphere and triangle are among geometry's simplest most fundamental forms, neither has ever before been employed in formal architecture. Their use for the key buildings of the Fair—the Theme Building and Tower—resulted from a determination to strike a new note in design, yet one that was simple as to form, beautiful and structurally sound. It was felt that such a note would best exemplify in architecture the theme of the Fair—Building the World of Tomorrow. It was also felt that the conception of a sphere hung on upRushing jets of water was a happy interpretation of the festive quality inherent in an exposition.

So new is the triangular motif to architecture that Fair technicians were unable to find a word which would adequately describe the obelisk-like structure.

"Acute triangular pyramid" was the best they could do. Geometricians at Columbia University could only suggest "tall tetrahedron."

Finally, it was decided to coin a new word, and "trylon" was selected—a combination of "tri," referring to its three sides, and "pylon," indicating its use as a monumental gateway to the Theme Building.

To describe this Theme structure, the word "perisphere" was coined. It was felt that the prefix "peri," signifying "beyond, all round, about," conveyed perfectly the underlying idea of the Fair.

Plans for the Perisphere and Trylon were prepared by the architectural firm of Harrison & Fouilhoux and represent the final distillation of more than 1,000 preliminary sketches. The estimated cost of the two structures is $1,200,000.

The Perisphere, which will house the Exposition's Theme Exhibit—a spectacular portrayal of the basic structure of the World of Tomorrow—will rise eighteen stories above the Fair grounds. It will be broader than a city block. Its interior will be more than twice the size of Radio City Music Hall.

A single entrance high up on its side, fifty feet from the ground, will be reached by glass enclosed escalators. Stepping within, the visitor will seemingly find himself suspended in space on a moving platform gazing down on a vast panorama dramatizing the all-important role of cooperation in modern civilization, showing all the elements of society coordinated in a better World of Tomorrow.

* * *

THE housing movement which, up to about four years ago, found expression largely in restrictive legislation and philanthropic experimentation, has now assumed a broader significance. In the course of the recent economic crisis, poor housing became poorer and scarcity of low rental housing more acute. The Federal Government, the states and the local communities have become aware that the social, economic and technical methods involved in the solution of the housing problem must be revised so as to meet increasing needs in which public authority must share with private enterprise the responsibility for raising the housing standards of millions of families in this country. The raising of these standards involves not only the improvement of the individual home, but the general improvement of our methods of community planning and community building.

In the development of better standards of housing and planning with all their technical, financial, legal and administrative implications, much remains to be done. While many technicians are at present engaged in this task, there is a recognized shortage of persons trained in this field with adequate knowledge and vision to meet the requirements of the expanding service in the interest of better housing and better communities.

New York University School of Architecture and Allied Arts has for several years conducted courses in housing and community planning. The success of these courses and the demand for their expansion, has prompted the University authorities to offer summer school courses from June 14 to July 28 for students who might be interested in those aspects of housing and community planning which can be adequately covered in six weeks.

The courses are designed to meet the needs of persons interested in housing or community planning and particularly for students concerned with the broader implications of these subjects in their social, economic, legislative and administrative phases, thus supplying a background for housing and planning, whether the student be a sociologist, economist, social worker, architect, engineer or business manager of real property.

More than twenty colleges and universities have already signified their willingness to cooperate in this movement by offering to grant academic credit for work completed in the summer school.

* * *

THIS from A. L. Brinckman, chief Building Inspector of the City of Berkeley:

"It may be of interest to your readers to know that in the recent earth tremors, not a single brick chimney in Berkeley failed when built according to the specifications printed in the November, 1934 (page 19) Architect and Engineer, and further, that no plaster cracking occurred that could possibly be blamed on a too rigid bracing, according to the specifications for bracing small buildings, printed in The Architect and Engineer for February, 1936 (page 37).

"I have been pleased by the various favorable comments that hitherto skeptical builders have made about these two vital points of construction of small buildings, and the small amount of actual damage has been worth $100,000 to this Bureau in obtaining the cooperation of builders and architects with regard to bracing and reinforcing their structures."

THE greatest problem of a Planetarium is not so much the initial cost as the perpetual endowment. If D. Hartmann, the Zeiss Lens Agent in Los Angeles, is correct in stating that ten people would pay money to see a large scale model of the world (somewhat like the Map of California at the Ferry Building), for one who would pay to see the starry firmament projected on the dome of a planetarium, why then the suggestion to construct such a pictorial model of the most important planet of all, our own, should not be overlooked. Such a model to the scale of 1: 1,000,000 exactly fits in the basement of a standard planetarium. It calls for no special features of construction, and if space is provided for it the map model may be installed at any future time as an added attraction. One can pass the time while waiting for the astronomical lecture upstairs as this exhibit explains itself. The Heavens Above is an inspiring subject but when it is supplemented with "THE EARTH BELOW" the conception seems complete just as Mr. Cahill has named it "THE COMPLETE PLANETARIUM."

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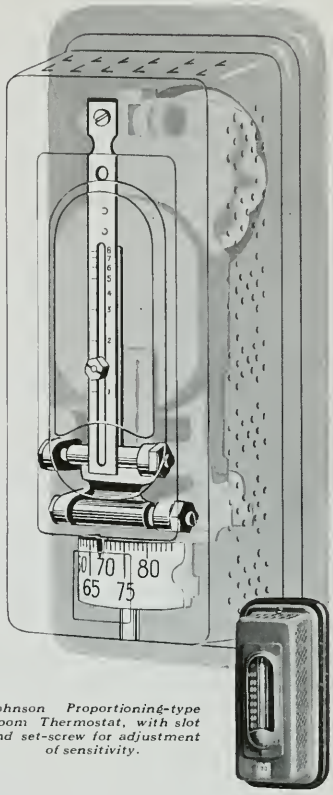
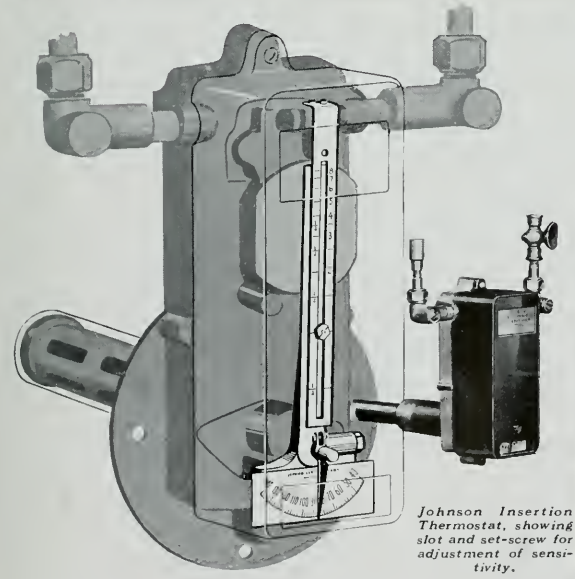


Johnson Proportioning-type Room Thermostat, with slot and set-screw for adjustment of sensitivity.



Johnson Insertion Thermostat, showing slot and set-screw for adjustment of sensitivity.

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DEPARTMENT STORE

1—Representing an investment of more than $500,000 the Rosenberg Department Store in Santa Rosa is in course of construction from plans by Hertzka and Knowles, San Francisco architects. Designed on ultra modern lines, the three-story building will have a steel frame with reinforced concrete walls, two elevators, air conditioning, pneumatic tubes and its own light and power system. A glass inclosed tower, twice the size of the main building, will be floodlighted at night.

At the rear of the building will be a large parking space while east of the structure it is planned to build a row of eight stores, each with a twenty-foot frontage, and parking space in back. Light and power for these shops will come from the main building.

RAILWAY TERMINAL

2—Here is the architect's drawing of the railway terminal of the San Francisco Bay Bridge. It will front on Mission Street, between First and Fremont—a site that was chosen because it affords adequate connection with the two street railway systems which will use an elevated ramp as shown in the illustration.

Buildings on the site are now being razed. Those to be wrecked include a five-story Class C loft building and several two and three-story structures. The new terminal will house a system of ramps and stairways connecting the street and street-car concourses to the loading platforms of the Southern Pacific and Key Route electric trains. Equal to a three-story building, the terminal will also have waiting room accommodations, ticket offices and dispatchers' quarters. The six tracks entering the terminal will be roofed over for 700 feet. Statisticians have figured that the destination of more than 50 per cent of the daily commuters will be within 3,000 feet of the terminal.

GLASS INTERIORS

3—The keynote of this house is a feeling of restfulness and spaciousness, expressed in the grey and beige tone of the fabrics and floor coverings, the blond woods, and in no small measure by the use of carefully placed mirrors. In fact, the first view confronting the visitor entering the house is a large flesh-tint mirror covering the entire left wall of the tiny foyer. This mirror not only apparently doubles the size of the passage-way, but reflects a portion of the living room opening off it.

An outstanding feature of the house is the grey and blue bathroom with walls of soft grey Carrara structural glass. The glass extends up to the ceiling and is recessed for the tub. At one end of the recess are plate glass shelves to hold bath accessories. Shower curtain, towels, bath-mat and floor are a vivid royal blue, while the fixtures are white.

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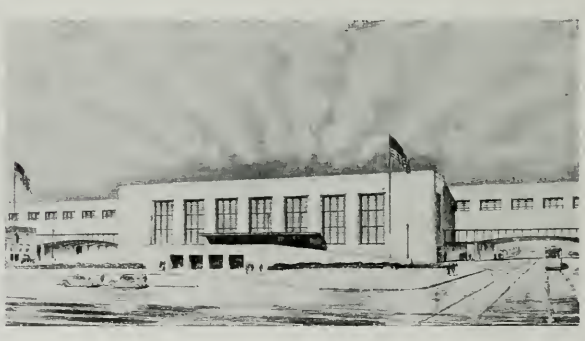

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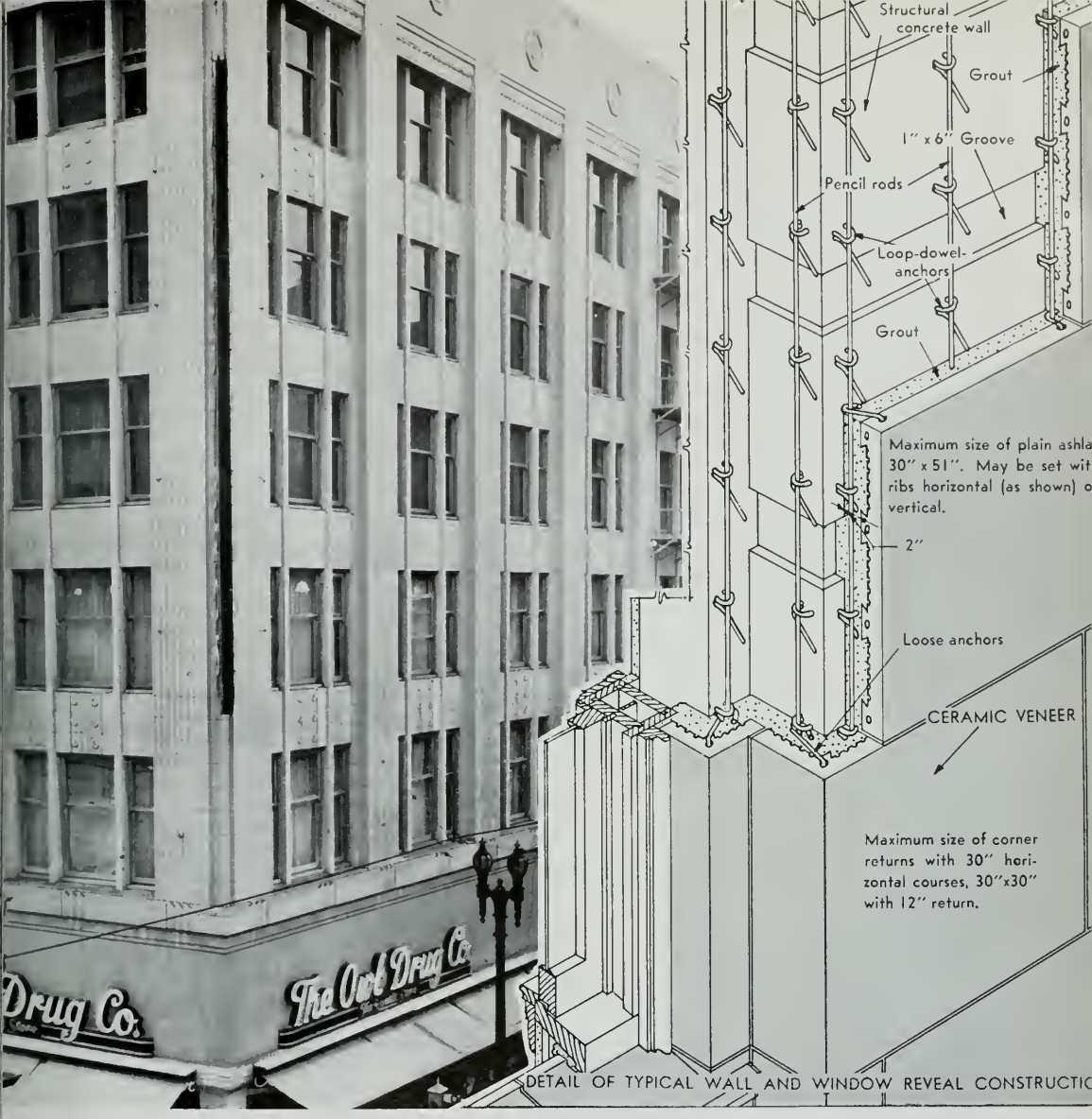

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In Memoriam

•

William Joseph L. Kierulff

Died March 23, 1937

Publisher of The Architect and Engineer

FRESNO COUNTY HALL OF RECORDS, FRESNO, CALIFORNIA

W. D. COATES, FRED L. SCHWARTZ, H. RAPHAEL LAKE, CHARLES H. FRANKLIN, E. J. KUMP AND E. W. PETERSON, ALLIED ARCHITECTS.

NEW PUBLIC BUILDINGS IN FRESNO

MUNICIPAL AUDITORIUM AND HALL OF RECORDS

by Homer M. Hadley

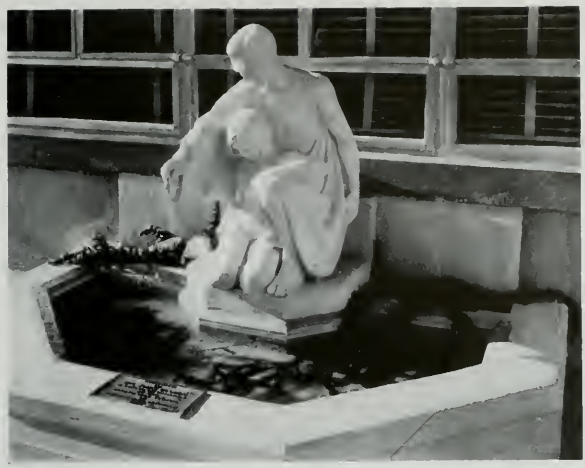
ABOUT two years ago the city of Fresno, like all other American cities, found itself still involved in the paralysis of the depression. No different from other cities it found that there were available generous grants of assistance from the Federal government for meritorious public works. Also it found, as many another American city has discovered, that a number of its public buildings were obsolete and in need of enlargement, modernization, or replacement. Fresno decided it would be good and timely business to build some needed public buildings and with Federal aid in view, proceeded to vote bonds.

As a result the city now has a fine large Municipal Auditorium, a new Hall of Records, adjoining the Fresno County Court House, and a School Administration Building. All of these are permanent, spacious, carefully planned buildings, the joint work of leading Fresno architects associated together as the Allied Architects of Fresno. Only recently have these structures been completed and occupied. They constitute a notable group of public buildings with which the city may well feel pleased and satisfied.

Of the three, the largest and most impressive is the Memorial Auditorium. It is set well back from the street, on a site which covers an entire city block and the unobstructed views

DETAIL OF FACADE, FRESNO COUNTY HALL OF RECORDS, FRESNO, CALIFORNIA

W. D. COATES, FRED L. SCHWARTZ, H. RAPHAEL LAKE, CHARLES H. FRANKLIN, E. J. KUMP AND E. W. PETERSON, ALLIED ARCHITECTS.



MEMORIAL FOUNTAIN IN CAST CONCRETE
BY CHARLES A. COVEY.

from all sides give proper and suitable recognition to the commanding size and scale of its masses. These are simple and essentially rectangular but they are effectively combined and rise harmoniously into the great central mass of the auditorium hall, which so dominates all parts that even the higher stage and proscenium block beyond it is comparatively inconspicuous.

The auditorium has a steel frame encased and walled in concrete which constitutes the exterior of the building. This is given characteristic concrete architectural treatment, the scale and pattern of which is large and simple, in keeping with the great size of the building. The main entrance pavilion is particularly interesting. The accompanying illustrations show the decoration used. The building was given its white color with a spray coat of paint.

It is 160 feet by 235 feet in overall dimensions. The auditorium is 102 feet by 144 feet. It seats 3,500 people: 1,500 in the balcony in fixed seats, and 2,000 in movable chairs on the level main floor, which on the removal of the chairs may be used for dancing or for exhibition purposes. The stage is large and well equipped and there are suitable dressing rooms, etc. The foyer is spacious. There are offices, committee rooms, small exhibit halls, and such supplementary space as required in a well arranged auditorium and convention or exhibition hall.

The Hall of Records closely adjoins the Fresno County Court House and therefore has the same setting of sweeping shadowed lawns and wide branching trees that the older building enjoys. Except for setting and location, however, there is little resemblance between the two buildings, for in the years which intervened between their respective constructions more changes occurred in building work than had come to pass in half a dozen preceding centuries.

The new Hall of Records is a modern, well-lighted, conveniently appointed building which furnishes long-needed accommodations to various county officials and their staffs: the county treasurer, auditor, assessor, recorder, et al. It is an all-reinforced concrete structure, three stories and basement in height, and distinctively modern in architectural treatment. Its exterior is entirely of architectural concrete, except for the cast aluminum spandrels at the third floor and the flat toned greyish white terra cotta base trim, all of which combine harmoniously together. Although almost completely devoid of relief from the four main planes of its sides, the fenestration and decora-

DETAIL OF ENTRANCE, FRESNO MEMORIAL AUDITORIUM, FRESNO, CALIFORNIA

W. D. COATES, FRED L. SCHWARTZ, H. RAPHAEL LAKE, CHARLES H. FRANKLIN, E. J. KUMP AND E. W. PETERSON, ALLIED ARCHITECTS.

VESTIBULE AND LOBBY, FRESNO MEMORIAL AUDITORIUM, FRESNO, CALIFORNIA

W. D. COATES, FRED L. SCHWARTZ, H. RAPHAEL LAKE, CHARLES H. FRANKLIN, E. J. KUMP AND E. W. PETERSON, ALLIED ARCHITECTS.

REAR VIEW, FRESNO MEMORIAL AUDITORIUM, FRESNO, CALIFORNIA

W. D. COATES, FRED L. SCHWARTZ, H. RAPHAEL LAKE, CHARLES H. FRANKLIN, E. J. KUMP AND E. W. PETERSON, ALLIED ARCHITECTS.

tive courses were handled so skillfully and adroitly that the dangers of monotony and severity which inhere in a rectangular prism were completely avoided. This building also was given a spray coat of white for its final color.

The Fresno School Administration Building, the third unit of the program, is of a type and character dissimilar from the others. It houses the administrative offices of the Fresno schools and is a modest story and a half above ground level, and half a story below. It is 122 feet by 92 feet in overall dimensions and occupies a site about a quarter of a city block in area. Its upper story is U-shaped in plan, extending on three sides around an open central court area, the floor of which is at the same elevation as the floor of the building. The basement story is continuous beneath the court and is therefore of rectangular shape.

This interesting little building is modern in its architectural design and treatment. Its walls are given a dash coating of natural cement color, a grey with suggestion of buff through which the form lines of the concrete walls beneath may readily be discerned. The narrow horizontal lines of the long parapet copings and of the long window sills and heads are of a reddish terra cotta tone. In the narrow vertical windows the spandrels are of aluminum and the steel sash is aluminum painted. The main entrance at the principal corner of the building, with its glass blocks, very wide canopy above the entrance, metal and glass doors and other details, is fully modern. The windows of the basement on the north side of the building are made to project with a bayed effect by giving the wall beneath them a triangular projection, while above the glass a triangular shaped slab restores the regularity of plain wall surface.

Except for its roof which is of 2-inch splined

SCHOOL ADMINISTRATION BUILDING, FRESNO, CALIFORNIA

OFFICE OF CHARLES H. FRANKLIN, FOR ALLIED ARCHITECTS OF FRESNO.

sheathing carried on steel framing, the building is of reinforced concrete. The main floor is framed with beams and slabs, to the under side of which—the basement ceiling—everywhere except in the library, was applied a dash cement plaster coating. In the library and throughout the main story of the building acoustical or hard wall plaster was used.

The building provides offices for general executives of the school system, conference rooms, a small auditorium, library, rooms for the storage of school books and equipment, and similar needed accommodations. It is completely air conditioned. The entrance lobby and corridor floors are terrazzo, while the other finished rooms are floored with asphaltic tile. Ceiling lights of the flush type are located not above the middle of the room but adjacent to the windows. Thereby the origin of the room lighting is kept in substantially the same position at all times and a desk well-located for reading and writing by day is equally well situated at night.

The Allied Architects of Fresno who planned this work in its entirety and who have brought it to successful conclusion are W. D. Coates, Fred L. Schwartz, H. Raphael Lake, Charles H. Franklin, E. J. Kump, and E. W. Peterson. The structural engineers were Messrs. Swain and Kellberg of San Francisco.

TYPICAL OF CALIFORNIA

THIRTY MINUTES WITH AMERICAN ARCHITECTS

HIGH SPOTS IN HALF CENTURY OF BUILDING

by Albert Kahn, F. A. I. A.

IN DEALING with my subject—"Thirty Minutes with American Architecture and Architects," I shall take up principally the work of the past fifty years. For a better understanding, however, a few words concerning the earlier history of architecture in this country will not be amiss.

The dwellings of the pioneer settlers were probably huts built of branches, rush and turf, much like those still used by the shepherds in England. Log cabins came next. The houses built by the Colonists in the 17th century were largely frame, simple, rectangular and two-storied, with two rooms on each floor and in the center a large chimney for fireplaces on both sides. Gradually lean-tos were added and later built at the very outset. The character of this Colonial work varied with the nationality of the respective settlers. Thus, the English influence was felt in the buildings of the New England States, in Virginia and the Carolinas; the Dutch, in and around New York; while Pennsylvania Colonial was developed by the Germans, Scandinavians and Noravians. In addition to these, we have the Spanish Colonial of Texas, New Mexico and California.

With the beginning of the 18th century, the so-called Georgian Colonial made its appearance. The work of this period was more sophisticated and largely based upon illustrations in the published books of the Italian Palladio, the English Indigo Jones, John Gibbs, Abraham Swan and other foreign architects. Architects in the modern sense did not exist in this country at that time. The owners, many of them men of culture, liked to dabble in architecture and made their own plans in addition to which workmen, unlike today, were well versed in construction and architectural detail. That the art of building had been well mastered is amply proven by the splendid mansions still existing in Virginia, New England and elsewhere. Notwithstanding the belief that many American houses of this time were designed by English architects, we have no positive record thereof.

By the end of the 18th century, the so-called early Republican as opposed to the preceding Georgian Colonial, appeared. Foremost among the builders of this era was Thomas Jefferson, a dillentante of much genius. He was the designer of Monticello at Charlottesville begun

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Editor's Note: Speaking before the luncheon meeting of the Adcraft Club of Detroit, Mr. Kahn's description of past, present and future trends in architecture proved both interesting, inspiring. His review of the high spots in American architecture for the last half century is a valuable contribution to architectural literature of the day.

In professional ability and scope and importance of operations, Albert Kahn ranks as one of the foremost architects in the country. He has been engaged in the work of his profession in the city of Detroit nearly a quarter of a century. Mr. Kahn was born in Rhaunen, province of Westphalia, Germany, March 21, 1869. His early education was obtained in Luxembourg, where his family moved when he was six years old and he was still a youth at the time of the family removal from there to the United States. As an architect he has been engaged in practice in Detroit since 1904, and his many and varied professional commissions have been among the most important to be claimed by any Michigan architect. In Detroit Mr. Kahn figured as the architect of the great plant of the Burroughs Adding Machine Company, and the Packard, Ford, Hudson, Chalmers and Lozier motor-car plants; the fine modern building of the Detroit Free Press; the building of the Detroit Athletic Club; the Detroit News Building; the buildings of the Detroit Golf Club, and many others of outstanding prominence. In the city of Ann Arbor are to be found splendid examples of his professional skill, including the Hill Auditorium and the library and the science building of the University of Michigan. In Detroit he designed the General Motors Building, the sales building of the Cadillac Motor Car Company, the First National Bank Building, and the home office building of the Standard Accident Insurance Company. Mr. Kahn is a Fellow of the American Institute of Architects.

in 1771, the Virginia State House, a number of fine dwellings on the James River and particularly the remarkable group of buildings for the University of Virginia. The life of Jefferson as an architect was quite as notable as that of the statesman. While Jefferson frequently called upon outsiders for advice, his self-training as well as his observation as a traveler made of him an expert in architecture whose influence was widely felt. He had a hand even in the design of the Washington Capitol and the White House.

Foreign Architects Arrive

It was at about that time that foreign architects made their appearance. Among them Pierre L'Enfant, a Frenchman, who in 1791 planned the City of Washington; Stephen Hallet who came from France to work on the Capitol at Washington; James Hoban from Ireland, who designed the White House; while Robert Mills who did the Washington Monument, James McComb, the designer of the Government house in New York City, and Charles Bulfinch, the designer of the Boston State House, proved that American architects were able to stand on their own feet. This early Republican work differed from the Georgian in that it was more formal and followed more closely Classic precedent. Both plan and design had grown more monumental as the problems grew more important. Much excellent work was done during this period which developed what was perhaps the nearest to an indigenous style this country has produced. Modeled after European precedent, it nonetheless had a character of its own determined by the new demands and the existing conditions. At about 1835 this early Republican or latest type of Colonial was replaced by the so-called Romanticism then prevalent in England. This meant a revival of a poor grade of Gothic. At that, some good work was produced. Upjohn, an Englishman, built Trinity Church in New York, also St. Patrick's Cathedral. The Gothic feeling was evidenced not only in churches but also in college buildings and in domestic work. It was all very inferior and led to fifty years of what has rightfully been called the Dark Age of architecture in this country.

The first one to cause our emergence from this sad state was H. H. Richardson, born in Louisiana, who had studied architecture in France. While at first a follower of the prevailing Gothic, he soon developed a type of work quite his own based upon the Romanesque of northern Spain and southern France. With him started the period of collecticism which has continued since. Richardson's work, massive and powerful, proved a revelation. He did not permit his training in France to bind him to its rigid rules and formulae, generally avoiding the absolute symmetry and strict formulism so much insisted upon by the French. Chief among his works is the Trinity Church in Boston, a masterpiece of the period, obviously inspired by the Cathedral of Salamanca. His Pittsburgh and Albany courthouses followed and with them libraries, schools, residences, railroad stations and important commercial buildings galore. Among the latter, the well-known Marshall-Field wholesale establishment in Chicago, lately razed. . . .

As usual, Richardson's outstanding and much acclaimed work soon found many followers throughout the land. Inferior copyists became common and mostly with sad results. At all events, Richardson broke down the limitations of the Romantic period and started American architecture on its new track.

One of the most successful adherents of the revival was Morris H. Hunt, a New Englander, also trained in Europe. He designed the Vanderbilt house on Fifth Avenue, New York, now replaced by a commercial building, an outstanding example of French Renaissance of the period of Francis First, almost archaeological in its treatment. Another is the well-known Biltmore house in Asheville, N. C., a close adaptation of the French chateau. Hunt became a leader in his profession during his career. He died in 1895.

Influence of Chicago Fair

Undoubtedly the greatest influence in the development of American Architecture was

the Columbian Fair in 1893, in the design of which we had the cooperation of the most prominent architects of the time with equally prominent men in sculpture, landscaping and painting. D. H. Burnham of Chicago, headed the group—a mastermind. With him were Hunt, Charles F. McKim, Adler and Sullivan, Peabody and Stearns, C. B. Atwood, George B. Post, all architects; St. Gaudens and French, sculptors; F. D. Millet in charge of color; and Olmsted in charge of landscaping. Some of you, no doubt, will remember this great Exposition in which for the first time America was shown the results possible with proper collaboration of architect, landscaper, painter and sculptor. It was a magnificent result, grand and inspiring in its conception and execution. It made a tremendous hit and influenced American architecture as nothing before or since.

Strangely enough, some of today's modernists feel this Exposition a failure for having been largely reproductions of older examples and for failing to produce something new. They, however, fail to appreciate the rather sad state of architecture at the time and that it required just such a demonstration to impress upon the public the possibilities of properly organized and thoroughly studied effort. Here for the first time was a visual evidence of what orderly, well regulated, monumental planning made possible. No one who visited the Fair will ever forget its effect upon him. I dread to think what an exposition done entirely along modern lines at that time would have produced.

One of the chief figures in the development of this Fair was Charles F. McKim, artist and scholar, in the opinion of many the most important personage in architecture in this country since the day of Thomas Jefferson. He is the best known for his Boston Public Library, his Columbia College Buildings, his Pennsylvania Railroad Station, his Villard house on Madison Avenue, New York, and above all for his University Club in New York City, one of the finest structures in the country. Mr. McKim was a man of the finest sensibilities and exquisite taste. He carefully studied the work of the past and employed it freely, but always in his own way, always stamping it with his own individuality. His constructive influence was felt not only in his work but also in that of many younger men of the profession who grew into prominence. Among them, Cass Gilbert, who died only recently, the designer of the Detroit library, also the Woolworth Building in New York, which for its time was and is ever today an outstanding achievement. Another of his students who ranked at the very top was Henry Bacon, Jr., designer of the Lincoln Memorial. I question whether any building in this country is as generally admired as this. Certainly no one could have done greater justice to the man here memorialized. Approval of the profession at large was shown in no unmistakable manner by the magnificent pageant in Washington in Bacon's honor in 1923 when the Gold Medal of the American Institute of Architects was bestowed upon him by President Taft.

Skyscraper Architecture

Reverting to the World's Fair in Chicago, practically all of the buildings followed the classical tradition. There was one noteworthy exception, viz., the Transportation Building by Louis Sullivan, an innovator in American architecture. Earlier work of his was the Auditorium Building in Chicago, though his principal contribution is the type he established for the skeleton steel building, the one strictly American addition to the field of architecture. It was he who showed the way of frankly expressing the structural element of the building in the exterior. Earlier attempts in skyscraper architecture placed one building on top of another, as it were; whereas he treated the structure as one, from bottom to top, clearly expressive of its generally uniform function. Incidentally, his buildings were light and airy, suggestive of steel, rather than heavy and cumbersome, typical of masonry construction. There have been better solutions of the problem since Sullivan, but he certainly showed the way. That his work was appreciated abroad was proven by the honor the French Govern-

ment accorded him in a one-man exhibition in Paris.

Outstanding among the architects of this early part of the 20th century was the late Bertram Goodhue, the designer of West Point Military Academy, the San Diego Exposition, the Nebraska State Capitol, and innumerable other buildings of importance. Goodhue's work was largely ecclesiastical, most of it following Gothic lines, in a manner, however, distinctly his own, fresh and vigorous. His premature death was an irreparable loss to this country. Goodhue was a partner of Ralph Adams Cram, still living, who also has done excellent work in the same field and the same manner though more archaeologic. Cram ranks high not only as an architect but equally as scholar and educator. St. Paul's Cathedral in Detroit is an example of his work though the opportunity offered here was rather restricted. His most important work at this time is the Cathedral of St. John the Divine in New York.

Carrere and Hastings, both of whom now dead, did remarkable work in these early days of American Renaissance. Strangely enough, their very first buildings constructed while still students in Paris, namely, the Ponce de Leon and Alcazar in Saint Augustine count among their finest. These buildings so fresh and unhackneyed, made a tremendous impression upon the profession, particularly since the young men were unknown at the time. They followed the best type of Spanish work which proved so well suited to the southern climate of Florida. Carrere and Hastings subsequently built the New York Public Library, which though monumental, scarcely lives up to the standard of the earlier work. This, like most of the work following, unfortunately adhered too closely to the dictates of the Beaux Arts.

Another prominent architect at the time was Charles A. Platt, whose residential work was of the very best done in this country. The Russell Alger House (now the Russell Alger Museum) in Grosse Pointe is one of his most successful. Platt was originally a painter and etcher. He later was forced to do landscape work because a garden of his own had proved so attractive. He took up architecture quite late in life and without especial training, developed into one of our most capable men in the profession. He died a few years ago. Shopley, Rutan and Coolidge, designers of the Harvard Dormitories and many other excellent structures, John Russell Pope, the architect of the Scottish Rite Cathedral in Washington and lately commissioned with the Theodore Roosevelt monument, Delano & Aldrich, a firm still in existence, York & Sawyer, a firm well known for its excellent bank work especially, are other firms who accomplished much for American architecture between 1900 and 1930.

Wright a Leader in Modernism

It was a student of Louis Sullivan's, namely Frank Lloyd Wright, who startled the country some years ago with his radical departure from the established vogue and his unconventional work. Following in the footsteps of Louis Sullivan, he refused to carry on in the prevalent manner, and based upon theories entirely his own, introduced a type of work which has had its strong influence throughout not only in this country but even more abroad. Especially Germany and Holland have profited by his genius and have acclaimed him as the one notable architectural figure developed by America. Frank Lloyd Wright is undoubtedly a genius, a little inconsistent as genius often is, also somewhat strange in certain ways—but an idealist and unquestionably an eminent artist. You are no doubt familiar with his work, especially his low and picturesque houses with far projecting eaves, broad expanses of glass, interesting always in plan with many surprising interior devices. At the present time Wright, whose most notable structure is the Imperial Hotel in Yokohama, is devoting himself largely to training young architects in his methods and theories. There can be no doubt about Wright's having had much to do with the new, the so-called modern movement of the past thirty years, which then brings us to the much discussed modernism of today.

It is only natural that with the advent of the automobile, the wireless, the airplane and the

innumerable electrical devices, that this machine age should make itself felt in our architecture, which has ever been the recorder of new movements—social, political and economic. Indeed the new spirit is apparent in painting, sculpture, music, the drama and literature as it is in architecture. All are experiencing a new dynamic force with results often interesting but often also very sad. The world, however, will not stand still, neither can the arts remain static. There is and must be constant change if the dull is not to prevail. The new architecture in this country was first felt, aside from Wright's largely domestic work, in the design of the modern skyscraper. Here was a totally new problem to which precedent could not well be applied. In the earlier solutions, the attempt, as I have already stated, was made to place one building upon another, each fairly complete in itself, as in the Western Union Telegraph Building on lower Broadway. In others, the tall structure was treated much like the classic order, the lower stories serving as base, then a long shaft of many stories, this topped by more stories serving as the frieze and attic. Both methods proved wrong. It became obvious that the only right solution was that which recognized the fact that since most of the stories served the same purpose, a frank admission of this was a simple uniform treatment, and that this made for the best results. Sullivan's was of this type and soon became very popular, but it took a foreigner from Finland who had never built a skyscraper to show us in his remarkable competitive design for the Chicago Tribune Building, THE real solution of the problem. It proved a revelation to all Americans and won immediate acclaim. The designer was no other than Eliel Saarinen who is also responsible for the Cranbrook Academy and today heads the Cranbrook Academy of Arts. The design developed by him has since served for much that is best in modern skyscraper architecture. You are no doubt familiar with Saarinen's work at Cranbrook. Architecturally it ranks very, very high—in fact so high that a few years ago it was awarded the New York Architectural League's Gold Medal — no small honor. Saarinen's work in Finland, as well, holds a very high place among the modern, especially his Railroad Station in Helsingfors. We in Detroit are indeed fortunate to count him now as one of our own.

Modern architecture is always at its best when there is a special reason for its being modern. Merely to do something different for an old problem is not nearly as constructive as doing the appropriate for a modern problem. It is the latter that affords the real opportunity to show what is best in the new. To do the different just for its own sake is generally wrong. There must be a reason for doing it. New materials as well as new problems and new processes are therefore responsible for the best contemporary work.

Advent of Reinforced Concrete

Among new materials, reinforced concrete has played an important part. It came into general use just about the time the automobile industry started on its phenomenal career. Here was a material that permitted maximum areas of glass and minimum wall spaces, just what was needed in the modern factory building of which there had to be many to supply the required output. Its simple and direct adaptation to the problem, its large areas of glass, produced at once the solution for the modern industrial building and automatically something architecturally different from the conventional. Thereby was started a type, the influence of which has been felt in many fields other than the industrial. Indeed, I can see a very close analogy between the modern industrial building and the modern box-like, flat-roofed house, so many of which are erected today. At that, while I admire many of the modern factories, I can't say as much for many of these houses. Indeed much already done and being done under so-called modernism, is to me extremely ugly and monotonous. It may be startling and different, but neither is a requisite for good architecture. Good modern architecture does not mean the strange and the bizarre, but rather the fitting, the sane, the practical and the beautiful. It does not mean

the absence of all ornament, of all color—but neither does it mean the wild orgies in color and decoration so prevalent. Modern architecture to be good need not ignore all precedent, as many would have us believe, the avoidance of all that savors of the past—for the same principles which underly the well tried and acclaimed, apply equally to the work of today. They cannot be violated save at the cost of what is fundamentally good. That what is well founded may be applied today and yet have it modern is amply proven by a building like the new Folger Library in Washington by Paul Cret, the architect of our Detroit Institute of Arts, and by many other buildings in this country. I shall mention a few. The Empire State Building in New York by Shreve & Lamb is an example of the best in modern work. New materials (stainless steel and cast lead) are used with remarkable effect in a composition straight-forward and direct. Equally good is the new Daily News Building on Forty-second Street, New York, by the late Raymond Hood. Nothing could be simpler yet more pleasing in design that this structure. Hood, by the way, was with Howells, the successful winner of the Tribune Competition. Good as is this executed structure, it is no match for Saarinen's design which even Hood agrees deserved to win and would have won but for practical reasons and the prejudice against employing a foreigner. The American Radiator Company's building in New York is another example of Hood's modernism, and modern it is with its black brick and gold trimmings—expressive of the furnace and the fire. The country suffered a severe loss in the premature death some two years ago of Mr. Hood. His was a force for good in architecture, as well as architectural education, to which he contributed so much as head of the Beaux Arts Society in this country.

I know you will want me to say something concerning Radio City—undoubtedly the most ambitious architectural undertaking of the age. Well, I wish I could unqualifiedly say that I admire it. Three firms composed of some ten architects were in charge, all under one administrator, who was considerable of a tyrant, I understand. To me the result, though interesting, is unsatisfying both in plan and in exterior treatment. Though powerful and massive, the Cyclopean office buildings seem to me anything but a successful solution of the problem. The interior of all the buildings appear to me somber and dry and the decorative accessories, such as the exterior sculpture, unimpressive. What an opportunity for a man like Carl Milles, was here wasted. There are, of course, many successful details. Especially fine are the two theaters. I am more impressed with the Music Hall interior every time I see it and I like the smaller one also. I feel certain that these are the work of Raymond Hood, one of the architects in charge. Both are masterpieces of the first order. Architecture to be worthy of the name must be beautiful, but practical as well. I fail to see the practical in placing the low and comparatively unimportant buildings on Fifth Avenue and the all-important main structure 1,000 feet back. Particularly, since one inch of frontage on Fifth Avenue is worth a yard on a side street. However, the work being that of able men, it is only fair to leave the verdict of its artistic and practical merit for posterity.

Several other good modern buildings in New York are worthy of mention. Among them the so-called Vesey Building in the Battery, by Gmelin & Walker, the Pan-Hellenic Building, by Howells, and the Shelton Hotel, by Harmon. The Waldorf-Astoria Hotel, one of the most recently constructed buildings and done by an excellent firm in a form of modernism, appears to me rather mediocre. If there be any one characteristic about the modern much to be admired, it is simplification. In this respect the modern has served an excellent purpose, for in the work of the past ornament has often played too important a part. Too frequently it has served to cloak poor composition. The greater simplicity of the new is certainly much to be commended. At that, complete absence of all ornament often leads to baldness and dullness.

(Please turn to Page 47)

Portfolio of DRAWINGS by Russell Wilson

Russell Wilson, whose drawings comprise this Portfolio, is just naturally a picture maker. He has been drawing pictures as long as he can remember. Of a family of builders and construction engineers, he was encouraged to take up architecture as a profession which he followed for a number of years. Mr. Wilson practiced in Los Angeles and other California cities, later to turn to architectural rendering and etching as a vocation. His splendid work in this field soon brought him a host of clients until today his drawings are widely sought, not only for architectural studies but for magazine covers and book illustrations.

"Just an inborn love of picture making" is Mr. Wilson's modest way of expressing his versatility. Speaking of San Francisco he says: "No city in the world offers greater possibilities for the artist, for here we find color, life, architecture—old and new—all an open challenge to the brush, the pencil and the etcher's needle."

The accompanying plates are but a few of Mr. Wilson's varied collection of drawings, all of which reflect a high standard of technique and composition.

ALONG THE EMBARCADERO, SAN FRANCISCO

Lithographic crayon sketch on white scratch board.

MARK HOPKINS HOTEL, SAN FRANCISCO
WEEKS & DAY, ARCHITECTS.

Lithographic crayon sketch on tracing vellum.

AN ENTRANCE

Lithographic crayon drawing on green tinted vellum, high-lighted with Chinese white, color applied on back.

TITLE GUARANTEE BUILDING, LOS ANGELES, CALIFORNIA
JOHN PARKINSON AND DONALD B. PARKINSON, ARCHITECTS.

Lithographic crayon drawing on tracing vellum.

PATIO, THE WALTER BRANDT ESTATE, HILLSBOROUGH

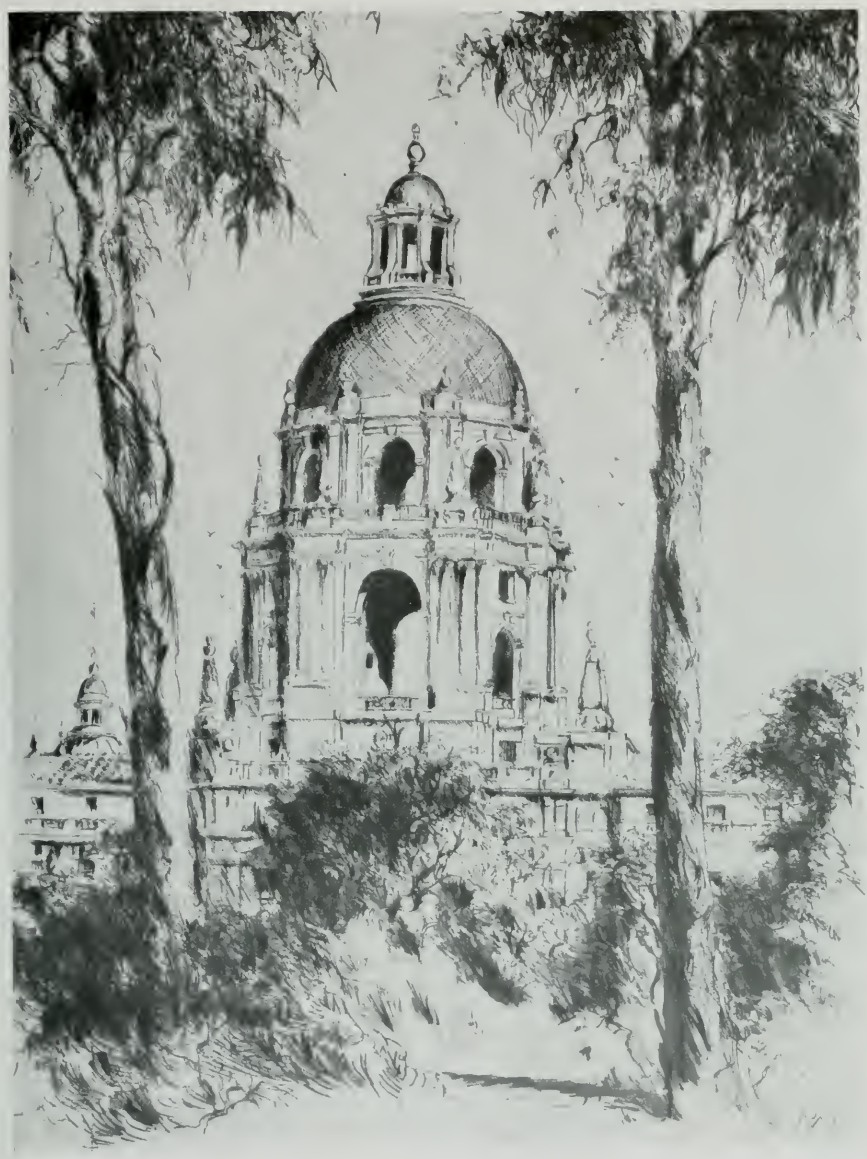
CLARENCE A. TANTAU, ARCHITECT

Lithographic crayon sketch on green tinted vellum, high-lighted with Chinese white.

SOUTHERN CALIFORNIA EDISON BUILDING, LOS ANGELES, CALIFORNIA

ALLISON & ALLISON, ARCHITECTS.

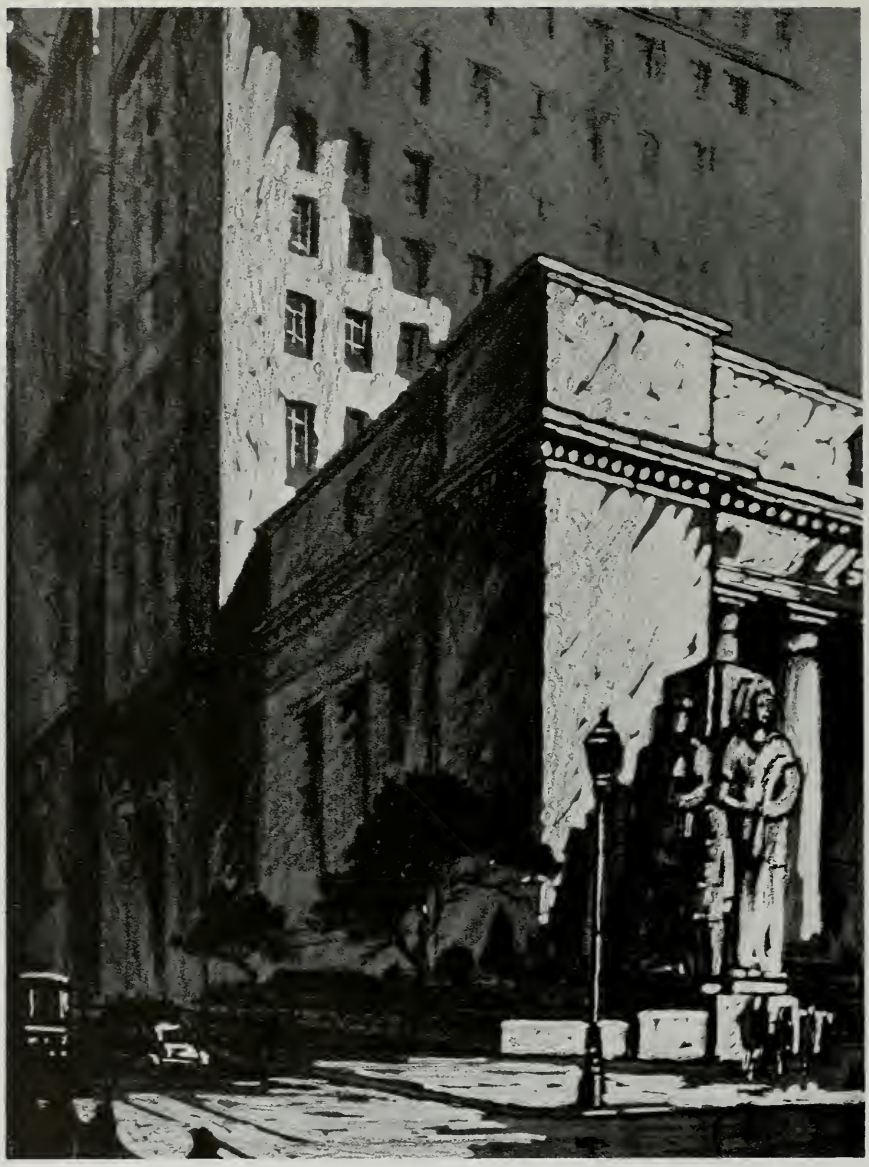
Drypoint etching.



CITY HALL, PASADENA, CALIFORNIA

BAKEWELL & BROWN, ARCHITECTS.

Drypoint etching.

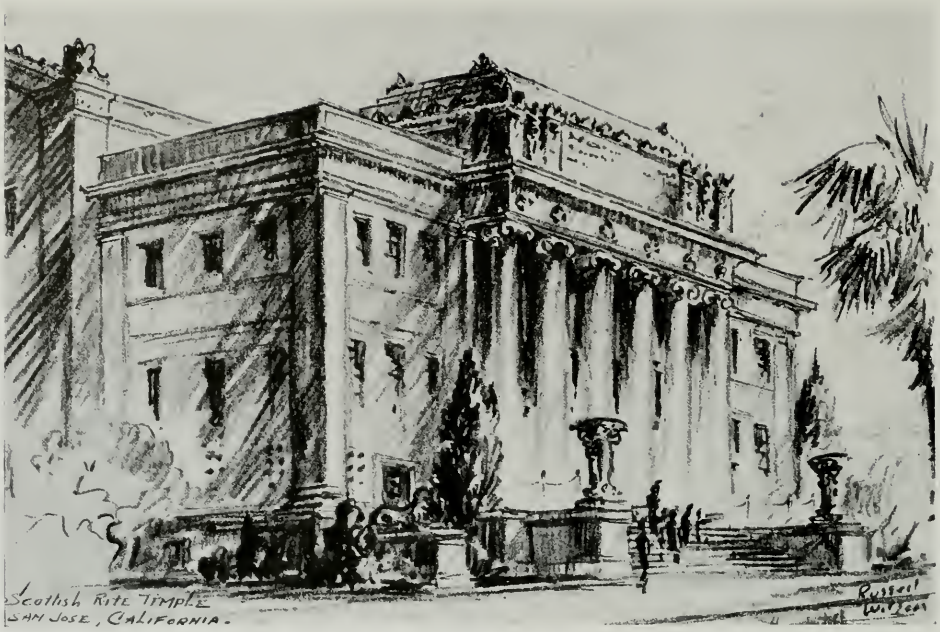


SAN FRANCISCO STOCK EXCHANGE, SAN FRANCISCO, CALIFORNIA
MILLER & PFLUEGER, ARCHITECTS.

Lithographic crayon sketch on green tinted vellum, high-lighted with Chinese white.

OLD MILL ON THE HAROLD LLOYD ESTATE, BEVERLY HILLS

Drypoint etching.



SCOTTISH RITE TEMPLE, SAN JOSE, CALIFORNIA
CARL WERNER, ARCHITECT.

Lithographic crayon on cameo paper.

HOUSE OF
MR. AND MRS. WALTER FINNEY,
SACRAMENTO, CALIFORNIA

W. R. YELLAND, ARCHITECT.

ENGINEER FACTOR IN STABLE GOVERNMENT

HIS WORK A NEVER ENDING CONTRIBUTION TO PROGRESS

by Dr. Paul F. Cadman

IT IS a common practice to employ the symbols of architecture and building construction in describing the state. One hears of the "foundations of society," of the "pillars of government," of the "towers of security," the "bulwarks of freedom." As often perhaps as the state is likened to a ship, it is symbolized as some other organic structure. The modern state follows, albeit somewhat precariously, a plan in which there is form and design, some balance, and usually a degree of unity. For some centuries the plan was little more than a crude draft of what the state might be. More lately there is the conscious effort not only to design the social edifice but to prepare the specifications in minute detail.

As long as state planners engaged in abstract speculations or indulged in dreams about ideal commonwealths they held principally a literary interest; but when they attempted to lay out a complete project by authorization and to impose it by decree, men with the true sense of freedom saw a threat to their liberties which was far too real to be ignored. The totalitarian state as the name implies, controls all production and distribution, not for the benefit of individuals or even groups of individuals, but for the state itself. The state is the thing—the citizens are incidental; and this is true of both the commune and the fasc. When, within the week, Mussolini announces that all civil interests will be subordinated to the needs of the military, he gives no choice, offers no preference. He governs by decree. When Stalin sets up a five-year plan production as the goal; men are merely means to the end.

Now the analogy between the state and the structures of the engineering world is far from complete. The differences must appear in a brief review of the "law and order" under which the engineer operates and without which he would be helpless. Yours is the immense advantage of precision. Stress and strain are calculable forces; mass and volume can be weighed and measured; pull and thrust can be reckoned. The laymen who are so frequently mystified because the bore of a tunnel, begun at opposite sides of the mountain, meets precisely in the middle, are wont to ignore the fact that the engineer takes no liberties with the law. There is a compelling logic about mathematics which brooks no opposition. The equations derived from them made possible the dynamo and the motor. Their effects obtains in virtually every calculation in your science. And these laws which constrain you are not man-made, although men gave them expression in words and observed their effects. Back of the entire science

of engineering in all its branches are the immutable principles inherent in the behavior of matter.

But in addition to your respect for physical laws, you have through the years, exhibited a keen awareness of the immense values of experience. You all know the story of Drydock Smith. Never having met him, I can only give a second-hand version. For years the bridge contractors have sought his services because he brings to the precision of plans and specifications the accumulated knowledge of "how it can be done" and also "what cannot be done."

What a vast store of information has piled up since man first lifted a rock with a lever and made a wheel; since he scratched an irrigation ditch with a stick; or burned a tree so that it would fall to bridge the gorge.

Who shall say just when, in the story of mankind, the engineer as such emerged? Mathematics, astronomy, and physics were the forerunners of his mission. At least two and perhaps more than four thousand years before Christ, men erected a pyramid which was 480 feet high and covered over 750 square feet of area.

"The fact that the ratio of its height to the perimeter of its base is as nearly as possible that of the radius of a circle to its circumference, has led to the speculation that it was an astronomical observatory."

Yet it was literally thousands of years before Galileo engaged in the first attempts at modern experimental research and wrote on the specific gravity of solid bodies. As the archeologists trace the story of the buildings of antiquity, the hanging gardens of Babylon, the temple of Diana at Ephesus, the Colossus of Rhodes, the great wall of China, the Stonehenge of England, or the leaning tower of Pisa, there are nearly always present certain attitudes in the minds of the builder:

First, a recognition of, and compliance with, the laws of nature;

Second, a recognition and respect for the values of experience; and

Finally, a willingness to venture.

This combination evidences a rare phenomenon—the fusion of the ideal with the practical. In this is perhaps the greatest contribution of engineering to the thing called progress. After centuries, you have come to be the men who envision and dare all things for the comfort, convenience, and safety of society; yet you never fail to measure and respect the forces with which you must contend, nor do you ignore the lessons of the past.

Unhappily, such is not the case with many of those who attempt to qualify as architects and builders of the state. It will be argued that their task is complicated since they deal with men rather than materials; that there are too many "unknowns" and "uncontrollables." Yet how greatly they could profit by the consideration of the accumulated wisdom in engineering. For they, too, are subject to the law and experience. With them the law is the pattern of human behavior; centuries of evidence as to what man will do under certain stimulii. Nor is there implied the dread conformity of the static state. Science and learning have given you new tools; power and the means of its application; improved materials capable of sustaining greater loads and carrying greater strains. Experience in statecraft marks the broad highways of government, on which there are no dead ends. But the whole procedure is a march forward; a progression achieved because knowledge is cumulative.

However, we live today in one of those unhappy periods when many of those who are charged with the administration of the vast and complex corporations known as states, acknowledge neither the law nor practical wisdom. After all, no man or group of men would be charged with building a bridge until they had gotten past the multiplication table. Time has established standards, and the existence of standards sets up the stern demands which are called qualifications. The world is now called upon to listen to political architects and engineers, many of whom have yet to master elementary arithmetic; and some of

whom lack even the discernment of the "rule of thumb" men, who rely almost wholly on what they have learned in practice.

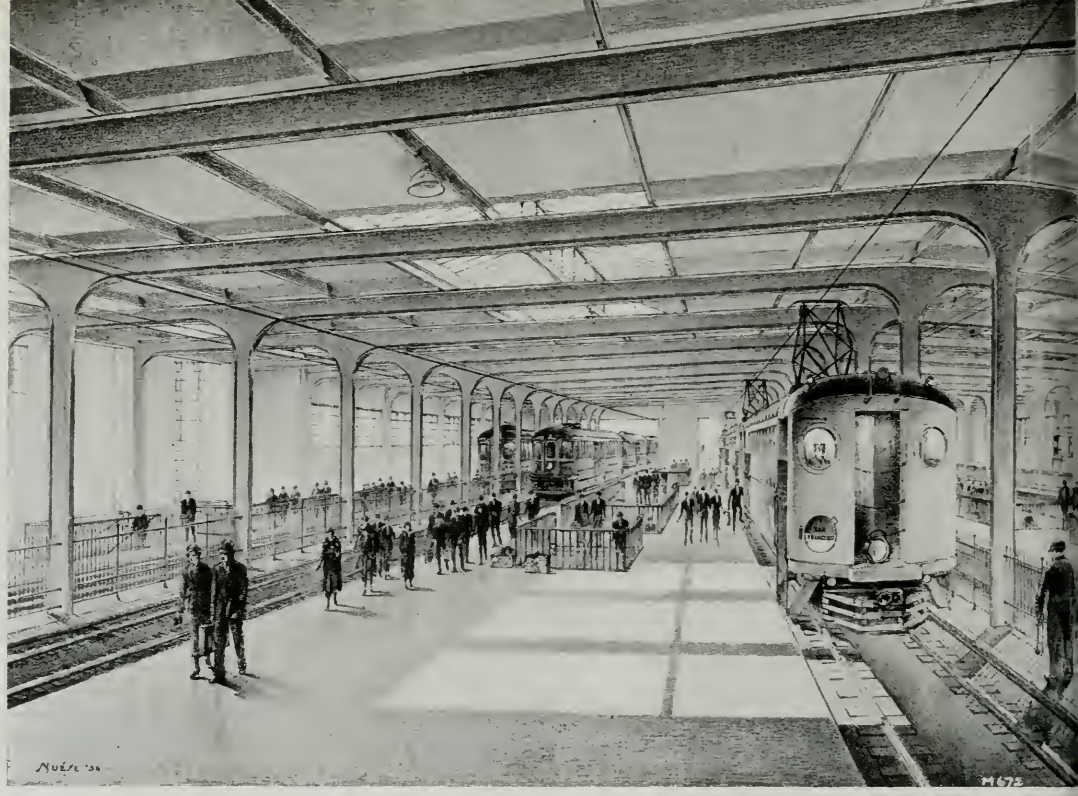
In a moment of great inspiration, Rudyard Kipling called them to humility in immortal lines, one of which is unhappily obscure:

"If drunk with sight of power, we loose
Wild tongues that have not Thee in awe;
Such boastings as the Gentiles use
Or lesser breeds without the law,
Lord, God of Hosts be with us yet
Lest we forget."

It was the law operating in their own community that led the Jews from the status of migratory and marauding shepherds to the establishment of an organized and effective society. And those who fell victim to their great march into Canaan had no comparable support. In a very definite sense, the law of the Hebrews was the fruit of experience; the "law givers" knew what to expect.

A stiff-necked and self-willed statecraft tries to rule the world today with threats and promises. The voice of experience is momentarily silenced by official and unofficial censorship by calling names; and affixing labels. Modern states sway and totter before the onslaughts of vast preparations for war, class consciousness deliberately engendered, false hopes and false prophets. The social law had its origin in the "rule of the pack," which was a cold impersonal device for survivorship. Man and his civilization have tempered this rule with such abstract virtues as justice and duty. But no statesman can ignore the painful fact that there is still something of the savage in man; the animal will - to - possess - advantage breaks out even in the cultured and disciplined. But the knowledge of the law which imposes restraints upon those who have abused power and privilege will compel the same restraints for those who would now come to power on the wings of discontent. Great statesmen have remembered the brutal and devastating force of the mob. Nor have they played to the ancient Roman practice of buying support with bread and a circus. Early among the number whose statescraft will be remembered was one who said that those who sowed the wind would reap the whirlwind.

What comfort then, must you find in the practice of a profession that has gone forward steadily for hundreds of centuries in the face of war, revolution, violence and disaster; a profession that is unafraid in the face of the prodigious and awe-inspiring forces of nature; one that defies earthquake, fire, flood, tide, storm, and temperature; one that dares to build two of the greatest bridges yet attempted by man in the very depth of a world-wide depression. You are a stabilizing and constructive company because you know the law. You accept its disciplines and you recognize the immortal truth in the lessons of what has been. Yet hedged about as you are by the inevitable and the immutable, you still dare to dream, to hazard and to venture in the realm of realizable ideals.



Courtesy California Highways and Public Work

INTERURBAN TRAIN PLATFORMS FOR S. F. BRIDGE TERMINAL

INSTALLATION of interurban facilities on the San Francisco-Oakland Bay Bridge is expected to be completed in 1938.

Work on the construction of the San Francisco Interurban Terminal, the design of which is shown in the accompanying architect's drawing, is now under way.

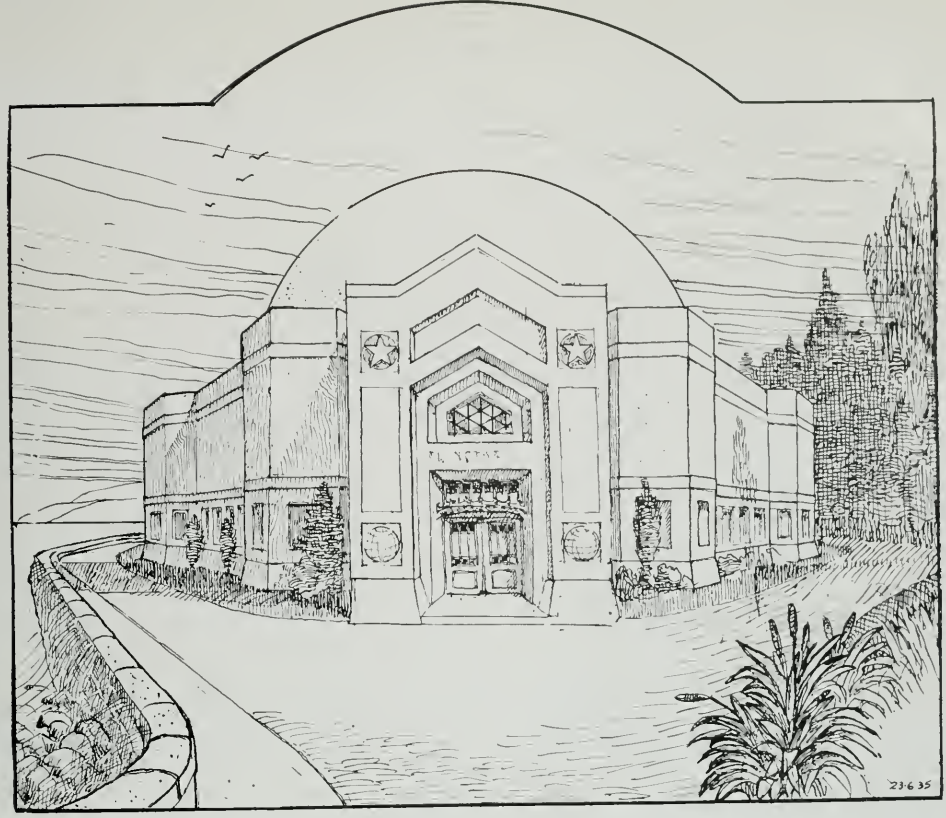
All tracks and loading platforms in the terminal will be entirely roofed for a length of 700 feet, with large skylights and windows providing ample lighting.

Because the Bay Bridge trains will arrive at the terminal every minute during the rush hours, the present congestion caused by the 35,000,000 annual commuter traffic between the East Bay and San Francisco is expected to be eliminated by the more uniform distribution of passengers.

Plans call for six tracks arranged in pairs with platforms between alternate trains, with an over-all station width of 164 feet. Two inner platforms will each be 27 feet in width and two outer platforms will each have a width of 14 feet. Fences between the pairs of tracks will prevent passengers from crossing them, to their danger.

Each platform will have a system of seven ramps or stair connections to the mezzanine concourses, from which commuters will leave the terminal building.

The ramps and stairways will be spaced along the full length of the loading platform so as to serve an entire train and to give passengers a minimum walking distance.



SKETCH FOR PROPOSED PLANETARIUM
B. J. S. CAHILL, ARCHITECT.

A PLANETARIUM FOR THE 1939 EXPOSITION

by B. J. S. CAHILL, Architect

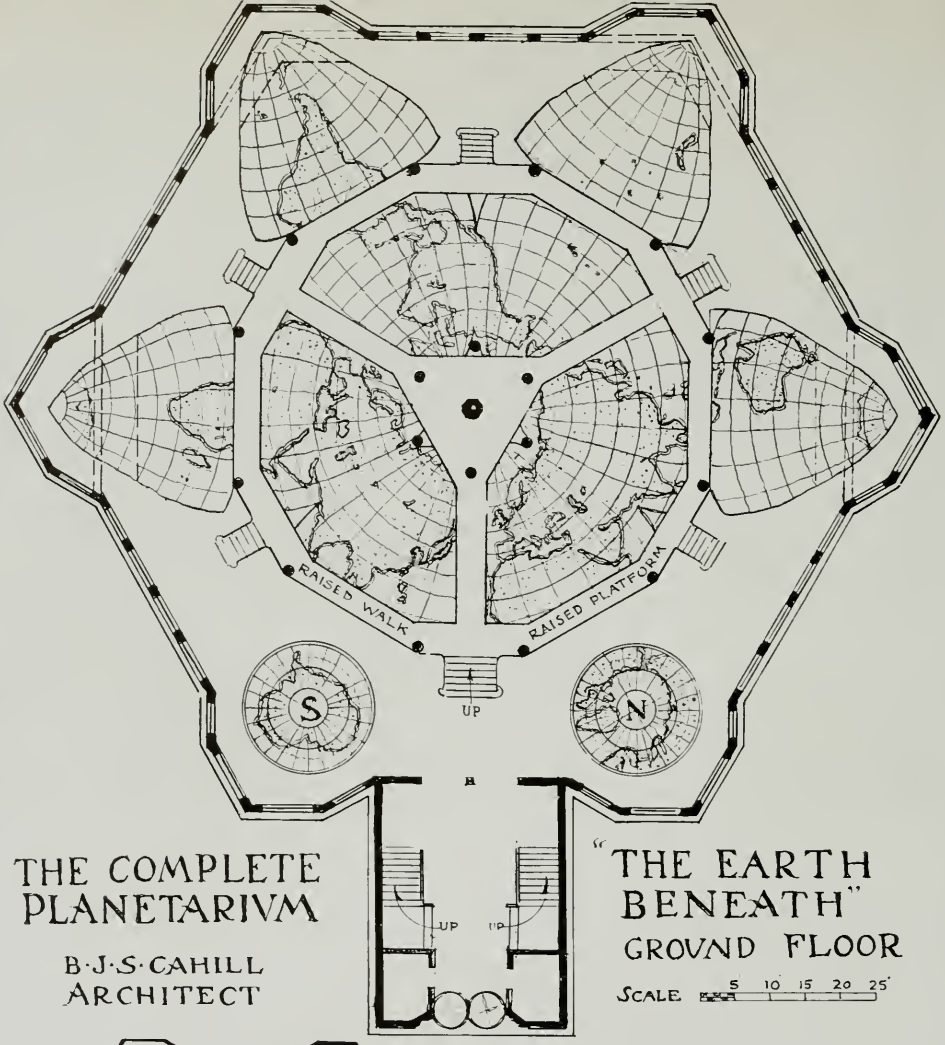
THE word PLANETARIUM is something of a misnomer since all planetariums to date show every planet but our own, the earth we live on the most important one of all!

While there are over a dozen of these structures in Europe, there are at present but four in the United States.

The ordinary planetarium is a circular or polygonal structure with a hemispherical smooth dome on which, from a central battery of ingeniously arranged Zeiss lenses, the whole visible firmament is projected in spots and blurs of light, all else being in darkness. The illusion is simply marvelous, both to the casual visitor and to the professional astronomer. Not only are the stars, nubulae, constellations and planets correctly shown in their varied brilliance but they can be made to move slowly or quickly to illustrate any astronomical topic that the lecturer is scheduled to discuss.

The planetarium on the lake shore at Chicago proved one of the enduring attractions of the Exposition. The latest one has just been completed in Los Angeles. One for San Francisco has long been discussed by members of the Astronomical Society of the Pacific.

Now since our long discussed Civic Center was at last only realized through the general enthusiasm engendered by the P. P. I. Exposition of 1915, it would undoubtedly be a pro-

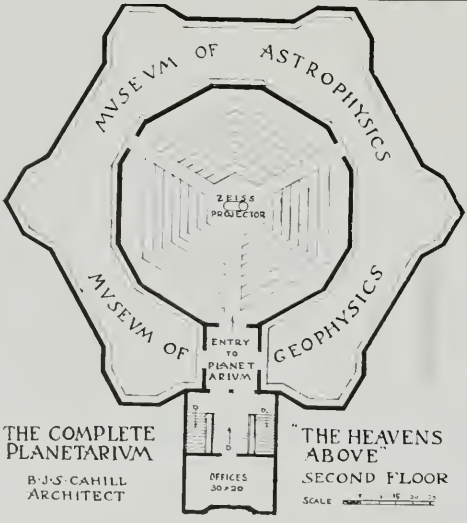


THE COMPLETE PLANETARIVM

B·J·S·CAHILL ARCHITECT

"THE EARTH BENEATH"
GROUND FLOOR

SCALE 5 10 15 20 25'



pitious time to get our planetarium launched along with the impending Bay Bridges Exposition. And naturally this might well be considered as a permanent structure to remain at the Flying Field at Yerba Buena Shoals.

This is to be taken as a mere provisional suggestion for two reasons. In the first place the planetarium may already be an assured thing through private contribution which is not yet made public and in the second place there may be very good reasons which make this site impossible. In either case the proposal here made is in no wise affected whether the planetarium is independently financed or whether the building goes on this site or on that.

The proposed addition to the usual features of the ordinary planetarium is both logical and inexpensive. For these reasons it instantly commends itself to all who hear about it as "a consummation devoutly to be wished for."

As I said at the beginning, this world is the most important of all the planets and yet it is ignored in the ordinary planetarium. I propose to remedy this by using the basement of the building, right under the dome, for a model of the world, our own planet, on the Butterfly Projection to the same scale as the International Millionth Map. This should be laid down on the floor and viewed from elevated gangways beneath while concealed lights illuminate the entire map. It should, moreover, be modeled in relief and colored more or less after the fashion of the map of California at the Ferry Building.

Long before any planetarium was built I showed that the Butterfly Map of the World was the only projection known which would show all the sheets of the millionth map assembled together in one plane. And this can be done better from the jelly negatives of a plastic model than from the rigid sheets of the millionth map for reasons which I shall now explain.

The so-called "Millionth Map" is like the "Planetarium," a misnomer. It is not a map at all, but, when completed, a collection of some two thousand sheets, only nine of which can possibly be grouped together without being warped or "sheared" into place. As a matter of fact the sheets of the Millionth Map can only be joined together continuously on the surface of a huge globe about 42 feet in diameter.

Many years before such a collection of detailed maps was proposed by Dr. Albrecht Penck of Vienna, an actual globe to the same scale was constructed in a special building at the Paris International Exposition of 1889 in detachable parts so that it could be taken down and moved elsewhere. The surface of this large globe was made up of 586 pasteboard panels on a frame of wood. Around this globe, made to revolve slowly, was a spiral ramp so that visitors after having been taken to the top by an elevator, could walk down to inspect at leisure the different parts of its surface.

But the expense of such an exhibit would be very great compared with the far more practicable project of laying out the surface of this large globe on the floor of some Exposition Building dedicated to Education as I actually proposed for San Francisco in 1915. But far better in every way is the proposal to place such a map UNDER THE FLOOR OF A PLANETARIUM, that is in the basement, which by the way, need not have more than eleven feet headroom in the clear.

Now as the Butterfly Map comes nearest of all projections to showing an actual globe laid out flat, as the experiment with a rubber ball cut open and laid under glass amply proves, we cannot ignore the fact that some stretching is necessary to take up the curvature of the surface. This can be all the more easily accomplished if we make a solid model instead of flat paper map. The reason being that the jelly negatives for making the final plaster casts can be warped slightly in a manner quite impossible if the map is executed in "pasteboard panels." Moreover the necessity to make a negative mold allows duplicate casts to be made mechanically and cheaply. In consequence of this the owner of these negatives can donate or sell duplicate sets of casts to all and any planetarium promoters hereafter throughout the world.

The lenses of the Zeiss projector produce the best results if the dome approximates 65 feet in diameter; and this, by a happy coincidence, just fits the plan of the map model below when made to the scale of one to one million.

The sketch plans and perspective herewith show how the map of our own planet sits under the floor of the Planetarium which it so fittingly supplements.

The basement floor may well be level with the lot or sunk a few feet. A common entry vestibule and stair hall serves both the lower Geographical and the upper Astronomical floors with one stairway for entry and another for exit. Once inside the automatic turnstile

upon depositing ten cents in a slot the visitor is free either to wander around the world on foot downstairs or to inspect the museum of geography and astronomy upstairs until the stated time for the regular lecture in the Planetarium, because this department, unlike the one below, does not function until the lights are turned off entirely so that the dome alone is illuminated by its own projected "starlight." It is for this reason that the extra attraction of the pictorial world map keeps the public interested between the astronomical lectures. Indeed Dr. Hartmann of the Zeiss Company in Los Angeles gave it as his opinion that at least ten people would want to see the "earth below" to one anxious to view the "heavens above." At any rate the two exhibits supplement each other in every way, structurally, educationally and financially.

While the lower floor needs more spread than the Planetarium proper, the extra space above may or may not be roofed in for museum purposes, or this part may be omitted for the present. It would certainly serve many purposes in conjunction with the twin exhibit, a compendium of Cosmical information. Its educational value would be enormous and every population center throughout the civilized world would want to acquire one.

Regarding the actual model of the world on so large a scale (16 miles to the inch) it is evident that any attempt to reproduce the detail of small sheets of the millionth map would be a waste of labor. The physical features, especially the elevations or orographical systems, the rivers and the principal lines of human travel, and towns, including the boundaries of states and provinces, would be amply sufficient.

It is usual in relief maps made for engineering or geological use to make the vertical scale twice or even several times the horizontal scale. For practical purposes this practice can be defended, but such a deceptive device is unwarranted in any scientific attempt to show a real picture of this planet's surface and its incredible smoothness when seen in true relation to its great bulk. Nor should the conventional colors of the official Millionth Map be considered for a moment as they are wholly artificial and entirely misleading. Instead, a natural color scheme should be used where the deserts are a tawny yellow, forests and jungles a dark dappled green, meadow lands and cultivated areas lighter greens, rocky regions various shades of grey and ice caps or snow, white and blue, etc. The water should be shades of sea green and purplish blue according to depth. Names and boundary lines should all be in bright red, perhaps on detachable cards.

The elevated platform reached by six flights of steps is carried on metal brackets and beams from column to column, so that all parts of the model are visible and clear of obstructions excepting the junction of the two repeat octants which are separated by a solid partition from the platform down to the map on the floor.

A marked economy can be effected by cutting off the four South Polar extensions altogether as shown by dotted lines at the South American and New Zealand octants, thus bringing spectators nearer to the Southern continental extensions by making the building a plain hexagon. This saves the expense of the six corner extended bays. Since each Pole is shown separately, it seems unnecessary to show both of them twice over.

The window system is largely optional in both floors; and whether an upper floor is finished or not, a stair-case to a promenade roof over either floor might prove very attractive as a panorama feature of the encircling bay shore.

A service basement under the entrance wing would accommodate furnace, lavatories and air-conditioning mechanism, etc.

In conclusion I will add that the proposed plan of our planet as a logical adjunct to a Planetarium need not be included in the cost if the funds are not just now available. But if the spacing of the columns is made to conform with this map feature it can be added at a later date whether the site is at the Shoals or elsewhere.

BUSINESS BETTER DURING ALTERATION WORK

CURIOSITY DRAWS PROSPECTIVE BUYER INTO STORE

by G. A. Anderson

WITH such abundant proof that alterations increase the business not only after the job is over but even during the course of the construction work, it is possible to marshal the facts and present them in an imposing manner to an owner who is still hesitant about having such work done.

Assuming there are no difficulties in financing the project, and there need be very few nowadays, we find at times an owner who refuses to embark upon an alteration because he fears the interruption and curtailment of his business during such work will seriously affect his net profits, regardless of any estimated increases in business after it is all over. He fears this loss has not been taken into consideration, and he feels this should be added to the cost of the alteration work itself in order to arrive at the true net cost.

The estimated increase in profits following an alteration might pay for the alteration work in two years or five years or "X" years, but closing his establishment for a month or six weeks would mean a loss of 10% of his normal annual business. How will this loss be made up?

Besides that, there is the loss in the goodwill of customers and would-be customers who called and found his place of business temporarily closed. There is also the danger of dislocating the buying habits of his clientele, and this loss is difficult to gauge.

In addition, there is the mess which he fears and cordially dislikes.

All such misgivings are groundless because (1) there are so few occasions when any business must close entirely that we can simply count that out of normal expectations, and (2) what mess there may be can be reduced to unobjectionable proportions by deliberate planning and by a studied regard for the essentials that must be maintained under any circumstances.

Having surmounted these fears, there is still the general impression that even if the plant or store stays open, there will be a decrease in business. This is a fallacy that architects, engineers and builders can testify to the contrary in practically all cases, although the exact increases enjoyed by an owner during such operations are not always known nor obtainable. An individual storekeeper is usually reticent about his sales, while a large corporation with a large accounting unit, if it releases such figures at all, is apt to have such information available months after the job is completed and you have left the premises.

Editor's Note. The author was formerly construction superintendent on the Pacific Coast for Montgomery Ward & Co.

For the purposes of this discussion, the exact increases are immaterial, whether they be ten or twenty or "X" per cent of probable normal. The main point is that one can ordinarily expect an increase and not a decrease during the period of the construction itself.

To obtain definite figures on these increases, one must deliberately seek such information after the entire job is completed and the accounting system has caught up with the work. If an owner originally appeared dubious when you told him to expect an increase, one should not expect him to chase you to substantiate your predictions.

Besides, an owner might feel that coincidence played a large part in this particular case, and, besides, it might have been due to his own expert management of affairs in general. The fact that this happens practically every time only proves that such increases might be due to the manner in which the construction work was handled or to the merits inherent in such undertakings or to a little of both. Certainly one cannot imagine there is in existence a gigantic conspiracy amongst owners to withhold their best until the appearance of an alteration.

Instead of keeping people out, a clean-looking alteration actually brings people in.

For a store, this is very important because sales is a function of the traffic.

A clean barricade, not too high, with bright signs announcing that alterations are under way and that business is going on as usual, is an investment that will pay dividends by the ten-fold. The average man, when he sees a barricade, at once senses construction activities and also that he must keep out. Imagine his delight in finding this particular barricade designed not to keep him out but to facilitate his going in without getting injured.

The fragrance of freshly cut lumber, the hum of activity, and the brightly colored signs beckoning him to enter, all play their part in gaining immediate good-will. Many walk in who would never think of visiting that particular establishment. With sales a function of traffic, it is easily seen why there is no drop in business but an increase instead.

The technique of actually supervising an alteration so it "clicks," where there is a minimum of fuss and practically no mess, will be explained in a subsequent article. At this time, a general sketch only will be given to cover the thesis that business increases even during the alteration.

Basically, action breeds action.

Executives justify huge expenditures in advertising, displays and personal solicitation because the monetary returns have been profitable. There is no argument with the theory that the greater the expenditure the greater the monetary return, provided the law of diminishing returns is fully recognized.

An owner hesitates approving the expense of an alteration because its success is problematical to him, and he naturally bases his fears on the unknown as this is a departure from the more usual channels of expenditure.

Aside from various other factors, an alteration produces profitable results because it is a new medium for displaying aggressive action. Tastes get satiated with the same type of diet. One day it is an advertisement. Next day it becomes a full page advertisement. Now we are told that multi-page advertisements are the most effective. When a man sees, however, a new store front, or an alteration under way, he at once feels that that owner is dressing up to gain his personal attention, and he succumbs to this subtle flattery in greater measure than another spurt of effort in more stereotyped channels.

The effectiveness of an alteration can be broken down into three fundamental objectives—we are responsible for two and the owner is responsible for the third. We can label them as STOP, LOOK and LISTEN.

(1) **STOP!** By clearly showing there is an alteration taking place, we get people to STOP. Don't camouflage such activities.

The crowd that gathers to watch a steam shovel at work is there first of all because something interesting caught their attention and there were no barriers against fulfilling

their curiosity. So they stopped. No attempt is made to hide the functional activities. What is happening is so perfectly obvious, and people respond kindly to a scene that is devoid of any concealment.

(2) **LOOK!** By controlling men and materials so they flow smoothly from one operation to another, we induce people to LOOK. The first step was to make poeple stop. Now we want them to look.

A pole-vaulter holds his audience breathless with his graceful climb into mid-air, and then a dramatic twist, a fleeting pause, and he smoothly sails to earth while his bamboo pole gently drops behind him. Although we cannot duplicate such grace on an alteration, we can inject the element of controlled action, which does fascinate people, more so when it is unexpected.

By deft handling of alteration activities, we can make all hammering resound with a purpose to every blow. Partitions should rise as if by magic. New paint should appear as a delightful surprise. Nails should seem to sprout from nowhere. It is a wonder why carpenters don't swallow more of them.

(3) **LISTEN!** By artfully displaying his merchandise or services at attractive prices, the owner gets his audience to LISTEN.

Even here we can help by suggesting that merchandise be placed directly in the path of the greatest traffic as it is common knowledge that, to promote the sale of any article, it must be displayed not only effectively but close enough to touch.

We did our part in getting the people into the store. It is now up to the owner to make them listen and buy his merchandise. With the stage all set, they usually do.

THIRTY MINUTES WITH AMERICAN ARCHITECTS

(Concluded from Page 26)

Ornament judiciously placed produces desirable accents.

Modern work of high calibre has not been restricted to New York. Indeed some of the very best is to be found in the Middle West and the West. Especially successful is the work of the Chicago firm of Holabird & Root, the designers of the Palm Olive Building which received the League's Gold Medal several years ago, also of the Dakota State Capitol, the City Hall of Racine, Wis., and many other buildings. I count them among the best in the country. Their Chrysler Building at the Chicago Fair proved remarkably successful artistically. In the far West, a number of men are doing excellent work. Goodhue's Nebraska State Capitol, I have already referred to. This is considered by the profession a masterpiece in the modern spirit. I have not seen the building personally, but have no doubt the verdict is a just one.

And not to be accused of false modesty, I am going to mention some of our attempts along the modern. Ours has been largely industrial work, which has enabled us somewhat in the development of the new. Our Detroit Evening News Building we consider the best industrial building we have designed to date. This, of course, was done some years ago. Among later work, we are rather proud of the Chrysler Sales Building out Jefferson Avenue, which has been kept extremely straightforward and simple. In this we were permitted to use attractive materials—Mankato stone, stainless steel and black granite. Another effort of ours is the new studios for W.W.J., in which we frankly express the purpose of the building in limestone and black granite. In this structure we were privileged to engage Carl Milles for a couple of very amusing sculptured panels on the outside. Our Fisher Building also is in the manner of the new, though perhaps more ornate than we would have it today. Our most recent work is the Ford Rotunda on Schaefer Road. This is a re-building in part of the Exposition Building, in Chicago—in permanent materials—limestone and stainless steel. The problem lent itself particularly well to a modern treatment and we feel rather happy with the result. It is extremely simple in design. Color as well as ornament have been introduced in a restrained manner in the entrance doorways. The structure is clearly expressive of its func-

tion and I am glad to say has met much acclaim from the profession.

There can be no doubt but that the modern trend is leading to desirable results. We see much, of course, that pretends to be modern but its very pretentiousness disqualifies it as such. At all events, we have gotten out of a rut and for that we may well be thankful. As new problems are constantly in the making, the architecture of this era will leave adequate and valuable records. Incidentally, the new problems continue to demand more and more of the profession. Architecture in earlier days was a rather personal occupation, dealing primarily with plan and design. It required, of course, a knowledge of materials and elementary construction. In this day, however, of structural steel, reinforced concrete, electricity, steam heat, refrigeration and ventilation, and with the innumerable new problems in plan and design, the one man performance is out of the question. In addition to being familiar with the specialties just mentioned, the architect is expected to be an able administrator to handle the large sums often involved in building, somewhat of a lawyer to save legal complications, considerable of a judge to decide between owner and contractor, a sociologist to meet the social problem, somewhat of a banker to advise on the financial soundness of projects, and above all a tactition to meet the requirements of clients, which frequently is no sinecure. No one man could possibly be expert in all, wherefore the work today requires an organization of competent men, over which the architect may preside as Chairman of the Board, as it were. With all and in spite of the fact that architecture today is in my opinion only about 10% art and 90% business, the architect must have constantly before him the final result—the artistic, the practical and the economic. His position is much like that of the director of an orchestra in which each instrument plays an important part, all controlled, however, by one force to produce the desired ensemble. It is, of course, the many demands upon him that make the architect's work so interesting and exciting.

Photo by Gabriel Moulin Studio

WHITE MARBLE MAUSOLEUM, CYPRESS LAWN CEMETERY, SAN FRANCISCO
B. J. S. CAHILL, ARCHITECT.

MUST WE HAVE TRAILERS FOR HOUSES?

ROGER BABSON'S PROPHECY BASED ON ECONOMICS

by Frederick L. Ackerman, The Octagon

IT HAS come about that whenever the subject of Housing is discussed, particularly when it is proposed that the Government should take a hand in the matter, reference is made to the automobile industry. The latter is held up as a shining example of perfect conduct in the industrial field, while the construction industry is referred to as the "Peck's Bad Boy" of the whole industrial system.

According to Mr. Cameron, of the Ford Sunday Evening Hour, the price per pound of automobiles has been falling through the years. Those of us who are connected with the building of houses know very well that the price per cubic foot has been rising. The general opinion apparently prevails that if the construction industry would pattern its program of action after the automobile industry, we could have all the habitations we need, particularly if we developed a second-hand market and treated the matter after the manner of the automobile industry.

It may be well to consider in what respect these two industries differ and what radical changes would have to be made not only in the production industry, but in respect to the operation of our economy as well, if habitations were to be produced in ample supply.

What would have happened during the last thirty years if the automobile industry were under the surveillance of laws governing the building of automobiles which imposed the lag, as do laws covering the erection of buildings, of a quarter of a century or more following the unfolding of an idea before it could be applied? What would have been the history of Ford, General Motors and Chrysler, had it been necessary for these industries to assemble all cars in individual garages instead of upon the assembly line? What would have happened to the rate of flow on the assembly line had it been composed of forty-odd well established trades engaged, most of the time, in jurisdictional squabbles over vested interests in the use of materials and in technique?

So much for the production problems involved. Let us look now at the financial.

What would have happened, in the case of the automobile industry, if practically every car produced carried a first mortgage of 60% of its value, which mortgage it was not customary, until quite recently, to amortize; every other car a 20% mortgage; and say every third car a 10% mortgage? What would have happened if every year or so the valuation of every old car had been marked up by local appraisers and assessors so that the older it got the greater became its valuation? What would have been the course of technical progress in the automobile industry? I will leave that question for anyone to answer. My only comment, made from intimate experience with the building industry, is this: The designers and the engineers in the construction industry have worked before the same background of scientific knowledge as the designers and engineers of the automobile industry. They have worked with the same aspirations and with the same urge to explore and apply. The reason why they have not made progress should be obvious from the contrasts just referred to.

Another contrast may be drawn that is equally significant. The automobile industry has, by and large, sought to apply technological gains not only in the plant which produced the car but in the car itself. The designers and the engineers of the production industry have sought to apply such gains as arose out of their explorations in the technical field but they run into a series of stone walls

when they make the attempt. Vested interests in materials and processes, vested interests of labor in its techniques, make the going difficult; and by and large, innovations in form and arrangement, as well as the application of materials, do not meet with a ready response from lending institutions, for it is well understood that too wide a discrepancy in respect to utility between the old and the new would render investments in the obsolete of dubious worth.

Anyone who has attempted to buy a comparatively new car has a very vivid idea of the rate at which its value is extinguished by the rules of obsolescence which the industry has been able to put into force. This rapid extinguishment has the effect of getting old cars out of the way for new ones.

This serves to define the nature of what we call The Housing Problem: The production industry is faced with the problem of supplying all families with habitations, but its market for new habitations is limited to but a fraction of the population. This means that if all families are to have habitations, irrespective of character or quality, the number of houses supplied per annum to that group which can afford to buy or rent new habitations must be a multiple of the number required to maintain one house per family in that group which can afford the new. Since it turns out that the lower income groups can pay no more than the operating costs of habitations in which they live, it follows that this limited market must be subject to a very rapid extinguishment of capitalization if all families are to have habitations. A rapid extinguishment of valuation in this field represents as an aim exactly the opposite of what we attempt to do and therefore we are confronted with an ever increasing number of second, third, fourth, nth-hand houses. Hence areas of blight, decay, slum.

These few points of illustration should serve to indicate quite clearly that about the only point in common as between the Production and the Automobile Industries is the fact that both cars and houses are sold.

There is still another difference which should be noted, for it has, in the case of the production industry, a very important bearing upon our urban economy: The continual turnover of cars from one income group to another involves, in the physical world, merely the transfer of cars from one garage to another. But the turnover of habitations from one income group to another is something else altogether: the habitations stay put but the users of them move from place to place.

So long as the present economic relationships which give rise to such a limited market for new habitations hold, we will be faced with a never ending intra-urban migration of income groups. The lower income groups will follow in the wake of obsolescence and physical decay wherever it takes place, whereas the higher income group will seek new pastures. The low income group will move into habitations ill suited to their use, and they will arrive during that period when the cost of maintaining the obsolete units will be at maximum.

The physical outcome of this turnover of habitations from one income group to another and the social and economic consequences of these migrations are on display in every American city of any size. Nothing in our entire economic scheme contributes more definitely toward the development of the random pattern of functions which characterizes our urban centers than this set of pecuniary relationships within our economy.

Some time ago we sought by zoning to stay the course of these migrations, but without avail. The lower income groups have to take their decayed, obsolete habitations where they find them; there is no help for that. And we observe, generously, that it is the lower income groups which bring on conditions of blight and decay!

You see, there is perhaps an economic basis for Roger Babson's prophecy that America will take to the trailer. The lower income groups are continually on the move from one area of decay and obsolescence to another. Well, his prophecy may come true, but one may ask: Precisely what problem is solved if it does?

CLAY PRODUCTS HOUSE COMPETITION

PRIZES totalling $5,000 will be awarded in a home competition announced by Structural Clay Products Institute, Washington, D. C., associated group of America's leading manufacturers of brick, structural clay tile and burned clay products.

Operative builders, realtors, architects, designers, draftsmen, engineers and contractors are eligible to enter the contest, which is open from now until September 20, 1937, and which calls for designs, floor plans, photographs, blue-prints and decorative details of construction, such as fireplaces, wall fountains, and doorways together with structural details, i.e., methods of floor construction and firestopping built of structural clay products.

Divided into three main classifications, the home competition offers two prizes of $500, four of $250, six of $100, twenty-four of $50, twenty-four of $25 and twenty of $10.

Architects and draftsmen are eligible to enter the first stage of the contest which seeks sketches, floor plans, elevations and sections of one, one-and-a-half and two-story houses built of structural clay masonry, brick or clay tile and their various combinations. Houses up to and not exceeding five rooms and one bath and not surpassing 18,000 cubic feet in volume come under Class A of this stage, while dwellings, five to seven rooms, with one or two baths, within a volume of 24,000 cubic feet, constitute Class B. Prizes for both classes are: First, $500; second, $250; third, $100; ten awards of $50 each.

The second stage widens entries to include architects, operative builders and realtors, and calls for photographs and plans only of one, one-and-a-half and two-story brick or brick and tile houses built since 1928. Three-to-five room dwellings with one bath are grouped under Class A, while Class B embraces five-to-seven room structures with one or two baths. Prizes for both classes are: First, $250; second, $100; third, $50; twelve awards of $25 each.

Stage three admits architects, engineers, contractors and realtors, who are asked to submit sketches or photographs of decorative or structural details built of clay masonry. Class A, of this stage, covers architectural or decorative details such as fireplaces, door and window openings, fountains, well-heads, walks and driveways. Structural details, in which any kind of burned clay brick or structural clay tile is used, constitute Class B, which places emphasis upon construction methods and functions. Prizes for both classes are: First, $200; second, $100; third, $50; ten awards of $10 each.

The Structural Clay Products Institute looks to this competition to uncover for future publication current ideas and architectural practice in the design of moderate cost homes built with clay products, the number of dwellings built within the past few years of this type, and ingenious uses to which brick and clay tile have been put in design and structural details.

Prize awards will be made October 1, 1937, by a jury of four architects and three realtors, who will be chosen so that all sections of the country will be represented. All entries will be opened immediately upon receipt. Those plans and drawings accepted for publication at once will be taken at $25 for each house and $10 for each architectural and structural detail. These preliminary awards will not bar the particular entry from any of the three main phases of the competition.

Entrants may obtain a four-page program containing full details and requirements from Structural Clay Products Institute, 1427 Eye Street, N. W., Washington, D. C.

LICENSE WASHINGTON CONTRACTORS

Every contractor and subcontractor in the State of Washington must obtain a state license or retire from the field, if Governor Clarence D. Martin signs S. B. 214, Washington's Contractors License Law.

The law definitely curbs shady operations of jerry builders, offers invaluable protection to owners against unscrupulous operators and generally raises the plane of the building contractor, the engineering contractor and the subcontractor. It does not apply to the material dealer.

Patterned after the original California license law of 1933, the bill does not make it difficult for any legitimate operator to obtain a license, but makes it easy for the state to run shysters out of business.

Major contractors and neighborhood plumbers alike pay the same fee—$10 the first year and $5 annually thereafter.

The law embraces everyone engaged in any construction work of any type, unless he confines his work to jobs costing less than $50. Exemptions are of little moment, except owners may disregard the law if they are to occupy the premises.

Administration is delegated to the state Director of Labor and Industries (division of industrial relations). The director must prepare the regulations which will determine the actual operation and enforcement of the law.

SKETCH BY HEILBORN

Amendments to California Housing Act Approved by State Association of Architects

In view of a unanimous indorsement by the State Association of California Architects of the California State Housing Act, in force since 1923, the State Immigration and Housing authorities and other building interests have prepared amendments to the Act intended to make it more effective.

The proposed amendments have been circularized among architects, engineers and other building interests and co-operation in framing these amendments was assigned to committees that rendered valuable service.

The bill as submitted to the Legislature has the full indorsement of the State Association of California Architects. Following is a digest of the measure:

AMENDMENTS TO STATE HOUSING ACT

SB-524-Tickle; R-25; Law-D-39; Phillips-R-37; Keating-D-13 and Holohan-D-23; (B & C)—Amends the State Housing Act to extend its provisions to apartment houses and hotels outside of incorporated cities and to extend the provisions of the act to apartment houses, hotels and dwellings in incorporated cities of the state. Extends the provisions of the act to cover installation in any existing building. Extends the provisions of the act to cover dormitories where rooms exceed 100 square feet of floor area.

Changes from 12 to 18 inches the clearance from underside of floor joists to the surface directly beneath in every apartment house or hotel erected with other than masonry floors. Provides that minimum clearance between girders and surface directly beneath shall be 12 inches. Changes from 12 to 18 inches the clearance between floor joists and the ground in dwellings that do not have masonry floors. Adds a provision that the minimum clearance between girders and surface directly beneath shall be 12 inches in dwellings.

Provides that minimum widths of every room in an apartment or hotel shall be 7 feet. Changes from 9 to 8 feet finished floor to finished ceiling the ceiling height in dwellings and changes from 8 to 9 feet finished floor to finished ceiling, the ceiling height in hotels and apartment houses, but provides that in hotels and apartment houses ceiling height may be 8 feet provided cubic air content of the room required by the provisions of the act to have a minimum superficial floor area, shall be computed on the basis of a 9-foot ceiling height. In rooms with sloping ceilings there need only be the prescribed ceiling heights in one-half of the area of the room providing no portion of the room enclosure shall have a clear ceiling height of less than 4 feet.

Provides that aggregate window area of any room used for the purpose of amusement, entertainment, reception, dining or for similar purpose, shall be not less than 12 square feet nor be required to exceed 22½ square feet. Changes from 9 feet to 8 feet the ceiling height in such rooms.

Provides that each plumbing fixture shall be provided with a water sealed trap with vent extending to the outer area above the roof and installed so that no drainage or sewage may be conveyed through such vent pipe. Adds a provision that plumbing vent pipes shall not terminate adjacent to any window or other opening used for ventilation purposes and that suitable clean-outs shall be placed at convenient points in the plumbing system.

Changes vertical headroom clearance of stairways in apartments and hotels from 6 to 7 feet. Adds a provision that every fire-escape balcony must abut a street or public alley or open directly on a yard or court with unobstructed access not less than 3 feet in width nor less than 7 feet in height to a street or alley with any portion of such access passing through a building constructed of approved incombustible materials.

Adds a provision that every duct to be used for the transmission of air and forming part of a mechanical system of ventilating for air conditioning installed in an apartment house or hotel shall be constructed of approved incombustible materials or of not less than No. 26 gauge galvanized iron.

Adds a provision that the deadload of footings, foundations, walls, joists, girders, columns, etc., shall be computed in addition to all other live and deadloads transmitted thereto. Changes the safety factor of four weights of materials to the safe allowable unit stresses used in standard practices. Changes the requirements for the use of 2-inch by 6-inch wooden studs in bearing walls and partitions of apartments and hotels from below the second floor to below the top two stories of buildings exceeding two stories in height. Adds a provision that such studs shall be spaced not more than 16 inches center to center except that the studs and plates may be designed as a system of columns and beams. Adds a provision that fire stops shall be placed between floor and ceiling so there shall be no concealed air spaces with a dimension greater than 7 feet. Such fire stop shall consist of not less than 2-inch material, the full thickness of the stud. Provides that where metal lath and plaster is used as a membrane the plaster shall be Portland cement plaster and the metal lath shall weigh not less than 3 and four-tenths lbs. per square yard. Provides that joists supporting plaster ceilings shall be so proportioned that their deflection under full life load and dead load, exclusive of weight of plaster, shall not exceed one-three hundred and sixtieth of the span length. Changes the dimensions of cross-bridging from 2 inches to not less than 2 inch by 3 inch material.

Ceiling height in dormitories is changed from 9 to 8 feet. Ceiling height of dormitories in which a double tier of beds may be permitted is changed from 18 to 16 feet.

REGULATING PRACTICE OF ARCHITECTURE

AB-820-King; D-67 (J. G.)—This bill regulates the practice of architecture, civil engineering and land surveying by employees of any political subdivision of the state whose revenue is derived from tax funds. Such employees may not engage in the practice of these professions while employed by a political subdivision, except if the duties pertaining to the employees work for the government are occasional or part time, provided, however, that none of the equipment used during his governmental work and which is owned by the government shall be used in his private practice. Another exemption is in case the authorities grant a special leave of absence to the employee without pay for not to exceed 30 days per year, in which case the employee may act as a consultant on projects where such services are desired; but he must not act in an executive capacity on such work nor use the public's field or office equipment or office space. Another exemption is in case the authorities grant an employee a leave of absence without pay specifying in the order granting such leave that his services are not needed during the term of the leave in connection with his position.

Provides that violation of the act shall be cause for removal from office and suspension or revocation of all his professional certificates of registration.

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Upon passage of examination additional fee of $10 is required for certificate of registration.

Exemptions: (a) Officers and employees of the U. S. A.; (b) Subordinate to a registered or exempted engineer, provided his work does not include direct responsible charge of design or supervision; (c) Any state certificated architect, insofar as he practices architecture, and when the engineering work is in connection with his practice of architecture; (d) Non-resident of the State of California qualified as a professional engineer but who does not maintain a regular place of business in this state.

Stipulates penalty for violation as a misdemeanor.

Architects Chapters

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Present: E. Geoffrey Bangs, Morris M. Bruce, Hervey P. Clark, Will G. Corlett, Albert J. Evers, P. J. Herold, Wayne S. Hertzka, Ellsworth E. Johnson, Harry M. Michelsen, James H. Mitchell, Irving F. Morrow, Gwynn Officer, Warren C. Perry, Ernest E. Weihe, Ralph Wyckoff, John Davis Young.

The meeting was conducted by President Will G. Corlett.

The matter of Chapter participation in the movement to secure continuance of the Federal Aid Projects was led by Mr. Morrow who presented a resolution to this effect. Following discussion, the resolution was unanimously passed in amended form, as follows:

Whereas, The Federal Art Projects, comprising the Art Project, the Historical American Building Survey, the Writers' Project, the Theater Project, and the Music Project, have proved of more artistic and social significance than was anticipated by their original purpose of providing work relief and have afforded to many individuals and communities their first opportunities to participate in the cultural life of their time, and to many artists their first opportunities to function creatively in the community life; and

Whereas, The organizations through which these fruitful results have been achieved are still intact; and

Whereas, The curtailing of funds devoted to these activities leads to the suspicion that they are to be discontinued; now therefore

Be It Resolved that the American Institute of Architects, Northern California Chapter, deplores the impairment or discontinuance of the above named cultural activities, and urges that appropriate steps be taken to insure the continuance of the advantages thus far attained; and further

Be It Resolved that a copy of these resolutions be forwarded to the American Institute of Architects with the request that it actively seek such continuance of the Federal Art Projects.

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Mr. Evers reminded the members of the recent announcement in The Octagon calling for nominees for the Langley Scholarship. He hoped that this territory would not be without representation.

Mr. Bangs reported on the committee review of the By-Laws and explained in general a preliminary draft

STATE BUILDINGS FOR WASHINGTON

Summary of provisions made in the general and supplemental appropriation bills, and a few specific bills, shows a total of $5,870,000 provided for building activities by the State of Washington, during the ensuing biennium. Of this amount the Capitol Group and grounds leads with a total of $736,000.

Chief construction item is the appropriation of $465,000 for a new unit of the Capitol Group, the purpose being to construct, with aid of Federal and other unemployment relief funds, the companion to the new Public Lands-Social Security building now being completed, and which cost approximately $800,000. It is provided that the Capitol Group appropriations may be expended only upon the written consent of the governor, who is himself a member of the Capitol Committee in charge of new work.

Construction of a dam, bulkhead or spill-way near the Fourth Street Bridge, Olympia, for impounding of an artificial lake in the Des Chutes River Basin adjoining the Capitol grounds on the west, for which $150,000 is made available, promises fulfillment of a long cherished design on the part of the successive Capitol commissions and local civic organizations.

While appropriations for institutions under supervision of Olaf L. Olsen, director of the Department of Finance, Budget and Business, total $1,724,000, he stated that until the governor had acted upon the appropriation bills, and conferences had been held on the building program, no details of the proposed construction work could be given out. **No architects have as yet been assigned to the work.**

SODIUM FLOODLIGHTING

As a result of recent tests of sodium vapor floodlighting on the front of their engineering building at Bloomfield, New Jersey, W. W. Wildeman, Westinghouse illuminating engineer, foresees a rapid increase in the use of sodium vapor lamps for floodlighting because of its higher efficiency and characteristic color. Besides offering low current costs, the golden yellow light enhances the "advertising" value of a floodlighting installation.

In the installation at Bloomfield, approximately 800 watts are used to illuminate a concrete facade of some 12,000 square feet, 100 feet away. With a total of 40,000 lumens of light, these lamps produce the same intensity as approximately 2,000 watts of filament lamps. Although the illumination on the surface is low, dark surroundings emphasize the effect while the monochromatic light brings out the architectural features in sharp relief.

Because of higher operating efficiency again, electricity costs of sodium lighting obviously run much lower than incandescent. Averaging four hours of burning nightly throughout the year, annual electricity cost of this particular installation should amount to $58.40, figured at the average nation-wide rate of .05c per kilowatt hour or only 16c per night. Since the lamps are designed for an average life of 2,000 hours, lamp replacement cost for a floodlighting job of this character would be quite low.

HANDBOOK OF INTERIOR WIRING DESIGN

A "Handbook of Interior Wiring Design," produced after months of deliberation by some of the best minds in the several branches of the electrical industry, and awaited by the entire industry with keen interest, is at last an accomplished fact. Prepared with painstaking effort by members of a joint committee under the chairmanship of E. A. Brand, Niagara Hudson Power Company, Buffalo, N. Y., the work meets a long-felt want in dealing with the problem of inadequacy in capacity and the handicap it places on electrical progress.

The "Handbook" contains specifications, details and plans of complete wiring design, developed to meet increased electrical demands of the present and future. It is being released nationally under the sponsorship of the entire electrical industry.

Every type of interior wiring design has been informatively treated in the subject matter. Tables of data, diagrams, check lists, sample specifications and contract forms, essential surveys, practical design data, terminology and miscellaneous facts are presented with clarity and precision.

Nation-wide acceptance of this standard of interior wiring design will go far toward getting rid of the bottle-neck of inadequate wiring which today limits the industry.

The "Handbook of Interior Wiring Design" is the only book of its kind which bears the approval of the entire electrical industry. In joint sponsorship with Edison Institute are the Artistic Lighting Equipment Association, Illuminating Engineering Society, International Association of Electrical Inspectors, National Electrical Contractors Association, National Electrical Manufacturers Association, National Electrical Wholesalers Association and the Radio Manufacturers Association.

HILLSBOROUGH RESIDENCE

Plans have been completed by James H. Mitchell, 369 Pine Street, San Francisco, for a $12,000 residence at Hillsborough, San Mateo County, for Allan Lee.

BERKELEY RESIDENCE

Frederick H. Reimers is preparing working drawings for a house to be built on the Hart Estate property, off the Tunnel Road, Berkeley, for Fred Dupuy.

ARCHITECTS' BULLETIN

Issued For

THE STATE ASSOCIATION OF CALIFORNIA ARCHITECTS

Northern Section

Meeting of Northern Section Advisory Council

MARCH 19 brought together a representation from all the districts, Northern Section, within one hundred miles of San Francisco. There were members from Sacramento, Stockton, Vallejo, San Jose, Palo Alto, San Mateo and the East Bay—a splendid turn-out in spite of the inclemency of the weather. Legislation was the sole matter of business on which President Devine, in the role of chairman of the Statewide Legislative Committee, gave a very clear outline of both the policies of the Executive Board and the situation as affecting the Association as a whole, in Sacramento.

Driven indoors by the storm, nearly all the architects bound for the dinner, but not members of the Advisory Council, arrived to take part in the discussions of the legislative situation and joined in the voicing of unanimous approval of Mr. Garren's motion that the Advisors concur in the legislative action of the Executive Board.

General discussion brought forth volunteers to help the Legislative Committee and Executive Board.

MARCH DINNER

The March dinner of the Northern Section was well attended and replete with interesting features. There is much to be said for having the business before the dinner, both for the dispatch of routine matters and the subsequent enjoyment of the repast. It was unplanned good fortune that brought nearly all those attending the dinner in for the meeting of the advisors with the result that it was not necessary to curb good fellowship in the interest of the agenda.

After the dinner Mr. Devine called the attention of the table to many who had come some distance through the storm to attend the dinner and paid tribute to the architects of the Bay District for their support and activity in the Association. He called on Messrs. Harry Michelsen (vice-president), John J. Donovan and Otto G. Hintermann (treasurer), the last giving the mid-year summary of the financial condition of the Northern Section.

BAY REGION ENTHUSIASM

At the dinner on March 9, President Devine referred to the San Francisco Bay architects as the back-bone of the Association—a very nice tribute. In a sense he is right in that the architects living close to San Francisco can more readily carry on the organized activities of the Association, but in no way contradicts what has been preached by previous presidents of the Association, that without the help of the District Societies and all the architects in the State, the Association would be left without strength, particularly in matters of Legislative activity.

It is consoling to think that those active in the Association have shown such appreciation of the parts played by the different groups. Those from

the Bay area, in return, are not unappreciative of the outside support, which has been and is most loyal, reminding us of the rods in the fable of the Roman farmer, "Easily broken as individuals, but strong in the bond of unity."

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Mr. Bangs reported on the committee review of the By-Laws and explained in general a preliminary draft

which would combine Constitution and By-Laws in one document and embody the mandatory requirements of the Institute.—J. H. M.

SOUTHERN CALIFORNIA CHAPTER

The life of Michael Angelo was reviewed in an illustrated paper by William H. Schuchardt at the monthly dinner meeting of Southern California Chapter, A. I. A., March 9.

Following dinner the members and guests adjourned to the oratorio, where they listened to an organ recital by Harry Q. Mills and where the business session was held.

Committee reports included an announcement made by Edgar Bissantz, chairman of the committee on honor awards, that the honor awards program, suspended four years ago, would be resumed. It will be divided into two groups, one of residential buildings and the other commercial buildings, schools and churches.

Eugene Weston, Jr., reported on Amendment 7-A to the city charter, an amendment clarifying the duties of the Los Angeles Municipal Housing Commission.

Ralph Flewelling, who presided at the meeting, stated that reports of the professional betterment and legislative committees would appear in the Chapter bulletin. Mr. Flewelling expressed appreciation of the opportunity given the Chapter to visit the Chapman Park Hotel pueblo and oratorio, made possible by Carleton M. Winslow, who designed the buildings.

The pueblo is a group of bungalows built on ground adjoining the hotel, the group worked out in the manner of Spanish-Mexican architecture so far as hotel planning would permit.

Guests of Chapter members included N. M. Chouinard of Chouinard Art Institute; Roscoe Schrader of Otis Art Institute; E. A. Adams and Stanley Reckless of the Art Center School; Merrill Gates, sculptor; Paul Sample and Barse Miller, artists; G. A. Chapman, owner of the hotel, and J. J. Crouch, manager of the hotel.

Mr. Winslow introduced William Simpson and J. C. Edwards, who built the pueblo and oratorio; R. D. Harrell, designer of the pueblo furnishings, and Alfredo Martinez, the painter.

Dean Weatherhead introduced several students of the School of Architecture, University of Southern California.

COMMITTEE CHAIRMEN NAMED

The following chairmen of committees have been appointed by Leslie D. Howell, president of Oregon Chapter, A. I. A.:

Jamieson Parker, Legislation.
Francis B. Jacobberger, Membership.
George Jones, Professional Practice.
Margaret G. Fritsch, Public Information.
Walter E. Church, Public Works.
Roi L. Morin, Building Laws.
Herman Brookman, City and Regional Planning.
A. Glenn Stanton, Education.
Abbott Lawrence, Entertainment.
Pietro Belluschi, Exhibition.
Fred Aandahl, Honor Awards.

SPOKANE ARCHITECTS SOCIETY

Noel E. Thompson has been elected president of the Spokane Society of Architects. Other officers are:

Henry C. Bertelsen, first vice-president.
Charles Wood, second vice-president.
Roland M. Vantyne, secretary-treasurer.

Meetings are held on the first and third Fridays of each month.

PRODUCERS' COUNCIL CLUB

The Producers' Council Club of Northern California has named J. G. MacKenzie, district sales manager of the Libbey-Owens-Ford Glass Company, president, with H. E. Root, vice-president, and R. W. Beard, secretary-treasurer. Three architects have been honored by appointment on the Executive Committee. They are C. F. Masten, Wilbur Peugh and Harry M. Michelson. Other officers and committees are as follows:

Directors—J. G. MacKenzie, H. E. Root, R. W. Beard, A. W. Scott, Clarke E. Wayland, W. P. Wooldridge, N. L. Best, S. V. Armstrong and F. L. Epley.

Entertainment Committee—N. L. Best, Chairman; Al Otto, Clarke Wayland, Ray Kingsland, L. Siebert, P. M. Olsent, Austin Sperry, F. K. Pinney, V. G. Paulson, L. M. Griffin.

Membership Committee—S. V. Armstrong, Chairman; Ross M. Clark, W. W. Gainey, William G. Stearns, V. S. Persons, H. M. Howard, George Freear.

Publicity Committee—C. R. Epley, Chairman; C. D. Herbert, Arthur Skaife, L. W. White, F. W. Kolb.

Program—W. P. Wooldridge, Chairman; Ben F. Blair, T. M. Howard, J. E. Higgins, G. E. Roberton, P. M. Hunt, Horace Hills, H. A. Davis, R. B. Powers, Lester F. Scott.

$12,000 ORINDA RESIDENCE

Plans by Clarence W. Mayhew, 6026 Acacia Street, Oakland, call for a six-room, one-story $12,000 house at Orinda for H. V. Manor. An oil burning hot air heating system, shingle roof and hardwood floors are specified.

STORE AND APARTMENT BUILDING

From plans by Walter Falch, Hearst Building, San Francisco, C. Garner will build a two-story frame and stucco store and apartment building on Locust Avenue, Mill Valley, estimated to cost $10,000.

President
A. V. Saph, Jr.
Directors
William Adrian
Harold M. Engle
Jesse Rosenwald

STRUCTURAL ENGINEERS ASSOCIATION
OF NORTHERN CALIFORNIA

Vice President
John J. Gould
Secretary Treasurer
Alfred P. Fisher
111 Sutter Street
San Francisco
Douglas 1066

400 ENGINEERS BANQUET IN SACRAMENTO

The largest gathering of engineers in California's history describes in a half dozen words the banquet in Sacramento March 19 sponsored by the American Society of Civil Engineers (Los Angeles, San Diego, Sacramento and San Francisco Sections) and the Structural Engineers' Associations of California. Planned on a big scale the event materialized as such, greatly to the astonishment of many who would not believe it possible to assemble at one time nearly 400 members of this fast growing profession. Besides structural and civil engineers there were goodly delegations of mechanical, mining and electrical engineers from all sections of the State, together with the members of the State Board of Registration for Civil and Structural Engineers, representatives from the State Divisions of Architecture, Highways and Water Resources.

Distinguished guests included Lieutenant-Governor George J. Hatfield, Earl Lee Kelly, Director of Public Works, and Dr. Paul F. Cadman, Consulting Economist, all three of whom honored the assemblage with interesting talks, that of Dr. Cadman being particularly brilliant. The list of other notable personages in attendance included men prominent in State, county and municipal affairs, besides organization officials, in office and ex-officio.

Most of the out of town attendants made their headquarters at the Hotel Senator which was overflowing with notables, including many State Senators and Representatives and officers of other bodies in convention for the week-end. Interest centered in the banquet held in the main auditorium of the Elks' Club. A splendid menu was furnished with excellent service despite the large number of persons served. During the meal a musical program was presented by the Convention Bureau of the Sacramento Chamber of Commerce. The entertainers included a young ladies' orchestra, chorus and vocalists.

A. V. Saph, president of the Structural Engineers Section of San Francisco, presided and introduced Harry W. Dennis, vice-president of the National Association of the American Society of Civil Engineers as toastmaster. Saph welcomed the State officials and citizenry and pointed out the uniqueness of the convention in that it had no official head. It was just one great gathering of engineers. "This meeting," he said, "is outstanding, with an outstanding toastmaster."

Mr. Dennis performed the functions of presiding officer with rare dignity and smoothness, first referring to the high standards followed by the several branches of the engineering profession and the notable accomplishments that had brought the profession world-wide recognition.

Lieutenant-Governor Hatfield extended an official welcome of the engineers to the State Capitol and reminded his audience that California today is largely the creation of engineers. Our great buildings, our bridges, our highways, our railroads and airplanes are all the result of the work of members of this profession. The visions of Jules Verne have been transferred into actual reality by the genius of you engineers. To you the State of California makes public acknowledgement of your splendid work and achievement.

Earl Lee Kelly, State Director of Public Works, said he had been asked only the day before to give a ten-minute talk on several notable State projects. Running over the list he discovered some eight or more projects any one of which could hardly be properly described in the time limited to his talk. He cited as one of the outstanding achievements in connection with the building of the San Francisco Bay Bridge, the placing of concrete under water to a depth of 243 feet, challenging all previous records which had showed an under water concrete placement of 185 feet. Kelley referred to the Field Bill as one of the best protective measures on the California Statutes and he hoped there would be no attempt made to change or alter the bill in any way. This bill precludes the possibility of any such dreadful disaster as recently experienced in New London, Texas, Kelley said.

Dr. Cadman, the principal speaker of the evening, is a brilliant scholar and economist. Speaking extemporaneously for fifteen minutes he held his audience spellbound. As a lecturer he has few superiors. Dr. Cadman is a graduate of the University of California, class of 1915. He received his doctor's degree from the University of Paris. For two and one-half years he was secretary of the San Francisco Stock Exchange. His address in full is published elsewhere in this issue.

On Saturday a number of the visitors enjoyed a personally conducted trip to the Sacramento Municipal Filteration plant while another party visited the State Penitentiary at Folsom.

S. S. Gorman of the Structural Engineers' Association of Northern California acted as general chairman of the convention and William H. Popert served as chairman of the Committee on Public Relations from the San Francisco Section of the American Society of Civil Engineers.

GUESTS AT THE CONVENTION

Following is a list of some of the guests at the Sacramento get-together convention:

Honorable George J. Hatfield, Lieutenant-Governor of the State of California.

Honorable Earl Lee Kelly, Director, Department of Public Works.

C. H. Purcell, State Highway Engineer, Division of Highways.

George B. McDougall, State Architect, Chief of Division of Architecture.

Edward Hyatt, State Engineer, Chief of Division of Water Resources.

H. W. Dennis of Los Angeles, Vice-President, American Society of Civil Engineers.

Dr. Paul F. Cadman, Consulting Economist, Professor of University of California.

Honorable A. J. Cleary, Chief Administrative Office, City and County of San Francisco.

William P. Day, Vice-President and Director of Works, Golden Gate International Exposition.

H. J. Brunnier, President, San Francisco Section, American Society of Civil Engineers.

H. A. Lane, Chairman, San Francisco Section, American Institute of Electrical Engineers.

Herbert A. Sawin, Secretary-Treasurer, American Institute of Mining and Metallurgical Engineers.

Oliver B. Lyman, Chairman, San Francisco Section, American Society of Mechanical Engineers.

Thomas B. Waddell, President, Sacramento Section, American Society of Civil Engineers.

P. M. Sanford, Chairman, Northern Section of Construction, Congress of California State Chamber of Commerce.

R. V. LaBarre, Chairman, Southern Section of Construction, Congress of California State Chamber of Commerce.

Henry D. Dewell, President, State Board of Registration for Civil Engineers.

Albert J. Evers, Regional Director, Sierra Nevada District, American Institute of Architects.

William E. Hague, Secretary-Manager, Central California Chapter, The Association of General Contractors.

Will G. Corlett, President, Northern California Chapter, A. I. A.

Thomas Stanton, Vice-President, American Society of Civil Engineers.

Fred H. Tibbets, Member, Legislative Committee Engineers.

A. W. Scott, Past President, Producers Council, Member of Joint Conference Board.

A. J. Kennedy, Attorney-at-Law.

Roy Clair, Convention Chairman, Sacramento Chamber of Commerce.

STUDENTS' MEETING

The Structural Engineers' Association of Northern California held a combined regular and special meeting for engineering students at the Engineers' Club, San Francisco, Tuesday evening, April 6.

Present were a number of selected graduate and senior students who are specializing in structural and civil engineering at Stanford University, University of California, Santa Clara University and other colleges in central and northern California.

The purpose of the meeting was to have the University student engineers meet the outstanding structural engineers of the Bay region and to acquaint them with the work and practices of the experienced professional engineers.

Walter Dreyer, assistant chief of the division of structural and civil engineers of the Pacific Gas & Electric Company, is chairman of the committee of the Structural Engineers' Association of Northern California.

The principal speaker was Sydney W. Taylor, Jr., construction engineer. His subject was "The Golden Gate Bridge and its Approaches."

ENGINEERS REGISTRATION BILL

Assembly Bill 2026, now pending in the California Legislature, proposes registration for all professional engineers; civil, mechanical, electrical and mining engineers each to have one representative on the board of registration. The bill, introduced by Mr. Miller, is now in the hands of the committee on building and construction. Following is a synopsis of the measure:

AB-2026-Miller; D-14 (B. & C.)—Repeals the Civil Engineers Act and creates a State Board of Registration for professional engineers consisting of five members, of which one shall be a civil, one a mechanical, one an electrical, one a mining and one a chemical engineer. Provides $25 per diem in traveling to and from and attending session of the Board and its committees, together with all necessary expenses.

Requires that no person shall practice or represent himself as an engineer or use the title with or without a descriptive or qualifying adjective unless he has been duly registered or specifically exempted.

Defines the terms "Engineer" and "Practice of Engineering" and "Engineering."

Provides for the appointment by the Board of a secretary who shall transmit monies derived from the operation of the act to the "Professional Engineers Fund" to be expended in carrying out the provisions of the act.

Places the board under the State Department of Professional and Vocational Standards but provides that decisions of the board with respect to revocation of certificates, imposing penalties, etc., shall not be subject to review by the director of the Department of Professional and Vocational Standards.

With the Architects

SALVATION ARMY BUILDING

Douglas D. Stone is preparing working drawings for a two-story brick and steel addition to the Salvation Army Industrial Building at 366 Sixth Street, Oakland, estimated to cost $20,000. The same architect has awarded a contract to Lindgren, Swinerton, Inc., for fitting up a cocktail bar at 209 Powell Street, San Francisco, for Gilbey's.

IN W. R. YELLAND'S OFFICE

W. R. Yelland, architect in the Financial Center Building, Oakland, reports plans have been completed in his office for a $5,000 house in San Leandro for Mrs. Cook; an $18,000 church in Clarksburg; an eight-room residence in the same town and a seven-room house in Orinda, Contra Costa County, for R. R. Dennis.

EXPOSITION TOWER

Plans have been completed for the steel frame of the central exposition tower on Yerba Buena Island Shoals. The tower will be 375 feet high and will require over 900 tons of steel. Bids for furnishing the steel have been taken and are under advisement.

BUILDING AND LOAN BUILDING

Birge M. and David Clark are preparing working drawings for a one-story reinforced concrete and terra cotta bank building for the Palo Alto Mutual Building and Loan Association. The location is University Avenue, Palo Alto.

CLUB HOUSE REMODEL

Modernization of the Pacific Union Club's quarters at California and Mason Streets, San Francisco, will go forward shortly from plans by Lewis P. Hobart, Underwood Building, San Francisco.

ADDITION TO OFFICE BUILDING

The California Pacific Title and Trust Company will spend $50,000 on a one-story reinforced concrete annex and an additional story to the present structure. Mr. Norberg is the architect.

WOODLAND SCHOOL ADDITION

Messrs. Dragon and Schmidts of Berkeley have plans nearly finished for a one-story reinforced concrete addition to the Woodland Union High School. Three rooms will be added. The $18,000 building will have a tile roof and maple floor.

OAKLAND RESIDENCE WORK

Plans have been completed by Messrs. Williams and Wastell for a $14,000 house and a $7,000 house in Oakland.

IRVIN M. JOHNSON, ARCHITECT

The California State Board of Architectural Examiners have recently issued a certificate to practice architecture to Irvin M. Johnson of Oakland. Mr. Johnson's home address is at 456 Van Dyke Street. His office is at 2219 Seventh Avenue where he is busy preparing plans for a $16,000 house for Miss Constance Dunn in the Upper Piedmont Estates; two flats for Mrs. Geitner in Oakland and a group of duplex apartments for a client in Berkeley.

PERSONAL

Announcement is made of the partnership association of **Mrs. Edwin J. Symmes** and **Stanton Willard,** architect, for the practice of architecture, with offices at 215 Haberfelde Building, Bakersfield. The new firm will carry on the work of the office of Edwin J. Symmes, in which Mrs. Symmes was associated with William C. Hays of San Francisco and Ira W. Hoover of Los Angeles. The latter will continue his association as consultant in the new firm.

George W. Groves, Seattle architect, has moved from 2318 Second Avenue, where he shared office quarters with Bjarne H. Moe, to larger quarters at 1402 Textile Tower.

Edwin J. Peterson, architect, has opened offices at 310 Sherwood Building, Spokane. Mr. Peterson was with Whitehouse and Price for three years as draftsman, and was also with the Bureau of Reclamation at Almira, Wash., and at Denver where he was engaged in designing buildings for the Bureau engineers' camp at Coulee Dam.

Angus D. McSweeney has moved to larger offices in Room 806, 604 Mission Street, San Francisco.

REBUILDING BURNED THEATER

Fire damage done to the Milano Theater at 1741 Powell Street, San Francisco, is being repaired from plans by A. A. Cantin, architect, and W. Adrian, structural engineer. The estimated cost of the work is $25,000. The same architect and engineer have also made plans for remodeling the theater at Sutter and Steiner Streets, San Francisco.

SAN FRANCISCO MARKET

From plans by H. C. Baumann, 251 Kearny Street, San Francisco, Victor Carrara will spend approximately $20,000 for a one-story steel frame and reinforced concrete market on the north side of Chestnut Street, west of Scott Street, San Francisco.

W. W. WURSTER BUSY

New work in the San Francisco office of W. W. Wurster includes an eight-room residence at Cedar and Hawthorne Streets, Berkeley, for L. M. Van Deusen; alterations to the San Francisco residence of Dr. Ralph Soto-Hall and a sorority house on Bancroft Street, Berkeley, for the Delta Delta Delta.

SCHOOL PLANS IN PROGRESS

Norman R. Coulter, 46 Kearny Street, San Francisco, is preparing drawings for a gymnasium and shop building for the San Ramon Valley Union High School District of Danville. The buildings will cost $20,000 and $10,000 respectively.

MAUSOLEUM ADDITION

Another addition is to be built to the Alta Mesa Mausoleum at Palo Alto from plans by Architect Berge M. and David Clark. Construction will be of reinforced concrete, bronze and marble.

SAN CARLOS RESIDENCE

Plans have been completed by William I. Garren, 233 Post Street, San Francisco, for a two-story frame and stucco residence in San Carlos Manor, San Mateo County, for E. L. De Curtoni, estimated to cost $7,000.

TO REMODEL TEMPLE

The Eastern Star Temple, K Street, Sacramento, was recently considerably damaged by fire. Rebuilding of the three-story structure has been authorized at a cost of $21,000. Messrs. Starks and Flanders are the architects.

DRIVE-IN MARKET

C. J. Ryland, architect of Monterey, is preparing plans for a one-story reinforced concrete drive-in market to be erected at Third and Santa Clara Avenue, San Jose, for E. B. Gross of Monterey. The building will cost $15,000.

CALAVERAS CEMENT HAS GOOD YEAR

Calaveras Cement Company enjoyed a profitable year in 1936. Net profits were $244,884 as compared with $56,930 for 1935.

Last year the company expended $171,450 on plant improvements and additions, and considerable further expenditures are to be made during 1937.

The company recently added to its list of products Calaveras Pumicite Cement regarding which William Wallace Mein, president, said: "Various puzzolanio Portland cements patterned after European types have been introduced into northern California markets. As the result of long experimental work, we have introduced a Portland puzzolan cement derived from a natural material close to our plant, which we believe is unexcelled for canal linings, sea water structures, dams and mass concrete."

Estimator's Guide

Giving Cost of Building Materials, Wage Scale, Etc.

Amounts given are figuring prices and are made up from average quotations furnished by material houses to San Francisco contractors. 3% Sales Tax on all materials but not labor.

Note—Lumber prices are again on the upgrade—"on other materials are subject to daily change."

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

Bond—1½% amount of contract.

Brickwork—
- Common. $40 to $45 per 1000 laid, (according to class of work).
- Face, $75 to $90 per 1000 laid, (according to class of work).
- Brick Steps, using pressed brick, $1.10 lin. ft.
- Brick Walls, using pressed brick on edge, 60c sq. ft. (Foundations extra.)
- Brick Veneer on frame buildings, $ .75 sq. ft.
- Common f.o.b. cars, $14.00 job cartage.
- Face, f.o.b. cars, $45.00 to $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f.o.b. job)

3x12x12 in.	$ 84.00 per M
4x12x12 in.	94.50 per M
6x12x12 in.	126.00 per M
8x12x12 in.	225.00 per M

HOLLOW BUILDING TILE (f.o.b. job) carload lots.

8x12x5½	$ 94.50
6x12x5½	73.50

Discount 5%.

Building Paper—

1 ply per 1000 ft. roll	$3.50
2 ply per 1000 ft. roll	5.00
3 ply per 1000 ft. roll	6.25
Brownskin, 500 ft. roll	5.00
Brownskin Pro-tect-o-mat, 1000 ft. roll	10.00
Sisalkraft, 500 ft. roll	5.00
Sash cord com. No. 7	$1.20 per 100 ft.
Sash cord com. No. 8	1.50 per 100 ft.
Sash cord spot No. 7	1.90 per 100 ft.
Sash cord spot No. 8	2.25 per 100 ft.

Sash weights cast iron, $50.00 ton.
Nails, $3.50 base.
Sash weights, $45 per ton.

Concrete Work (material at San Francisco bunkers)—Quotations below 2000 lbs. to the ton. $2.00 delivered.

No. 3 rock, at bunkers	$1.80 per ton
No. 4 rock, at bunkers	1.75 per ton
Elliott top gravel, at bunkers	2.10 per ton
Washed gravel, at bunkers	2.10 per ton
Elliott top gravel, at bunkers	2.10 per ton
City gravel, at bunkers	1.75 per ton
River sand, at bunkers	1.80 per ton
Delivered bank sand	1.20 cu. yd.

Note—Above prices are subject to discount of 10c per ton on invoices paid on or before the 15th of month, following delivery.

SAND
- Del Monte, $1.75 to $3.00 per ton.
- Fan Shell Beach (car lots, f.o.b. Lake Majella), $2.75 to $4.00 per ton.
- Cement, 2.50 per bbl. in paper sks.
- Cement (f.o.b. Job, S. F.) $3.25 per bbl.
- Cement (f.o.b. Job, Oak.) $3.25 per bbl.

Rebate of 10 cents bbl. cash in 15 days.
- Calaveras White ..... $6.00 per bbl.
- Medusa White ..... $8.00 per bbl.
- Forms, Labors average $40.00 per M.
- Average cost of concrete in place, exclusive of forms, 35c per cu. ft.
- 4-inch concrete basement floor ..... 12½c to 14c per s.f. ft.
- 4½ inch Concrete Basement floor..... ..... 14½c to 16c per sq. ft.
- 2-inch rat-proofing ..... 7½c per sq. ft.
- Concrete Steps ..... $1.50 per lin. ft.

Dampproofing and Waterproofing—
- Two-coat work, 15c per yard.
- Membrane waterproofing—4 layers of saturated felt, $4.50 per square.
- Hot coating work, $1.80 per square.
- Medusa Waterproofing, 15c per lb., San Francisco Warehouse.

Electric Wiring—$12.00 to $15.00 per outlet for conduit work (including switches).
- Knob and tube average $7.00 per outlet, including switches.

Elevators—
- Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in four-story building, $2800; direct automatic, about $2700.

Excavation—
- Sand, 60 cents; clay or shale $1 per yard.
- Teams, $12.00 per day.
- Trucks, $22 to $27.50 per day.
- Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—
- Ten-foot galvanized iron balcony, with stairs, $115 installed on new buildings; $140 on old buildings.

Floors—

Composition Floors—18c to 35c per sq. ft. In large quantities, 16c per sq. ft. laid.
Mosaic Floors—80c per sq. ft.
Duraflex Floor—23c to 30c sq. ft
Rubber Tile—50c to 75c per sq. ft.
Terazzo Floors—45c to 60c per sq. ft.
Terazzo Steps—$1.60 lin. ft.

Hardwood Flooring (delivered to building)—

13-16x3¼" T & G Maple	$120.00 M ft
1 1-16x2¼" T & G Maple	132.00 M ft
⅞x3½ sq. edge Maple	140.00 M ft.

	13-16x2¼" T&G	⅜x2" T&G	5-16x2" Sq. Ed.
Clr. Qtd. Oak	$200.00 M	$150.00 M	$180 M
Sel. Qtd. Oak	140.00 M	120.00 M	135 M
Clr. Pla. Oak	135.00 M	107.00 M	120 M
Sel. Pla. Oak	120.00 M	88.00 M	107 M
Clear Maple	140.00 M	100.00 M	
Laying & Finishing	13c ft.	11 ft.	10 ft

Wage—Floor layers, $7.50 per day.

Glass (consult with manufacturers)—
- Double strength window glass, 15c per square foot.
- Quartz Lite, 50c per square foot. Plate 75c per square foot.
- Art, $1.00 up per square foot.
- Wire (for skylights), 35c per sq. foot
- Obscure glass, 26c square foot.
- Note—Add extra for setting

Heating—
- Average, $1.90 per sq. ft. of radiation according to conditions.

Iron — Cost of ornamental iron, cast iron, etc., depends on designs.

Lumber (prices delivered to bldg. site).

No. 1 common	$38.00 per M
No. 2 common	34.00 per M
Selection O. P. common	39.00 per M
2x4 No. 3 form lumber	28.00 per M
1x4 No. 2 flooring VG	65.00 per M
1x4 No. 3 flooring VG	55.00 per M
1x6 No. 2 flooring VG	65.00 per M
1¼x4 and 6, No. 2 flooring	70.00 per M

Slash grain—

1x4 No. 2 flooring	$50.00 per M
1x4 No. 3 flooring	40.00 per M
No. 1 common run T. & G.	35.00 per M
Lath	8.00 per M

Shingles (add cartage to price quoted)—

Redwood, No. 1	$1.10 per bdle
Redwood, No. 2	.90 per bdle.
Red Cedar	1.00 per bdle.

Millwork—Standard.
- O. P. $110.00 per 1000. R. W., $115.00 per 1000 (delivered).
- Double hung box window frames, average with trim, $6.50 and up, each.
- Doors, including trim (single panel, 1¾ in. Oregon pine) $8.00 and up, each.
- Doors, including trim (five panel, 1¾ in. Oregon pine) $6.50 each.
- Screen doors, $4.00 each.
- Patent screen windows, 25c a sq. ft.
- Cases for kitchen pantries seven ft. high per lineal ft., $8.00 each.
- Dining room cases, $8.00 per lineal foot.

Labor—Rough carpentry, warehouse heavy framing (average), $17.50 per M.
- For smaller work average, $35.00 to $45.00 per 1000.

Marble—(See Dealers)

Painting—

Two-coat work ..... 35c per yard
Three-coat work ..... 45c per yard
Cold Water Painting ..... 12c per yard
Whitewashing ..... 4c per yard
Turpentine, 80c per gal., in cans and 75c per gal. in drums.
Raw Linseed Oil—80c gal. in bbls.
Boiled Linseed Oil—85c gal. in bbls.
Medusa Portland Cement Paint, 20c per lb.

Carter or Dutch Boy White Lead in Oil (in steel kegs).

	Per Lb.
1 ton lots, 100 lbs. net weight	10¾c
500 lbs. and less than 1 ton lots	11c
Less than 500 lb. lots	11½c

Dutch Boy Dry Red Lead and Litharge (in steel kegs).

1 ton lots, 100 lb. kegs, net wt.	10¾c
500 lb. and less than 1 ton lots	11c
Less than 500 lb. lots	11½c

Red Lead in Oil (in steel kegs)

1 ton lots, 100 lb. kegs, net. wt.	12½c
500 lb. and less than 1 ton lots	12½c
Less than 500 lb. lots	13c

Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.00 lineal foot
8-inch	1.50 lineal foot
10-inch	1.75 lineal foot
12-inch	2.00 lineal foot

Plastering—Interior—

	Yard
1 coat, brown mortar only, wood lath	$0.75
2 coats, lime mortar hard finish, wood lath	.85
2 coats, hard wall plaster, wood lath	$1.00
3 coats, metal lath and plaster	1.50
Keene cement on metal lath	1.30
Ceilings with ¾ hat roll channels metal lath	.75
Ceilings with ¾ hat roll channels metal lath plastered	1.75
Shingle partition ¾ channel lath 1 side	.85
Single partition ¾ channel lath 2 sides 2 inches thick	2.75
4-inch double partition ¾ channel lath 2 sides	1.30
4-inch double partition ¾ channel lath 2 sides plastered	3.00

Plastering—Exterior—

	Yard
2 coats cement finish, brick or concrete wall	$1.20
2 coats Calaveras cement, brick or concrete wall	1.35
3 coats cement finish, No. 18 gauge wire mesh	1.50
3 coats Calaveras finish, No. 18 gauge wire mesh	2.00

Wood lath, $7.50 per 1000.
2.5-lb. metal lath (dipped) ..... .17
2.5-lb. metal lath (galvanized) ..... .20
3.4-lb. metal lath (dipped) ..... .22
3.4-lb. metal lath (galvanized) ..... .28
¾-inch hot roll channels, $72 per ton.
Finish plaster, $18.90 ton; in paper sacks.
Dealer's commission, $1.00 off above quotations. $13.85 (rebate 10c sack).
Lime, f.o.b. warehouse, $2.25 bbl.; cars, $2.15
Lime, bulk (ton 2000 lbs.), $16.00 ton.
Wall Board 5 ply, $50.00 per M.
Hydrate Lime, $19.50 ton.

Plasterers Wage Scale	$1.25 per hour
Lathers Wage Scale	1.25 per hour
Hod Carriers Wage Scale	1.10 per hour

Composition Stucco—$1.80 to $2.00 sq. yard (applied).

Plumbing—

From $65.00 per fixture up, according to grade, quantity and runs.

Roofing—

"Standard" tar and gravel, $6.50 per sq. for 30 sqs. or over.
Less than 30 sqs. $7.00 per sq.
Tile, $20.00 to $35.00 per square.
Redwood Shingles, $11.00 per square in place.
Copper, $16.50 to $18.00 per sq. in place.
Cedar Shingles, $10 sq. in place.
Recoat, with Gravel, $3.00 per sq.
Asbestos Shingles, $15 to $25 per sq. laid.
Slate, from $25.00 to $60.00 per sq. laid according to color and thickness.

Sheet Metal—

Windows—Metal, $2.00 a sq. foot.
Fire doors (average), including hardware $2.00 per sq. ft.

Skylights—

Copper, 90c sq. ft. (not glazed).
Galvanized iron, 25c sq. ft. (not glazed).

Steel—Structural

$110 ton (erected), this quotation is an average for comparatively small quantities. Light truss work higher. Plain beams and column work in large quantities $80 to $90 per ton cost of steel; average building, $95.00.

Steel Reinforcing—

$100.00 per ton, set, (average).

Stone—

Granite, average, $6.50 cu. foot in place.
Sandstone, average Blue, $4.00, Boise $3.00 sq. ft. in place.
Indiana Limestone, $2.80 per sq. ft. in place.

Store Fronts—

Copper sash bars for store fronts, corner center and around sides, will average 75c per lineal foot.
Note—Consult with agents.

Tile—Floor, Wainscot, Etc.—(See Dealers)
Asphalt Tile—18c to 28c per sq. ft. installed.

SAN FRANCISCO BUILDING TRADES WAGE SCALE

Recommended by the Impartial Wage Board, June 18, 1936. Effective July 1, 1936

This scale is based on an eight-hour day and is to be considered as a minimum and employees of superior skill and craft knowledge may be paid in excess of the amounts set forth herein. This scale applies only to work on buildings and does not include inside or shop workers.

CRAFT	Journeymen Mechanics
Asbestos Workers	$ 8.00
Bricklayers	12.00
Bricklayers' Hodcarriers	8.00
Cabinet Workers (Outside)	9.00
Carpenters	9.00
Cement Finishers	9.00
Cork Insulation Workers	9.00
Electrical Workers	10.00
Electrical Fixture Hangers	8.00
Elevator Constructors	10.40
Engineers, Portable and Hoisting	9.00
Glass Workers (all classifications)	8.50
Hardwood Floormen	9.00
Housesmiths, Architectural Iron (outside)	9.00
Housesmiths, Reinforced Concrete, or Rodmen	9.00
Iron Workers (Bridge and Structural)	11.00
Iron Workers (Hoisting Engineers)	11.00
Laborers (six-day week)	$ 5.50
Lathers, Channel Iron	10.00
Lathers, all others	9.00
Marble Setters	10.00
Millwrights	9.00
Mosaic and Terrazzo Workers (outside)	9.00
Painters	9.00
Painters, Varnishers and Polishers (outside)	9.00
Pile Drivers and Wharf Builders	9.00
Pile Drivers Engineers	10.00
Plasterers	12.00
Plasterers' Hodcarriers	8.00
Plumbers	10.00
Roofers (all classifications)	8.00
Sheet Metal Workers	9.00
Sprinkler Fitters	10.00
Steam Fitters	10.00
Stair Builders	9.00
Stone Cutters, Soft and Granite	9.00
Stone Setters, Soft and Granite	12.00
Stone Derrickmen	9.00
Tile Setters	10.00
Tile, Cork and Rubber	9.00
Welders, Structural Steel Frame on Buildings	11.00
Welders, All Others on Buildings	9.00
Dump Truck Drivers, 2 yards or less	6.00
Dump Truck Drivers, 3 yards	6.50
Dump Truck Drivers, 4 yards	7.00
Dump Truck Drivers, 5 yards	7.00
Dump Truck Drivers, 6 yards	7.50
Truck Drivers of Concrete Mixer Trucks:	
2 yards or less	6.50
3 yards	7.00
4 yards	7.50
5 yards	7.50
6 yards	8.00

GENERAL WORKING CONDITIONS

1. Eight hours should constitute a day's work for all crafts, except as otherwise noted.
2. Where less than eight hours are worked pro rata rates for such shorter period should be paid.
3. Plasterers' Hodcarriers, Bricklayers' Hodcarriers, Roofers' Laborers and Engineers, Portable and Hoisting, shall start 15 minutes before other workmen, both at morning and at noon.
4. Five days, consisting of not more than eight hours a day, on Monday to Friday, inclusive, should constitute a week's work, except for building laborers.
5. The wages set forth herein should be considered as net wages.
6. Except as noted the above rates of pay apply only to work performed at the job site.
7. Transportation costs except for intra-city fares should be paid by contractor.
8. Traveling time in excess of one hour each way should be paid for at straight time rates.
9. Overtime should be paid as follows: For the first four hours after the first eight hours, time and one-half. All time thereafter should be paid double time. Saturdays (except for Laborers), Sundays and Holidays from 12 midnight of the preceding day, should be paid double time. Irrespective of starting time, overtime for Cement Finishers should not commence until after eight hours of work, except that after 12 midnight overtime for cement finishers should be paid at the rate of time and one-half for the first four hours and double time thereafter. Shift work for cement workers should be subject to the provisions of paragraph 11.
10. On Saturday Laborers should be paid straight time up to eight hours. Overtime rates should be paid as specified in paragraph 9.
11. Where two shifts are worked in any twenty-four hours, shift time should be straight time. Where three shifts are worked, eight hours' pay should be paid for seven hours on the second and third shifts.
12. All work, except as noted in paragraph 13 should be performed between the hours of 8 A. M. and 5 P. M.
13. In emergencies, or where premises cannot be vacated until the close of business, men then reporting for work should work at straight time. Any work performed on such jobs after midnight should be paid time and one-half up to four hours of overtime and double time thereafter.
14. Recognized holidays to be: New Year's Day, Decoration Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Christmas Day.
15. Men ordered to report for work, for whom no employment is provided should be entitled to two hours' pay.
16. This award should be effective in the City and County of San Francisco.

FOR LOW-COST, NON-RUST PIPING...

Use Anaconda Copper Tubes

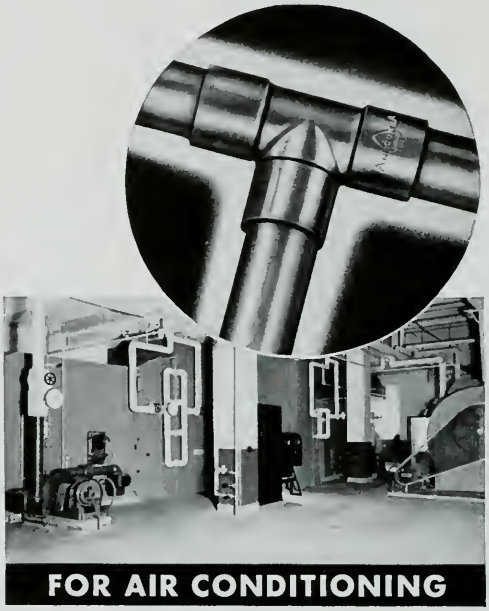
WHEN you specify Anaconda Copper Tubes and Fittings instead of rustable piping, you give your client a combination of advantages. ***For water lines,*** these modern tubes eliminate rust and consequent maintenance expense. ***For heating lines,*** they cut heat losses, permit faster circulation. ***In air conditioning,*** their non-rust feature is of prime importance.

Yet these tubes cost but little more than rustable piping because they are assembled with solder-type fittings, and it is not necessary to provide tube walls with the extra thickness required for threading standard-size pipe. This means less weight and lower cost per foot.

Anaconda Solder-type Fittings are precision-made to close tolerance. The complete Anaconda line of tubes and fittings is readily available from leading supply houses.

Where standard-size pipe and "screw-type" joints are desired, Anaconda "85" Red-Brass is offered as the highest quality pipe commercially obtainable.

3715



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FOR HEATING LINES

FOR WATER LINES

Anaconda DEOXIDIZED Copper Tubes

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Offices and Agencies in Principal Cities

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BUSINESS CENSUS SHOWS GAINS

Nearly twice as many people were employed by the contracting branch of the construction industry in August of 1935 as in February, it was revealed by William L. Austin, director, Bureau of the Census, in announcing another of the series of final reports on various phases of the current Census of Business.

The report, designated as Construction Volume II, is the second of a series of three presenting statistics collected by the Census of Business in 1936 by a canvass of general contractors, operative builders and special trade contractors. The Construction Census, prepared by George J. Lawrence, under the direction of Fred A. Gosnell, chief statistician, is a part of the Census of Business conducted in Philadelphia.

Figures in considerable detail by kind of contracting business, and by states, cities and geographic divisions, show employment by months and by occupational classes.

Fluctuations of employment in the construction industry are measured in the report released by four yard-sticks: number of employees; number of wage earners at the site of construction; pay rolls; and number of man-hours, all shown by months.

Total reporting establishments number 75,047, performing work valued at $1,622,862,000. Of this number, establishments reporting employment data are 46,429, employing 379,067 wage-earners.

For all kinds of contracting business combined for the United States, the month showing the largest number of employees for the year had 79 per cent more than the month with the lowest number. These figures are for 31,543 establishments.

Changes in employment are most pronounced in the case of general contractors engaged in highway construction, and show the least variation in the case of contractors engaged in glass and glazing. Detailed figures show that the fluctuations in employment are greater for the northern states than for the southern states.

TWO NEW JOHNSON PRODUCTS

The S. T. Johnson Company has lately issued brochures describing two new Johnson products of interest to the building industry. One describes an improved pressure type burner which requires little space and may be quickly and economically installed. Once adjusted, the burner furnishes heat without attention and at considerable saving in fuel consumption.

The other piece of literature (A. I. A. File size) describes and illustrates an air conditioning unit, fully enclosed in a black enamel cabinet, and designed for split heating if desired. A year 'round domestic hot water coil is included in the equipment. The unit is oil fired by the Johnson Pressure Type Burner mounted directly to the Scotch boiler.

NEW BUILDINGS FOR OREGON

Following is a summary of construction bills passed by the 1937 Oregon Legislature and signed by the Governor:

Salem—$850,000 appropriation, of which $300,000 is toward purchase of land in Salem to constitute mall extending northward from new Capitol building; $550,000 remaining is for one or more buildings to be constructed with or without PWA grant.

Salem—$500,000 limit from state highway funds if and when available, to be repaid from rentals, for site and erection of state office building, subject to approval by State Board of Control.

Portland—Purchase or erection of fireproof state office building in Portland, no appropriation, to be paid for from rentals, subject to order of State Board of Control.

Portland—$200,000 appropriation, erection of tuberculosis hospital on site donated by University of Oregon Medical School, Portland.

The Dalles—Eastern Oregon Tuberculosis Hospital —$159,000 program if PWA heating plant and laundry and $54,450 for grant received; $51,400 appropriated for 50-bed pavilion and other improvements; new physicians' cottage, completion of nurses' home contemplated.

Expositions—Construction of exhibits and buildings representing Oregon at expositions—$60,000, Golden Gate International Exposition, San Francisco, 1939; $20,000, New Yord World's Fair, 1939.

EUROPEAN BUILDING RESEARCH

American industrialists will have an opportunity to observe developments in European building research this summer during a unique tour of scientific laboratories being arranged by the National Research Council's Division of Engineering and Industrial Research. About one hundred prominent bankers and industrial men, including leaders in the architectural and construction field, are expected to participate in the tour which will enable them to visit such laboratories as Metropolitan Vickers, Brown-Firth, and the National in England, where many building products have been tested; also the Kaiser-Wilhelm Institute in Germany, the Conservatoire National des Arts et Motiers in France. Included in the schedule will be special trips to the Building Research Station in Watford, near London, and to the Insfitute for Wood Research in Berlin. Housing in England has made great strides in recent years and per capita has exceeded this type of construction in the United States.

Research laboratories of eighteen major fields of industry will be visited in England, France and Germany, besides those of trade associations, governments and universities. In addition, accommodations will be made on the request of any member of the tour for special side trips to industrial laboratories not included in the general plans. Foreign hosts will be such organizations as the Department of Scientific and Industrial Research in England, the Verein Deutscher Ingenieure in Germany, the Sorbonne in France, and others.

The group will sail May 14 from New York on the S.S. Champlain, according to present plans. Travel arrangements are being made by the American Express Company.

LEBRUN SCHOLARSHIP WINNER

The LeBrun Traveling Scholarship of $1,400 for 1937 has been awarded to Matthew Lapota of Maywood, Ill., winner in a nation-wide competition for a design of a college library, it is announced by Oliver Reagan, chairman of the LeBrun Scholarship Com-

mittee of the New York Chapter of the American Institute of Architects.

The scholarship, established by Pierre L. LeBrun "to promote the artistic, scientific and practical efficiency of the architectural profession," entitles the recipient to a six months' trip in Europe for advanced architectural study and practice.

Lapota studied architecture at the University of Illinois, finishing in 1936. He placed second in the National Beaux Arts Competition for the Emerson prize in 1935. He has worked in the offices of Ronald F. Perry, Chicago architect, since 1930. He lives at 511 South Eleventh Avenue, Maywood.

"Lapota's solution of the competition problem, a library for a woman's college in the Eastern part of the United States, shows creative ability, imagination, a grasp of the question, and a nice feeling for the amenities of life," Mr. Reagan said.

"His design is in the Chicago style of architecture, and reveals the influence of the Frank Lloyd Wright School. One of the principal features of the plan is the way in which the reading rooms overlook a formal pleasant garden. Readers can wander at will in the garden, to which they have access by means of a series of terraces from the second floor. Another unusual point, requiring courage, is the placing of the library stack rooms in the front of the building instead of in the rear, as is customary."

First honorable mention went to Raoul L. DuBrul of 62 Phipps Avenue, East Rockaway, Long Island, N. Y. DuBrul, who was first medal finalist in the 1936 Paris Prize competition, graduated in architecture from New York University in 1934.

Second mention was received by J. Victor Keyes of the Chastleton Hotel, Washington, D. C., and third mention by Harry Greenberg of 682 Montgomery Street, Brooklyn, N. Y. Keyes, finalist in the Rome Prize of 1936, holds a fellowship in architecture at the University of Pennsylvania. Greenberg took the degree of bachelor of architecture at New York University in 1935.

"Qualities of design and planning ability characterized the solutions winning first, second and third mention," Mr. Reagan added. "The work of DuBrul and Greenberg, like that of Lapota, is of a modern style. Keyes' design is of a conservative, Georgian type."

Each contestant for the prize was nominated by a member of the American Institute of Architects. Lapota was the nominee of John S. Van Bergen of the Chicago Chapter.

Members of the Scholarship jury, besides Mr. Reagan, were: Thomas H. Ellett, L. Murray Franklin, Edward S. Hewitt, Alfred E. Poor, James Kellum Smith, Steward Wagner and Hobart B. Upjohn, president of the New York Chapter.

BUSINESS CONDITIONS

(Courtesy S. F. Chamber of Commerce)

INCOME receipts during the past year in San Francisco were estimated to be $4,000,000 higher than the previous year, according to the internal revenue collector.

INCREASES in building permits in February reported by 88 leading cities on the Pacific Coast showed a rise of 2.26 per cent. Permits in Los Angeles, valued at $3,745,872, led the Coast cities, followed by San Francisco with $1,219,567 and Oakland with $741,015.

HOUSING shortages are indicated in nearly every state. The survey reports the following conditions: San Francisco average rents up 15 per cent in two years; New York metropolitan rents up 5 to 15 per cent in the past year; Chicago rents up 15 per cent since the depression low; Kansas City rents up 10 per cent since depression, highest occupancy since 1929; Pittsburgh rents up 10 per cent over 1936; Salt Lake City rents up 20 per cent in two years, occupancy nearly 98 per cent; Denver rents up 10 per cent in four months; Cleveland rents up 10 per cent since 1936 and 30 per cent over the depression low; and Philadelphia rents up 15 per cent in January.

DISTRICTS in San Francisco which house 70 per cent of the city's population were included in a recent survey conducted under the direction of the Department of Health. A total of 887 buildings were found unfit for human occupancy, and the State Housing Act was being violated in no less than 43,598 houses.

THE Berkeley yacht harbor and aquatic park, representing an investment of some $2,000,000, will be opened with a three-day celebration, starting May 7.

SAN FRANCISCO-Oakland Bay Bridge traffic during February totaled 667,563 vehicles with collections of $348,009, compared to 575,083 vehicles in January with collections of $384,092. The tolls were reduced on February 1.

PLANS for a city-wide beautification program to prepare for the 1939 Golden Gate International Exposition were recently discussed by a number of civic organizations in San Francisco.

THE average cost of frame dwellings built in San Francisco during 1936 was $4,684, according to the local district office of the Federal Housing Administration.

OPPOSE 30-HOUR WEEK

Unanimous opposition to the 30-hour week in the building industry has been voted by the board of directors of the Builders' Exchange of San Francisco.

A resolution, signed by President W. H. George, said a move was on foot to reduce working hours from 40 hours to 30 without reduction of pay, beginning June 1.

The San Francisco Chamber of Commerce and Industrial Association were asked to cooperate "in calling together a public group to oppose such change." The exchange held that such a reduction in working hours would hinder the present upswing in the building industry.

Building costs are increasing, the resolution further stated, and "we believe that public opinion is against any unreasonable raising of the cost of building."

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AIR CONDITIONING

WESTINGHOUSE ELECTRIC & Mfg. Co., 1 Montgomery Street, San Francisco.

*ELECTRIC APPLIANCES, Inc., 2001 Van Ness Avenue, San Francisco.

ALADDIN HEATING Corporation, 5107 Broadway, Oakland.

FRANK EDWARDS Co. (General Electric), 930 Van Ness Avenue, San Francisco.

INSURANCE

*FIREMAN'S FUND Insurance Company, 401 California Street, San Francisco.

ARCHITECTURAL TERRA COTTA

N. CLARK & SONS, 116 Natoma Street, San Francisco.

GLADDING McBEAN & Co., 660 Market Street, San Francisco; 2901 Los Feliz Boulevard, Los Angeles; 1500 First Avenue South, Seattle; 79 S. E. Taylor Street, Portland; 22nd and Market Streets, Oakland; 1101 N. Monroe Street, Spokane; Vancouver, B.C.

BANKS

CROCKER FIRST NATIONAL Bank, Montgomery and Post Streets, San Francisco.

BATHROOM HEATERS

WESIX ELECTRIC Heater Company, 390 First Street, San Francisco; 631 San Julian Street, Los Angeles; 2008 Third Avenue, Seattle, Wash.

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REMILLARD-DANDINI Co., 569 Third Street, Oakland.

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THE STANLEY WORKS, New Britain, Conn.; Monadnock Bldg., San Francisco; Los Angeles and Seattle.

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"GOLDEN GATE TAN CEMENT" manufactured by Pacific Portland Cement Co., 111 Sutter Street, San Francisco; Portland, Los Angeles and San Diego.

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THE ARCHITECT AND ENGINEER

MAY 1937

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Beauty plus *Protection*

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General Electric Model Home, Berkeley, California.
John Ekin Dinwiddie, Architect *J. M. Walker, Builder*

"We knew when construction of this model home was started that it would be the show place of the San Francisco Bay district.

"Literally thousands upon thousands of people were destined to inspect it before it was finally placed on the market and sold, and it naturally followed that neither expense nor effort were spared in the selection of materials for its construction.

"Logically then, Pacific Portland Cement Company's Tan Plastic Cement was selected for all stucco and concrete work. The results speak for themselves."

(Signed) J. M. Walker, Builder

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SAN FRANCISCO · LOS ANGELES *COASTWIDE SERVICE* PORTLAND · SEATTLE

THE ARCHITECT & ENGINEER

Contents for May, 1937

THE ARCHITECT AND ENGINEER, INC., 68 Post Street, San Francisco, EXbrook 7182. President, K. P. Kierulff; vice-president, Frederick W. Jones; secretary, L. B. Penhorwood. Los Angeles office, 832 W. Fifth Street. Chicago representative, Harry B. Boardman, 123 West Madison Street, Chicago, Ill. Published on the 12th of each month. Entered as second class matter, November 2, 1905, at the Postoffice at San Francisco, California, under the Act of March 3, 1897. Subscriptions, United States and Pan America, $3.00 a year; Foreign countries, $5.00 a year; single copy, $.50.

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Notes and Comments

SECRETARY Henry A. Wallace has forwarded to Governor James V. Allred of Texas the final report of Dr. David J. Price explosion expert of the Bureau of Chemistry and Soils, on the investigation of the explosion in the New London, Texas, school building March 18, which caused the death of more than 400 pupils.

In the report, Dr. Price confirms the statement in his preliminary telegraphic report to Governor Allred on March 29, that the probable cause of the explosion was the ignition of combustible gas accumulated in the open unoccupied area under the first floor by a flash from electrical equipment operating a portable sanding machine in the manual training shop on the lower floor of the school building.

The New London school building was heated by individual gas steam radiators, the gas being obtained from a nearby residue gas pipe line owned by one of the oil companies. By using this gas the New London District School Board was utilizing for heating purposes a product which otherwise would have been burned in the open "flares" as waste gas.

The final report contains nine principal recommendations for the prevention of explosions in school houses and public buildings: (1) Use of effective malodorants for detection of escaping combustible gases; (2) development of methods for application of combustible gas indicators; (3) supervision and inspection of public buildings and institutions; (4) installation of approved pressure regulating devices; (5) installation of all electrical equipment and appliances in accordance with requirements of National Electrical Code; (6) proper construction to eliminate dead spaces underneath occupied rooms; (7) location of main gas lines outside of public buildings and not underneath the building proper; (8) ventilation of necessary open spaces; and (9) ventilation of school rooms where gas heating appliances are installed.

* * *

WILLIAM LASCAZE, an exponent of modern architectural design and designer of many of New York's outstanding buildings, sees "Sermons in stones" in a modern sense which perhaps Shakespeare did not contemplate.

Mr. Lascaze states that modern architecture is not one form versus another, but a process of thinking versus a total lack of thinking.

The modern architect, he states, is a creator of a new form of shelter in keeping with modern life, and is more interested in creating space than in creating patterns. He believes that we give the present generation more house for the dollar spent than was ever given before.

BABEL'S TOWER SANS ARCHITECT

An eminent architect, a Mr. Alexander, was being cross-examined in court.

"You are a builder?" asked the state's attorney.

"No, I am an architect," replied Alexander.

"Well, is there a difference?"

"Yes," said the witness, "an architect conceives the design, prepares the plan—in short, supplies the mind. The builder is but the machine which puts it together."

"A very ingenious distinction without a difference," rejoined the attorney sarcastically. "Could you tell this court who was the architect of the Tower of Babel?"

"There was none," replied Mr. Alexander very calmly, "hence the confusion."

—Christian Science Monitor.

* * *

Lascaze lives in a glass house which he designed, and his offices are on the ground floor of this same building. In his own office one wall is gray, another white and a third dark gray, which he states gives him an environment in which space and utility combine with a dramatic effect.

A deep but narrow drawer in his desk serves as a waste basket although, like the ordinary basket it has to be emptied, but it doesn't take up floor space.

If all walls are painted alike Mr. Lascaze believes that they give one the feeling of being inside a box, but on the other hand he states if one studies what is going to happen in a room he quickly finds a reason for accentuating certain places.

At the present time Mr. Lascaze is looking forward to what he terms "the first modern school in the country," which he designed for Ansonia, Connecticut, a high school with a capacity of 1,000 children.

In a recent article he quoted from Sacha Guitry's autobiography: "Why should all schools give off the atmosphere of prisons? The architects who put up such horrors should be punished," and he adds that in all fairness he believes that the boards of education should also be punished.

* * *

BUILDING California highways and policing them is the full time work of more than one-third of California's 20,000 employees, according to figures released by William Brownrigg, executive officer of the State Personnel Board.

Construction and maintenance of the highways, which is carried on by the State Department of Public Works, employs nearly 6,000 people, while another 1,500 work in the State Department of Motor Vehicles, which has charge of the licensing of automobiles and drivers, and the policing of the highways with the California Highway Patrol. Together these two departments employ 37 per cent of all persons who are working for the state exclusive of the State University, the relief administration and the courts.

To carry on this extensive work, these departments have branch offices, maintenance stations and highway patrol offices scattered over the entire State, protecting the public and guarding the highways twenty-four hours a day the year around.

The salaries of this large group of State employees do not come out of the general tax revenues of the state but are borne, through special taxes, by automobiles and trucks. Salaries for highway construction and maintenance are paid from gasoline tax revenues and through Federal aid. The policing of highways is paid from automobile license fees.

* * *

WHAT are the qualities and interests most likely to make a person successful as an architect or as an engineer?

Undertaking to answer this question in the most scientific manner possible, Dr. Edward K. Strong, Jr., professor of psychology at Stanford, has worked out a vocational-interest test which registers the "profile" of any one interested in becoming an engineer or an architect. His method of making this test was to list a large number of questions calculated to test the interests of the most successful men in these professions in the country. The tests cover such things as occupations one is interested in, amusements, school subjects, activities, peculiarities of other people, etc. It is not an intelligence test at all, but simply a test of the things a successful architect or engineer likes, dislikes or is indifferent to.

After the profile of the average successful man has been arrived at, the test is next applied to the young man or woman who considers entering advertising. When this is done, the results are compared with the chart of the successful person and a judgment as to the person's potentialities is made.

* * * *

MODERN trends in architecture in this country are being influenced by Japanese rather than European methods according to I. E. Alexander, Chicago architect who has just returned from a trip to Europe and the Orient.

The most important idea brought to this country from Japan is the new "space-flow" or open concept in planning. Partitions and doors, except where required for absolute privacy, are eliminated, thus allowing a natural flow of space from room to room. Other innovations are sliding screens of translucent material.

TERRA-COTTA Defies Disaster!

The Eden Square Apartments, Stockton, employed the use of architectural terra cotta to the second floor as well as for sills, lintels and decorative treatment when constructed in 1927. A terrific fire gutted the entire building on February 1, 1931 and it lay as illustrated until 1936. After more than five years, the structure was redesigned and the entire top floor was removed.

It is a significant fact that in spite of the fire and the long period before reconstruction, **no additional terra cotta material** whatever was needed to complete the building! Certainly this is a convincing example of the excellence of architectural terra cotta for **permanent** building construction. Mr. Joseph Losekann was the original architect; Mr. Eric Johnson, the architect for the redesign. The Eden Square Apartments are owned by Senator Frank S. Boggs.

N · CLARK & SONS

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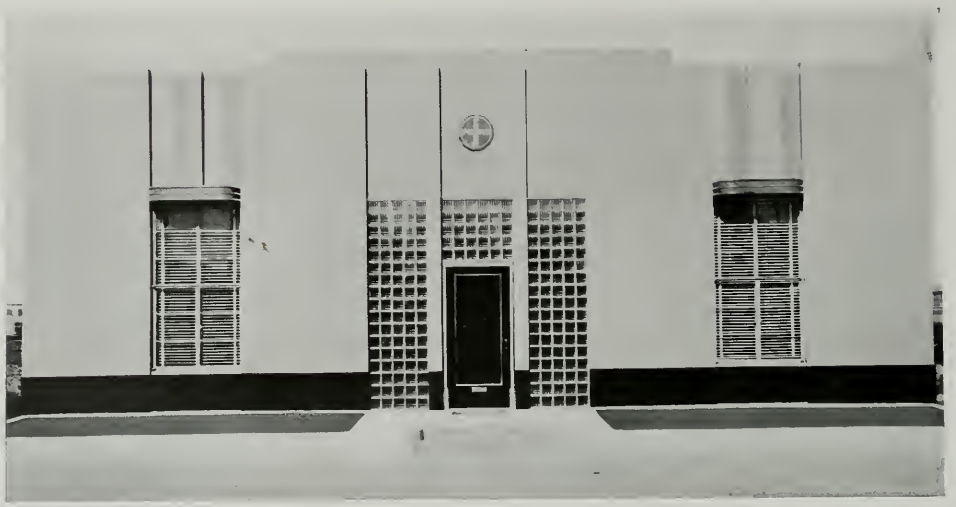
PORTLAND • SALT LAKE CITY • LOS ANGELES

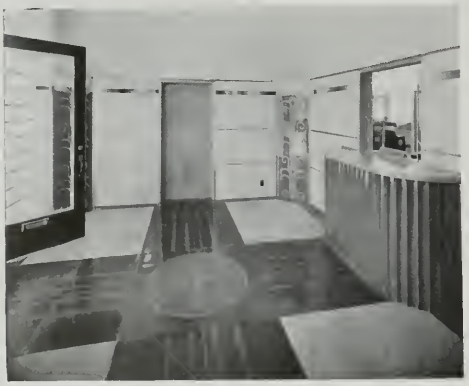


OFFICE BUILDING UNIQUE IN DESIGN AND CONSTRUCTION

In this day and age the uses of Ferro-Porcelain seem unlimited. To prove this point in so far as building construction is concerned, an Oakland industry has recently completed a new office building, using Ferro-Porcelain products. What was accomplished is described by H. L. Brooks, an official of the Ferro Enameling Company, in the following interesting paragraphs:

"Believing in our own material for architectural purposes we have just completed a new office building of our own; have faced the front and lined the lobby with Ferro-Porcelain.

"The front of the building is in a light green color with a deeper green for bulkheads. The copings, over the two windows, are red as in the replica of our seal in the upper center panel.



THE LOBBY

"All the panels of this building are backed with an insulating material laid with a water-proof cement. This method of construction does three things: it takes away the metallic sound from our material, it removes all tendency for the panels to 'pillow' or wave, and the insulating material is equal to eighteen inches of masonry for insulating purposes.

"Even the entrance door is covered with Ferro-Porcelain. Many times we have been asked if we could do this or do that with porcelain enamel. In the majority of cases it has been a very affirmative answer.

"We lined the lobby of the building with Ferro-Porcelain to demonstrate just what can be done.

"The fluted face of the counter was pre-fabricated and then porcelain enameled. We used our color samples for a band motif on three of the walls and placed two-color panels in the corners. Even the counter top is Ferro-Porcelain. In order to really show what can be done with this material we even put non-slip Ferror-Porcelain on the floor of the lobby.

"Being made with a base of sheet enameling stock, the product is very easy to fabricate to suit practically any design. After fabrication the metal is porcelain enameled in any color, or combination of colors, desired, and then erected on the job.

"There is one thing on the front of our building that has caused quite a bit of comment from those who have actually seen it. There are a couple of panels, above the windows, that appear to form a reve, but the strange thing is that both panels are absolutely flat. The appearance of fabricating is caused by the use of three different shades of green on these particular panels."

Miller and Warnecke, architects of Oakland, designed the building.

OPEN DOOR TO SOLID COMFORT . . .

MODERN gas equipment is the "open door" to year-around comfort in this distinctive home of Dr. F. Haigh, Los Angeles. ☆ Two forced ventilating furnaces change the air (purified by spun glass filters) 12 times an hour. Summer switches provide ventilation without heat. ☆ Gas range, and automatic gas water heaters with copper tubing to all fixtures, complete an ideal all-gas installation. ☆ Review *your* building plans with your Gas Company's engineers—a free advisory service.

WESLEY EAGER
Architect

Gas
THE MODERN FUEL

ADMINISTRATION BUILDING, SAN PEDRO HIGH SCHOOL, SAN PEDRO, CALIFORNIA

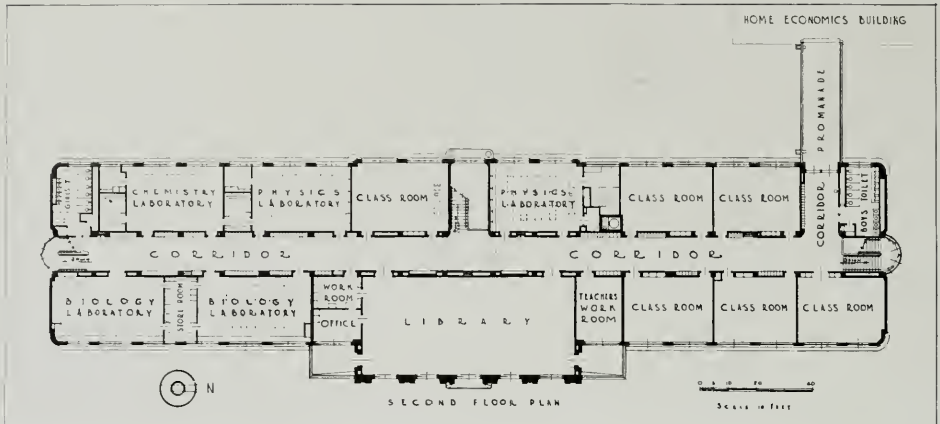
THERE IS A CLASSIC BACKGROUND TO THIS MODERN FRONT

IT CAN HAPPEN HERE

A Classical Scholar Learns A Modern Language

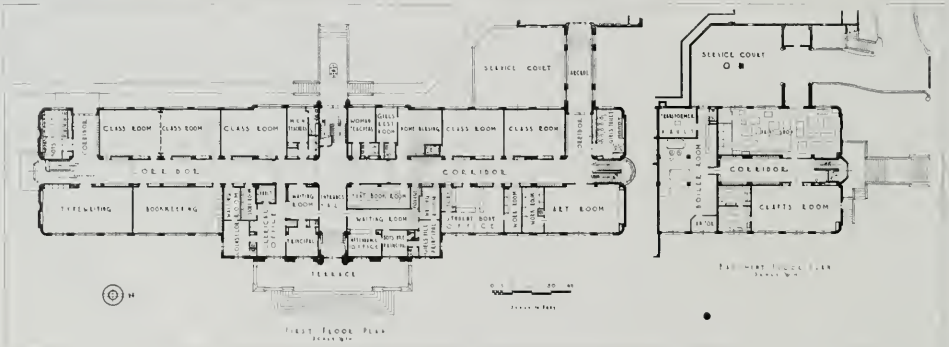
by Harris C. Allen, F. A. I. A.

DURING the great building era which developed Los Angeles into a metropolis in the nineteen-twenties, several architects emerged as outstanding personalities. As the business pressure increased (Ossa piled upon Pelion), one extremely successful firm amicably split up into three separate offices, each of which proceeded to turn out an amazing amount of exceptionally fine work. All of this was academically correct, but touched with a fresh inspirational quality, varying with the individual characteristics. That of Gordon Kaufmann, some of whose recent achievements are being shown herewith, was distinguished by a brilliant, impeccable virtuosity. In rapid succession he produced exquisite examples of the Old World Renaissance—Italian, Spanish, English, French — excellently adapted to their setting and use in the new playgrounds of Southern California. Never resorting to blind reproduction, he showed a creative imagination in the composition and proportion of exterior masses and a subtle mastery of detail and ornament. Pervading all his work was a spirit of rich and graceful elegance—a much abused word, but it expresses the essential quality which made the output of his office individual and admirable. Even



ADMINISTRATION BUILDING
SAN PEDRO HIGH SCHOOL
SAN PEDRO, CALIFORNIA

THE OFFICE of
GORDON B. KAUFMANN . . . ARCHITECT
627 So. CARONDELET St. LOS ANGELES, CALIF.



ADMINISTRATION BUILDING
SAN PEDRO HIGH SCHOOL
SAN PEDRO, CALIFORNIA

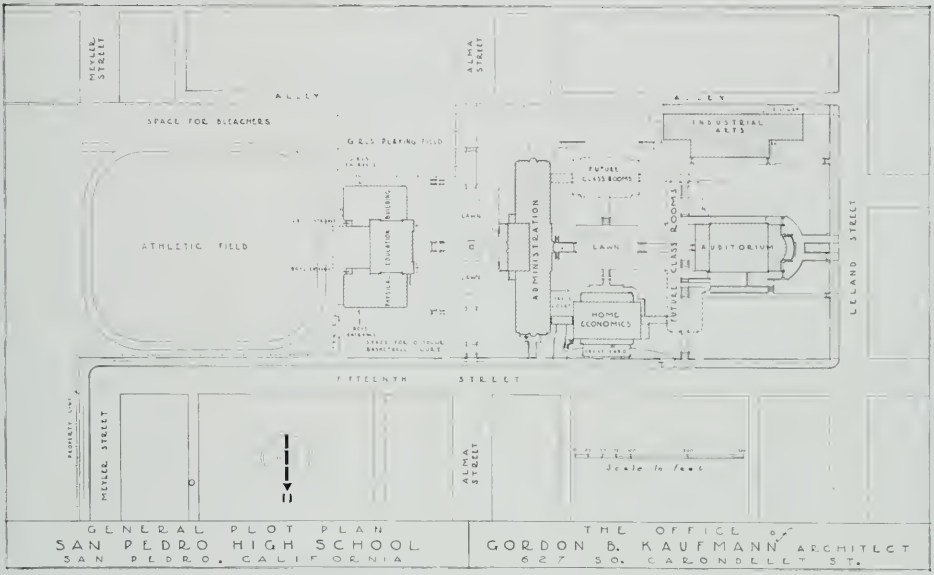
THE OFFICE of
GORDON B. KAUFMANN . . . ARCHITECT
627 So. CARONDELET, LOS ANGELES, CALIFORNIA

though a building might present the guise of a French or English farmhouse, it was a farmhouse distinctly patrician rather than plebian.

Toward the last of this period he began to paint with a broader brush. While there was still the easy technique of a thorough traditional background, there showed a greater departure from literal historic styles and a greater infusion of local atmosphere. This worked for more unity, more of a tendency toward simplicity, still preserving the spirit of "noblesse oblige."

During the last few years, the inevitable pressure of contemporary tastes and demands has produced a new Kaufmann. There are of course signs of the old brilliant technique and, happily, of the creative imagination. It is too soon, perhaps, to pronounce opinion upon these new manifestations; after all, the whole world is in a transitory stage just now and experiment is the byword of the day.

However, to say that Mr. Kaufmann's present phase is "interesting," would be far from sufficient. There is much to interest the critic, certainly, in this process of development; and there is more than promise—which can often turn out to be glittering mirage. For instance, the most important building here shown, that for the "Los Angeles Times," is unquestionably a fine virile composition which expresses its immediate function and also must command the attentive eye. In other words, in itself it



GENERAL PLOT PLAN
SAN PEDRO HIGH SCHOOL
SAN PEDRO, CALIFORNIA

THE OFFICE OF
GORDON B. KAUFMANN ARCHITECT
627 SO. CARONDELET ST.

CONSTRUCTION OUTLINE

San Pedro High School—Administration and Shop Buildings

FOUNDATION
Reinforced concrete with spread footings.
STRUCTURE
Class "A" reinforced concrete throughout for Administration Building. Roof framing for Shops is of light steel trusses, overlaid with 2-inch wood plank tongued and grooved. Exterior face of all exposed concrete walls poured in ⅞-inch plywood forms. All ornamentation poured with the walls, using plaster moulds. All floors monolithic cement finish.
ROOFING
Gravel topped, twenty-year composition roof.
SHEET METAL
Flashings, duct work, etc., galvanized iron.
PLASTERING
Ceilings of acoustic plaster. Walls generally gypsum hardwall plaster, fine sand finish. Special rooms have wall finished with Keene's cement trowelled smooth.
STEEL SASH
Three types used, fixed, industrial and projected.
GLASS
Double strength "A" quality—Pittsburg Plate Glass Co.
MARBLE
Toilet stalls Alaskan marble.
INTERIOR TILE
Toilet room walls bright glazed 4¼ by 4¼ inches. Floors 1 by 2 inch Ceramic Mosaic—Gladding-McBean Hermosa Tile.
FLOOR COVERING
Classrooms and corridors of Administration Building battleship linoleum. Shop Building paved with 2-inch thick creosoted wood blocks in mastic.
PLUMBING
Fixtures. Soil and waste lines, cast iron; supplies and vents, galvanized iron.
HEATING
Low pressure steam from plant in basement.
ELECTRICAL WORK
Rigid steel conduits. Fixtures, custom built hanging type indirect.
PAINTING
Exterior exposed concrete, two coats of lead and lead mixing oil, interior walls three coats of lead and oil, interior wood work four coats, eggshell enamel finish.

TIMES NEWSPAPER BUILDING, LOS ANGELES, CALIFORNIA

COMPARE THIS PRECONCEPTION WITH THE COMPLETED WORK PICTURED BELOW

Photo by Mott Studios

A MODERN MASTERPIECE OF DESIGN BUTTRESSED BY SOUND TRADITIONAL TECHNIQUE

MAIN ENTRANCE LOBBY, TIMES NEWSPAPER BUILDING, LOS ANGELES
GORDON B. KAUFMANN, ARCHITECT

is a huge advertisement for publicity. To accomplish a result so desirable for the owner and occupant of the building, without objectionable crudeness and blatancy — indeed, in a manner not only forceful, but graceful—is no mean achievement.

It will be of considerable interest to watch the development of Mr. Kaufmann's new expression of personality and period. His great natural ability is bound to produce no mediocre results and his excellent training will save him from the bizarre or the banal. More power to his pencil.

ENTRANCE DOORS

REFLECTING THE SPORTING TRADITIONS OF GEORGIA DAYS

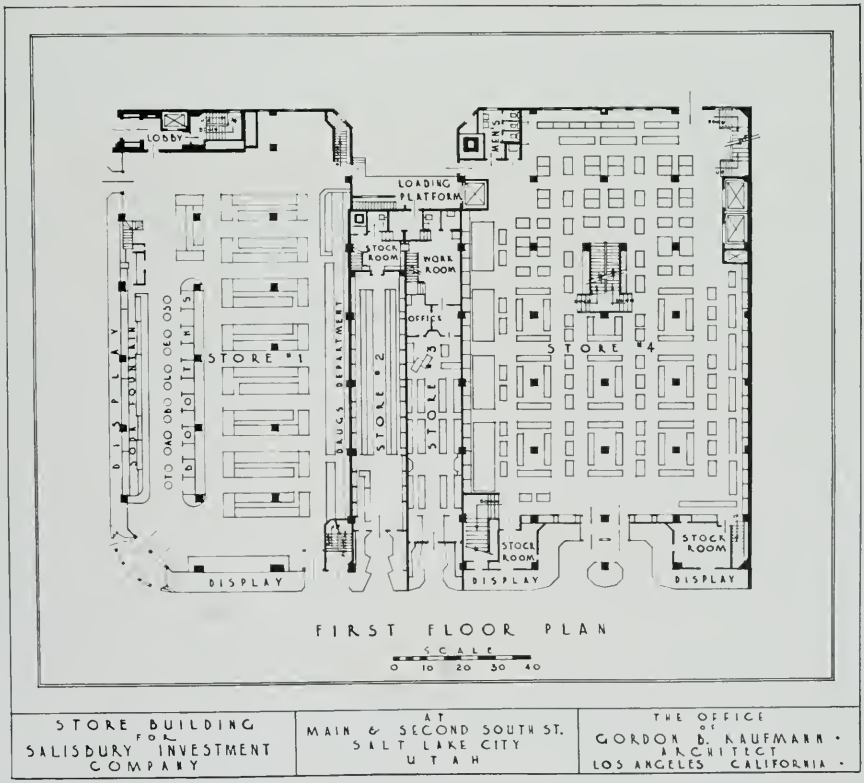
Photo by Woodcock

MAIN ENTRANCE, CLUB HOUSE FOR LOS ANGELES TURF CLUB, SANTA ANITA PARK, CALIFORNIA
GORDON B. KAUFMANN, ARCHITECT

CLUB ROOM LOUNGE, LOS ANGELES TURF CLUB, SANTA ANITA PARK, CALIFORNIA
GORDON B. KAUFMANN, ARCHITECT

AN ESSAY IN MODERN COMMERCE

SALISBURY BUILDING, SALT LAKE CITY, UTAH
GORDON B. KAUFMANN, ARCHITECT



ASSEMBLY HALL, LOS ANGELES COUNTY MEDICAL ASSOCIATION, LOS ANGELES, CALIFORNIA
GORDON B. KAUFMANN, ARCHITECT

ASSEMBLY HALL LOUNGE

LIBRARY ELEVATION, LOS ANGELES COUNTY MEDICAL ASSOCIATION

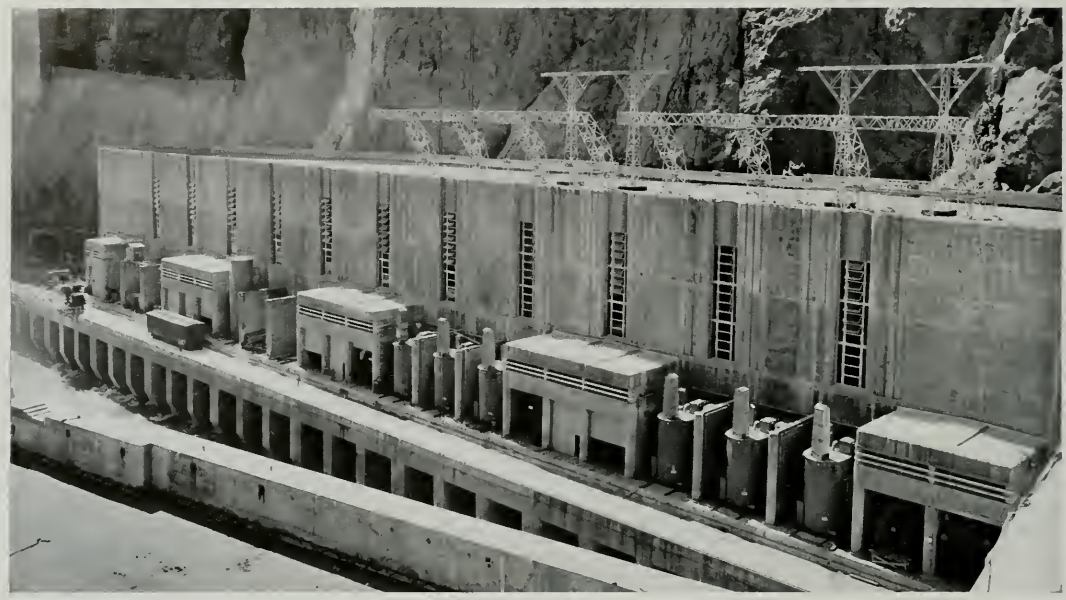
BUILDING FOR J. C. PENNEY CO., WESTWOOD VILLAGE, CALIFORNIA

THE OLD WORLD OR THE NEW?

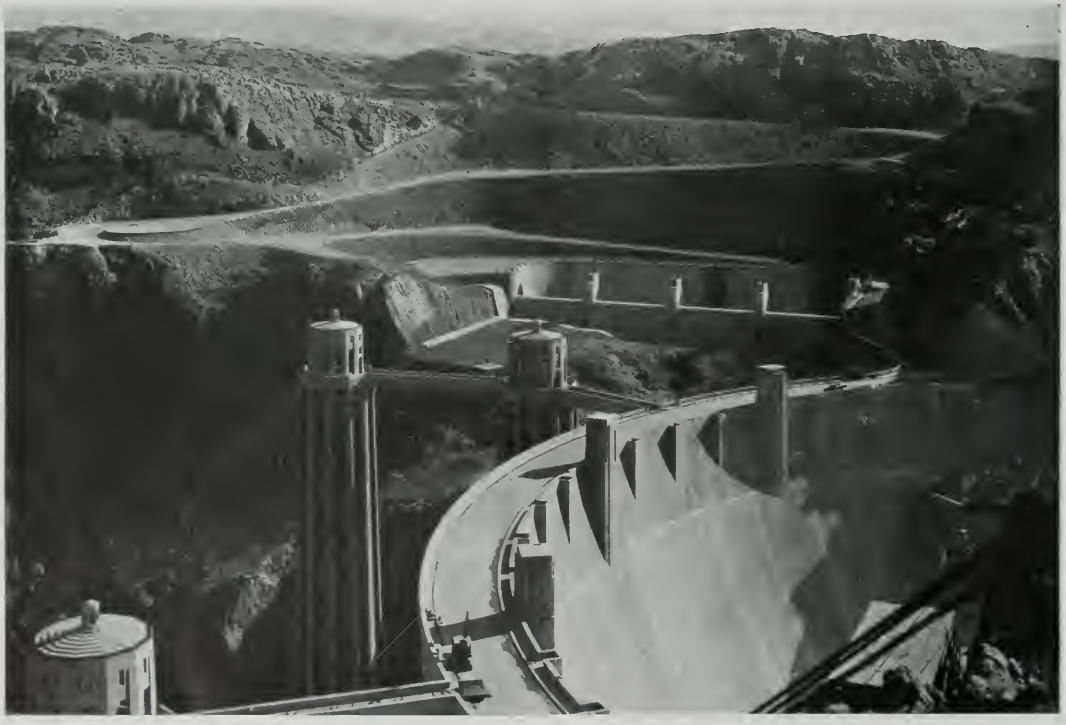
DORMITORY, CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA

DORMITORY, CALIFORNIA INSTITUTE OF TECHNOLOGY

AN ARCADE, ACADEMIC—ARCHAIC—CHARMING
ONE OF THE LAST OF THE FORMER PERIOD



BOULDER DAM POWER HOUSE—Fenestration punctuates at suitable intervals the rhythm created by column spacing



TOWERS AND PLATFORMS, BOULDER DAM

INTAKE TOWERS, UPSTREAM FACE OF DAM
GORDON B. KAUFMANN, ARCHITECT

BOULDER DAM will always be impressive because of its superlative dimensions, its awe-inspiring site and the comprehension of its useful purposes.

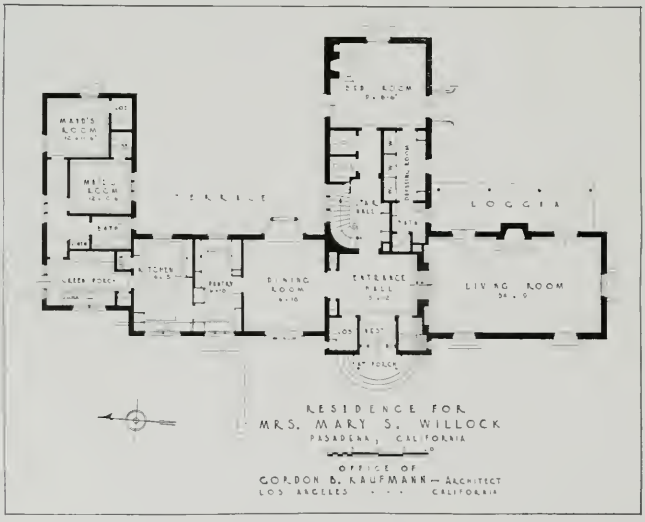
But it has more than this to commend it; more than the fact that it is the greatest mass of concrete on earth and an imperishable barrier in a mountain gorge. It has beauty and grace and fitness that will last long after its size is unimportant and its great purpose has been duplicated in many other places. In other words: as well as an engineering feat, it is architecture on a grand scale.

RESIDENCE OF M. A. HARRIS, WOODSIDE, CALIFORNIA

AMERICAN COLONIAL ASSISTED BY CALIFORNIA CONCRETE
—AN EARLY AND HAPPY ADAPTATION

RESIDENCE OF MRS. MARY S. WILLOCK, PASADENA
GORDON B. KAUFMANN, ARCHITECT

RESIDENCE OF MRS. MARY S. WILLOCK, PASADENA.



WOODEN AWNINGS,

ADDING CHARM

TO THIS HOUSE,

OPERATE LIKE

VENETIAN BLINDS

CALIFORNIA. GORDON B. KAUFMANN, ARCHITECT

STONE WALL AND SPREADING OAK COMPLETE AN IDEAL SETTING FOR A LOVELY HOME

CONSTRUCTION OUTLINE

Residence for Mrs. Mary S. Willock, Pasadena

FOUNDATION
Footings, walls and basement floor, concrete.

STRUCTURE
Wood trim, five coat enamel, wood panelling, acid stain and wax, walls some wood panelling.

ROOF
"Royal" wood shingles over felt.

FLOORS
Strip flooring of "B" grade plain white oak, parquetry of white oak herringbone with walnut border.

INTERIOR FINISH
Wood trim, five coat enamel, wood penelling, acid stain and wax, walls and ceilings, canvas and three coats of lead and oil. Baths, tile floor and wainscote. Dressing room. mirror glass wainscote and trim.

PLUMBING
Fixtures. Soil and waste lines, cast iron. Cold water lines, galvanized steel. Hot water lines "Chase" type "K" hard copper tubing with sweat fittings.

HEATING
Gravity system hot air, with gas fired unit furnaces.

ELECTRICAL WORK
Run in rigid steel conduit. Fixtures, custom built.

SECOND FLOOR PLAN
RESIDENCE FOR
MRS. MARY S. WILLOCK
PASADENA, CALIFORNIA
OFFICE OF
GORDON B. KAUFMANN — ARCHITECT
LOS ANGELES CALIFORNIA

RESIDENCE OF ROBERT B. HENDERSON, HILLSBOROUGH, CALIFORNIA

A COUNTRY HOME SHOULD NOT LOOK TOO NEW—BUT THE CONCRETE BLOCK IS MODERN

CONSTRUCTION OUTLINE

Los Angeles County Medical Association—Library and Assembly Hall

FOUNDATION
Walls and footings reinforced concrete.

STRUCTURE
Library portion Class "A" reinforced concrete. Exterior walls poured in ⅞-inch plywood forms. Ornamentation, lettering, etc., poured with walls in plaster waste moulds. Assembly Hall portion, heavy wood frame. Wood roof trusses. Exterior, felt, ⅞-inch cement plaster over wire netting.

ROOFING
Twenty-year composition roof, gravel topped.

SHEET METAL
Gutters and downspouts No. 24 gauge galvanized iron, skylights No. 24 gauge galvanized iron, puttyless type, glazed with ¼-inch rough wire glass. Roofs over bays, 16 oz. cold rolled copper, standing seams.

INTERIOR PLASTER
Ceilings in Library, Assembly Hall and Dining Room acoustic plaster. Walls throughout gypsum hardwall.

FLOOR COVERING
Library floor "Gothic Oak" 9-inch squares laid in mastic. Assembly Hall third grade plain white oak, 13-inch squares laid in mastic. Kitchen, linoleum.

STEEL SASH
Casement type and fixed, glazed with double strength "A" quality clear glass.

CONSTRUCTION OUTLINE

J. C. Penney Co.—Westwood Store, Los Angeles

FOUNDATION
Footings, concrete caissons, average 30 feet below curb. Foundation wall, reinforced concrete.

STRUCTURE
Up to and including first floor slab, Class "A" reinforced concrete. Above first floor, Class "C" with concrete walls, wood frames second floor and roof framing. Front veneered with Gladding-McBean "Unit Tile."

ROOFING
Front portion of pitched roof covered with shingle tile, interlocking type—Gladding-McBean. Balance of roof ten-year composition with slate surfaced cap sheet.

PLASTERING
Suspended ceilings hardwall plaster, smooth finish over channel iron and metal lath. Walls, hardwall plaster, smooth finish over ⅜-inch perforated rock lath.

PLUMBING
Fixtures. Soil and waste lines, cast iron. Water and vent lines, galvanized steel.

HEATING
Forced air system of heating and ventilation using gas fired furnaces —Payne Furnace & Supply Co.

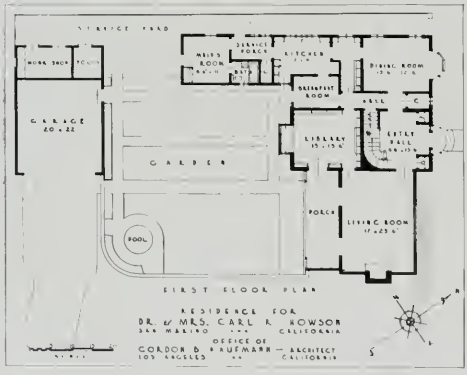
ELECTRICAL WORK
Run in rigid steel conduit. Store lighting flush type ceiling fixtures.

RESIDENCE IN HOLMBY HILLS, CALIFORNIA

AN EXAMPLE OF MR. KAUFMANN'S CONTROL OF EXQUISITE DETAIL IN HIS EARLIER PRACTICE

RESIDENCE OF DR. C. R. HOWSON, SAN MARINO, CALIFORNIA

GORDON B. KAUFMANN, ARCHITECT



A CALIFORNIA HOME

DEVELOPED ALONG

MODERN LINES.

NOTE UNIQUE TREATMENT FOR

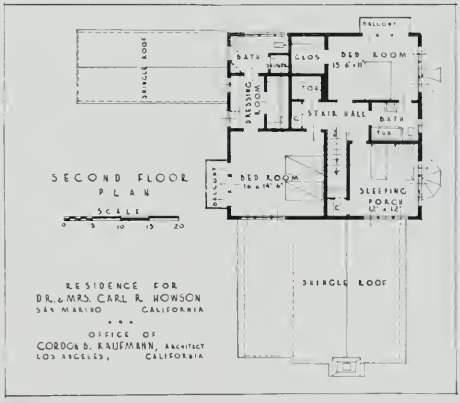
VENTILATION AND SHADE

GARDEN VIEW, RESIDENCE OF DR. C. R. HOWSON, SAN MARINO, CALIFORNIA
GORDON B. KAUFMANN, ARCHITECT

CONSTRUCTION OUTLINE

Residence for Dr. and Mrs. Carl R. Howson

FOUNDATION
Footings, walls and basement floors, concrete.
STRUCTURE
Wood frame, exterior cement plaster over felt and wire fabric.
ROOF
First grade 5/2 wood shingles over felt, creosote stained.
FLOORS
Plank floors of plain white oak random widths. Strip flooring of 13/16 by 2¼ inch plain white oak.
INTERIOR FINISH
Wood trim, three-coat enamel. Wood panelling acid stain and wax. Walls and ceilings covered with "Sanitas," finished with two coats lead and oil. Bathrooms tile floor and wainscote.
PLUMBING
Fixtures. Soil and waste line, cast iron. Water supply lines, galvanized steel.
HEATING
Gravity system, hot air with gas fired unit furnaces.
ELECTRICAL WORK
Run in rigid steel conduit. Fixtures, custom built.



HOUSE FOR DR. F. HAIGH, LOS ANGELES
WESLEY EAGER, ARCHITECT

MODERN FEELING GOVERNS DESIGN OF THIS RESIDENCE

SHOWING FORCED AIR, GAS FURNACE AND AUTOMATIC WATER HEATING INSTALLATION IN BASEMENT

The problem of designing a residence on a 30-foot fill and a grade of 40 degrees from the street, having a level floor and without steps, was solved by employing modern design, materials and equipment. One hundred feet long, the building rests on reinforced concrete beams and caisons with furnace room and first floor also of fireproof construction. All outside walls and roof are provided with reflecting type insulation. The ceilings of the first story are supported independently from the floor above, eliminating transmission of sound.

A modern forced air gas furnace installation provides conditioned heating in winter and ventilation in summer. It is located in the basement and is designed to give twelve air changes per hour throughout the house. Air for heating or ventilating is cleaned by passing through spun glass filters, and is then forced through the house by a fan and blower unit. A simple switch changes the gas furnace from forced heating to forced ventilation.

Designed in the latest mode, the kitchen has a planning desk, monel counters and gas ranges. Kitchen floors have 3/8-inch soft rubber; walls are flexboard trimmed with stainless steel moldings. Automatic gas water heaters with copper tubing to all fixtures complete the most modern type of plumbing installation.

SIMPLICITY KEY NOTE IN HOME DESIGN

ARCHITECTS MUST PLAN TO MEET NEW LIVING CONDITIONS

by Ralph Walker F. A. I. A.

ALL of you have heard of that old farmhouse way down on Long Island which cradled the most sentimental song in the English tongue—"Home Sweet Home." The simple structure and lack of ornament is as striking as are its evident charm and its graceful proportions. It is obvious to all of us who know the house that in it a high standard of living was possible, and also an intangible thing we call "home" was achieved there, for the house is the source of that nostalgic theme.

It is interesting that such a simple frame shelter, utterly lacking in pretension, has the power of stirring strong emotions equally in the dweller of palace or of cot.

But far more interesting to those who would think philosophically about design is the appreciation of the completeness of the order and unity of which this house, as well as others of the time, was a part. It was not an isolated thought outside the stream of the normal thinking of the time, but it was closely related in design to everything else which was made in its neighborhood.

We loosely speak of it as being Colonial—a word which immediately bespeaks a definite kind of house and appearance of furniture, a definite cooking method and accompanying devices, and a related quality of design, which we would expect to find in books, in clothes, in carriages and wagons, in the making of glassware and of iron, and in the crockery, and in the lighting accessories.

All of it seems very natural, and seems to have happened without too much intellectual guidance or questioning, and so achieved a unity which we know as the Colonial style.

But! There was no aping of ancestors; the immediate time and its attendant problems engaged the activities of mind and hand, and while there was a classical reminiscence in all this design, it was unconsciously so.

This unity of all design is being stressed here in that it is on the whole directly opposite to what we find now.

Now, houses are mostly reproductions of past styles and are totally unrelated to the other design tendencies in our civilization. These other trends—found in mass production products, in fabrics, in clothes, in printing, and of course in most things which pertain to comfort—have in recent years begun to have a relationship, and with which, of course, the automobiles and aeroplanes are in harmony. But the house, with few exceptions—NO! It, and its social furnishings, continue to lag.

Editor's Note—The foregoing talk was given by Mr. Walker at the New York Herald-Tribune Forum in the Waldorf-Astoria, New York, and is reprinted from Pencil Points.

We, today, are interested in the trends and accomplishments of today's design in the house —trends which foretell a house in harmony with the rest of our civilization.

Perhaps the house on wheels will be the answer, and a population looking for work will re-engender the pioneer spirit, and the covered wagon will be again in the ascendant.

Or again, in a mass production world it would seem natural that the modern house should be prefabricated in a factory and shipped to a site for ready assemblage. And in that idea there has been more hopeful wishing and more money wasted of late years, in the dream that the prefabricated house would be, of course, the bell-cow to lead us out of the depression. While there may be "gold in them thar hills" the all-wise prospectors have yet to find the paying lode.

There have been hundreds of attempts to solve the mass production house, both here and abroad, and while it would be foolhardy to say that it is impossible of solution, each attempt to date has realized that there is a major and essential difference between the mass production of the automobile and the house.

It is that to have automobiles at all they must be made on a mass production basis, whereas it continues to be possible that economically and physically a single individual can build himself a good house.

For the moment, we may say that the only way a house may resemble an automobile is to put wheels on it, and so for some while we may see those dancing grandmothers forsaking the electric hearth for the oil stove of the trailer.

According to Roger Babson this means half of our grandmothers and half of everyone else.

However, it is the other half, those who are the stay-at-homes, in whom we are interested. What of their houses?

The manufacturing world is filled with new and amazing materials, and lately there has been one house after another—a steel house, a concrete house, a glass house, a canvas house, a wood house—that is different. All these houses receive acclaim in the daily press.

We have invented new structural methods —a house hung on cables from a tent pole, turning like a flower with the wind and sun. The sixth order of architecture, the Lally column, has again come into its own, and some houses depend for aesthetic appeal on that single structural device. We cantilever walls, rooms, buildings (whether necessary or not) in the wild exuberance of a spirit of WE CAN!

We condition all sorts of things—sound, air, water, food. We are continually adding to the expense of space, for as the space becomes more comfortable it seems to become smaller. I believe that the space itself does not relatively cost any more than it did in my grandfather's time. The increasing costs of the house are entirely due to the added comforts we no longer consider as luxuries.

We play more games as more mechanical and electrical servants develop. We live outdoors for much longer periods at a time than did our great-grandfathers.

In contrast: More and more people are interested in flower gradens. More and more people are interested in better food, and have better taste in choosing their belongings. These stay-at-homes would like better houses.

The average person accepts a Cape Cod cottage but demands a modern kitchen, a modern bathroom, and an ultra-modern central heating system. The design of the kitchen and the bathroom are related to other industrial design, in fact they may be said to have started it, and the mistake has been that writers like Lewis Mumford or Le Corbusier have said that this type of design is proper for the living room as well. They have confused the ideas expressed by the words "similar" and "related."

The new generations, however, want a truly modern house—one that goes on from where Father left off.

And this house at present looks like this: A series of boxes painted to look like concrete even though they are made of wood or tin· large glass windows going around corners (whether the view or prevailing winds make it

desirable or not). They must be prefabricated, factory-made, or look like it. Ornament, like some disease, is taboo. Furniture must be built-in whether it is convenient or not, because, per se, it is so in aeroplanes. A sun terrace or two are placed at levels which afford the neighbors much amusement.

This house is designed to jump, in anticipation, into the twenty-first century, and theoretically to be so perfect that our children and their children can just rest contented and never have to worry about the problem of shelter again. Not for them the joys of being modern.

And, because the short wave permits a New Yorker to know what thoughts a Berliner has presented to him by his leaders, all thoughts would soon be alike and therefore the house should be international.

Perhaps!

The modern house will look like this:

It will have some relation to where it is built.

It will generally be symmetrical to take advantage of orientation, breezes, views, and site.

The materials which will enter the house in the future will be tested and tried, to achieve those which do not need added moisture. (A large part of the time now needed to build is taken up waiting for wet materials to dry.)

Nevertheless, for the immediate future—

Old materials are still cheapest.

Where wood is plentiful it will be built of wood.

Where clay is plentiful it will be built of bricks.

Where materials have to be exported into a community, houses will be built of the cheapest imported materials.

Where steel is necessary it will be used, and so, too, concrete, and also some of the plastics of which we hear so much.

And the houses will still be built on the ground.

And many people will continue to live in houses.

And windows will be placed where they are needed and not because they will look better if they are symmetrical or because a theory says that there should be no windows at all but only a wall of glass.

And materials will be used to their best advantage both for strength and appearance.

More and more parts will probably be made at the factory.

But the most interesting trend in house design is the sense of freedom in planning both the inside, as to the relation of rooms, and with the outside in relation to terrace and garden rooms, so that even period houses are taking on a new appearance to meet a new condition of life. What I have been trying to say is that a new set of living conditions and desires are appearing and they are changing the practical considerations of the house, and in time will naturally change the appearance.

Many qualities of the modern house which we have seen built are wholly negative, mostly brought on by depression thoughts and philosophy. These are the severe box-like characteristics: the paucity of arrangement, as far as appearance is concerned; the use of materials with which there is not the remotest possibility of attaining beauty; a meanness of conception as to what are the limits in design possibilities under the machine. All these qualities fit people whose post-war thoughts were on lost wealth, and who saw no future except by means of attaining the utmost economy—a conception of economy based on a false engineering idea that the less materials and the less workmanship employed, the more successful would be the result.

And yet it is from these aspects, together with a true understanding of what simplicity means, that the new house will develop, because we are now able to start with a clean slate.

And this clean slate is necessary. It was not

(Please turn to Page 46)

HIGH PEAK, BY MATTHEW BARNES

Awarded First Anne Bremer Memorial Prize, 57th Annual, San Francisco Art Association, San Francisco Museum of Art

PRIZES awarded in the Fifty-seventh Annual of the San Francisco Art Association were as follows:

Anne Bremer Memorial Prizes:

First Prize: Matthew Barnes, for his oil painting, High Peak, $300.

Second Prize: Victor Arnautoff, for his oil and tempera, The Wreck, $200.

Parilia Purchase Prizes:

For Painting: Theodore C. Polos, for his oil, Stormy Evening, $300.

For Sculpture: Adaline Kent, for head cast in brass, Carita, $400.

Artist Fund Prize:

William A. Gaw, for his oil painting, Gile's Porch, $100.

S. F. Museum of Art Purchase Prize:

William A. Gaw, for Gile's Porch, $300.

Medals of First Award:

Dorsey Taylor, for his mosaic, Jewelry Rock.

Brents Carlton, for his bronze sculpture, Standing Figure.

Honorable Mention:

Jane Berlandina, for her oil painting, Flowers, Still Life.

Raymond Puccinelli, for sculpture, Portrait Head.

The Jury of Award was composed of Gottardo Piazzoni, Chairman, William Hesthal and Robert Howard.

PRAISE SAN FRANCISCO ART ASSOCIATION'S 57TH ANNUAL CRITICISM

by Mildred Rosenthal

THE San Francisco Art Association's 57th Annual, shown at the San Francisco Museum of Art during April, still holds the spotlight of interest. It has been knocked and praised, condemned and enjoyed —and has the distinction of being the means of more discussion than any Annual in years.

Why all this criticism! The jury was confronted with the problem (besides many others) of selecting 150 pictures from 832 entries. It was inevitable that the axe would fall ruthlessly and many names that we take for granted each year were conspicuously absent this one. That many of these names are those of well established painters means nothing. It was entirely consistent with the point of view of the jury, which selected a show that was fairly well related in approach, and that included most of the modern trends that are influencing art today. That some of these trends are unfortunate and many actually bad is beside the point. They are part and parcel of our time and reflect the mental processes that are typical of our generation. Some of the canvasses represented are from the brushes of comparatively young painters and are characteristically cynical, impatient and controversial. Like earnest workers in many other fields these young men and women are desperately trying to find a place for themselves in a world none too sympathetic to their purpose, and it is, indeed, natural that their paintings reflect the social and economic turmoil.

CARITA, BY ADALINE KENT

Awarded Parilia Purchase Prize for Sculpture, 57th Annual, San Francisco Art Association, San Francisco Museum of Art

The Annual, however, had much that was stimulating and fresh (when this word is not interpreted to mean "smart-aleck") and much that was contemplative and fine. The Parilia Purchase Prize, **"Stormy Evening,"** by Theodore Polos was one of the canvasses in the exhibition that really "lives." Painted in a very sombre key, one was not immediately attracted to it, but with each recurring visit to the Annual it grew in importance. Matthew Barnes' **"High Peak"** has all the dramatic intensity that characterizes this artist's work. The accompanying reproduction cannot suggest its vibrant color.

We are sorry that Victor Arnautoff's **"Mother and Child"** could not be included in the illustrations here shown. It is an honest

STORMY EVENING, BY THEODORE C. POLOS

Awarded First Parilia Purchase Prize, 57th Annual, San Francisco Art Association, San Francisco Museum of Art

painting, beautifully handled, and, in our very humble opinion, deserved the Anne Bremer 2nd Prize, rather than **"The Wreck"** by the same artist.

William Gaw's **"Giles Porch"** has subtlety and charm. Awarded the Artist Fund Prize, it was also purchased by the Museum for their permanent collection.

The sculpture was not as strong this year as usual, but there were, nevertheless, some very fine, if small, pieces. Adeline Kent's prize-winning portrait, **"Carita,"** cast in brass, had no rival for first place and Brents Carlton's **"Standing Figure,"** winner of the Medal of Award, is a gem.

A few of the paintings in the exhibition that linger in our memory are **"Railroad Crossing"** by Earl Loran; Moya Del Pino's sympathetically handled **"Mother and Children"**; the poignantly tragic portraits by Allela Cornell; **"Winter"** by Kiyoo Nobuyuki; **"Flower Arrangements"** by Emilie Weinberg and **"Lands End"** by William Hesthal. The exquisite Mosaic by Dorsey Taylor, entitled **"Jewelry Rock,"** which was awarded a "Medal of 1st Award" is also worthy of mention.

The Art Association has reserved the South Gallery of the Museum, as well as all galleries utilized for this year's Annual, for next year's show. This will make provision, in 1938, for the growth of what has become the most important yearly exhibition in the West.

LUMBER DEALERS START HOME MOVEMENT

HOUSE SHORTAGE BECOMES ACUTE IN SOME LOCALITIES

by E. H. Batchelder, Jr.

BUILDING construction, when active, is one of our largest industries, both in the employment of labor and the sale of materials. During the decade of 1920-1929, over fifty billion dollars, or an average of five billion annually, were spent for construction. At the peak, the business reached a volume between seven and eight billion dollars in one year. At that time 42½% was in residence construction, the balance being industrial, commercial, public works and other non-residential units. Too vividly do some of us recall the milk and honey of those days when we paid small heed to the economic fallacies of the times. We thought Utopia had arrived —that we would live in a land of plenty forever.

Then came the drouth. We witnessed our once mighty industry fall to a small fraction of its previous position, when from 1930 to 1935 the new homes built were far from enough to accommodate the families who lost their homes by fire alone, not to mention the homes needed to take care of the increase in population, the creation of new families and the accelerated rate of disrepair and obsolescence which was taking a heavy toll on the 25,000,000 homes in existence at the close of 1930. In cities and small towns everywhere which were once proud of the beauty of their homes, whole neighborhoods were allowed to run down, people forgot the pride which in the past years had done so much to create a high standard of housing conditions in our country and, aggravated by the depression, cramped shabbiness became a matter of unconcern to owner and renter alike.

All our businesses suffered—many of them died—and those of us who survived did so because we were quick to conserve every asset in our possession and worked from 12 to 18 hours a day piloting our ships on a straight course through the storm. The seriousness of the situation existing during that period brought a realization to those occupying high office in our country that no genuine and sustained recovery from the depression would be possible until a decided improvement took place in the construction field, particularly in that part of it which was devoted to the construction of new dwellings and the improvement of those in existence.

The real property inventory was made, and while the figures reported covered only 64 cities they presented a glaring picture of the deplorable condition of millions of homes.

Thanks to the foresight, persistence and courage of some of our leaders, the National Housing Act was passed and the F. H. A. came into existence. It is interesting to note that the year this act was passed, the figures on New

Editor's Note—This paper, from which the accompanying abstracts are made, reflects the view-point of the lumber and building material dealers who are putting forward a united front in a build-a-home-now movement. The talk was before the members of the Illinois Lumber and Material Dealers Association.

Residential Building expenditures released by the F. W. Dodge Corporation for the 37 Eastern States had dropped to $248,840,100, the lowest since the first construction reports have been gathered. With the aid of a better mortgage system, insurance and a time payment plan, plus an active selling campaign on the part of the F. H. A., we saw the residential figures reported from the same source for 1935 mount to $478,843,000, a gain of 92.8% and the figures released during early September of last year show the first 8 months of 1936 to be 71% ahead of the corresponding months in 1935. It is not inconceivable that 1937 will see this mighty industry back on the road to sustained good times with $1,000,000,000 going into new residential construction, and well over $2,000,000,000 for the total of all types of construction including commercial, industrial buildings and public works.

Now I would like to ask the question—"What caused the success of the F. H. A. to date?" I believe the answer to be two things.

1st —It made it possible for the average citizen to obtain money for building to be repaid on a longtime installment basis.

2nd—An excellent promotional and sales program tended to inspire in the minds of the American public the desire to build, remodel and repair their homes.

How much farther we go beyond furnishing the materials needed to build those homes which are so sorely needed and which will be built regardless of whether or not, we, as manufacturers and dealers, urge their purchase, depends almost entirely upon how seriously we look upon the selling task ahead, for we must not forget that the increased tempo of public spending is bringing with it an increased tempo in competitive merchandising and that an improved technique in the methods of selling is being employed by those engaged in competing with us for a larger share of the consumer's dollar; to me this means nothing more or less than that we should take complete stock of ourselves with the thought in mind that everyone of us engaged in selling any part of a home, whether it be material or services, shall join forces and work in a unified and active manner to sell the consumer the idea that home ownership should be the number one item in the family budget.

BUILDING INDUSTRY TODAY REPRESENTS WIDE RANGE OF INDIVIDUAL TRADE

I believe you will agree with me that the so-called "Building Industry" of today is not in reality a complete, unified industry at all, either locally or nationally. It is, rather, a wide range of individual trade, industrial, and professional groups, some manufacturing lumber, some insulation, some electrical equipment, while others act as distributors, operative builders, architects, contractors, real estate developers and lending institutions. To weld all these factors into a selling group, both locally and nationally, and to establish a program of mass selling with every single individual involved, telling the same basic story day in and day out, and making use of all modern means of selling at our command, is the task to be achieved and if we are to prosper in keeping with our opportunity. This task, I believe, can well be broken down into three major parts as follows:

A. We should continue to encourage the removal of previously existing barriers, which made it difficult, if not impossible for the average citizen to obtain finances upon reasonable terms and over a long period for the purpose of building or remodeling a home, and the establishment of methods which would make funds readily available to him for this very worthy purpose, and upon a basis of repayment which he could meet, and above all, on a deferred payment basis which would be in line and take its place with those other obligations in the way of monthly pay-

ments for automobiles, radios, etc., to which he had become accustomed.

Personally, I hope to see the time come soon when the low income group who comprise such a large part of our population will be able to get a 25 or 30 year mortgage on a new home.

B. We should continue to encourage and actively aid the F. H. A. to continue to perform a national advertising and selling campaign of the greatest magnitude in order to tell the American public that financing is readily available on reasonable terms for building purposes, and to use every known national means to inspire the public with the thought and consciousness of the value of providing themselves with adequate and proper housing facilities to the extent that they will sooner or later come to regard this as one of the vital parts of their monthly budget, or in other words, to tell them that money is available for repayment on an installment basis, so that they would be inspired to borrow funds for building purposes.

C. We must become active in creating, in one form or another, an effective and capable selling organization of men to carry on the actual manual sales work necessary to complete the selling job to the consuming public, which the first two parts of this tremendous task outlined above have begun.

As we know, the first part of this task has been fairly adequately performed by Congress with the enactment of the National Housing Act, which, in both sections I and II, made it possible for the first time for the government to underwrite long time loans to the individual citizen at a reasonable interest rate and carrying charge, and it placed the local financial institutions in the community in a position to loan money for building purposes to be repaid on the installment plan.

The second part of the task; namely, that of advertising this golden opportunity to the American public, together with the creation of an inspiration in their minds to build, was very ably started and capably carried forward by the Federal Housing Administration through its various committees and programs, and with the active support and assistance of a number of manufacturers and local distributors, there has been in my opinion, a desire to build created in the minds of a great many million Americans during the past two years. This inspirational movement is well under way, and is gathering force daily, but none of us must abate our own individual efforts in this direction for a single moment. As a matter of fact, there are still a number of factors in the building business who are just awakening to the idea that they should actively take part in the effort to inspire the building idea in the minds of the residents and citizens of their community. Unfortunately, I presume there will be, always, a certain percentage who wait until a movement bids fair to be successful before they climb on the bandwagon and do their part.

It is the third great portion of this task, that is to say, the actual man-power selling organization and the closing of the actual orders, that I desire to discuss at this time. In this connection, I believe it would pay us to take a leaf from the book of the Automobile Manufacturer, and ask ourselves the question "What are the two principal things which have made the public buy automobiles?"

The answer is:

A. The availability of money for these purchases to be repaid on a long-time installment basis.

B. The uniformity and constant repetition of the same sales story on the part of the automobile manufacturers and their dealers to the public.

FOR LUMBER DEALERS IT'S A MATTER OF SELLING THE PROSPECTIVE HOME OWNER

All of us know how well the factors engaged in selling cars have functioned in presenting a similar story to the consumer; it does not matter particularly whether you buy a high priced car in an elaborate showroom from a salesman

dressed in frock coat and spats or a second-hand car from a garage owner in a small town who crawls out from beneath a repair job, wipes the grease off on his overalls and goes into his selling story about the motor, the upholstery, economy of operation, etc.—the story is the same—and this story has been so persistently and uniformly told that most of our 25,000,000 families have come to believe that an automobile two or three years old is a pile of outmoded junk and must be replaced. That the automobile has become the number one item in the monthly budget of most of our families is not to the discredit of the American family's lack of balanced discretion in spending its income; rather it is true that through constant repetition of these basic sales appeals by everyone concerned in selling automobiles that article has established itself in an almost impregnable position as regards the consumer's dollar. It seems to me that the old barriers which in the past made it impossible for us to sell on a sound budget payment basis have been entirely removed from our picture and that the time is ripe for all of us engaged in selling homes to get together and do a selling job.

The financing has now been provided; the inspirational and creative part of the selling job is well under way; the successful carrying forward of the balance of the selling job necessary to the American people and the increasing of building activity to the highest point of all time, must, in my opinion, involve the immediate establishment of organized teamwork of a collective nature. As I visualize it, our team is composed of:

THE DEALER
THE DISTRIBUTOR
THE CONTRACTOR
THE ARCHITECT
THE BUILDER
THE MANUFACTURER

These people are all salesmen in this great cause, endeavoring to sell the American public. In reality they compose a great sales department, striving to reach one goal, that is, a gigantic American building movement.

These elements combined in their own communities can form a great team, and, in fact, there is no other American public institution today, to my knowledge, which can present so many formidable and appealing sales facts in behalf of any one selling mission to the public. Think this over!—The automobile and radio industries have two selling agencies to do their selling job to the public so far as manpower is concerned; these are the manufacturers and the dealers. In the building field we have both of those sales organizations, plus the architect, the contractor, and the builder, or, in other words, we have five potential sales types as against their two, and if these five can just be harnessed into a unified effort, we ought to be able to show these other industries "cards and spades" when it comes to participating in Mr. Consumer's monthly budget. And so we have here the elements of a great team, but the next and all important question is whether they are to continue to perform as individual stars—every man for himself or whether they are to be guided into the high degree of teamwork, which always out-strips individual performance no matter how stellar that might be. Such a team in the community, or for that matter, nationally, would operate uniformly day in and day out on the same set of signals, using the same selling methods, telling the same sales story, and thus, the very force of this endless and countless repetition would sway the public into actual building, even as similar tactics swayed them at the time of the World War to purchase Liberty Loan Bonds. Contrast this type of uniform organized selling efforts with the scattered efforts of any one of us using our own single-handed, individualistic ideas to accomplish this mass objective.

How can this be accomplished? First—it is necessary that we organize the mass of manufacturers, distributors, profession and service elements in the building industry into a team and that a program be established which will enable every selling factor in the business to

tell a unified, well planned and programmed story.

THE DEALER
THE DISTRIBUTOR
THE ARCHITECT
THE CONTRACTOR
THE BUILDER
THE MANUFACTURER

must all realize fully that they are playing a salesman's part in selling the building movement in detail to the American public, and we all must eliminate from our relationships with each other the buyer and seller attitude, and look upon each other as partners in an enterprise.

BUILD OR MODERNIZE IS STILL THE SLOGAN OF COMBINED BUILDING INTERESTS

Second—the F. H. A. have given us a sales motto or slogan to use in our daily contacts with the public, and this message of "BUILD OR MODERNIZE" has been and still is being carried far and wide. If all sellling factors will make it a point to use the exact language of the principal F. H. A. mottos and slogans in their daily discourse with the consuming public, it will insure the delivery of the message in the most appealing manner, because we must not forget that these leading headliners were carefully planned and programmed before they made their public appearance.

Third—Congress and the F. H. A. developed the finance plan which enables a member of the public to borrow funds on a reasonable basis for building purposes. The story to the public covering the manner in which he can figure his job is brief, concise, and understandable, if the exact language used by the F. H. A. to describe this is memorized and repeated by all of us, rather than to coin and relate our own version of it. In addition to this, the story should also be supplemented with the vigorous statement that it is a monthly installment plan, the same as they have been using for years to pay for their automobiles, radios, house rent, etc.

Fourth—The three weapons outlined above are already prepared and in our hands. They can be classed as the doctrine of our selling team, and it is very simple to use them in their exact language as our banners.

Fifth—Most of the national building material manufacturers are carrying forward extremely well-planned campaigns of space for advertising, literature, specifications, and other selling helps which are based principally upon the F. H. A. slogan of "BUILD OR MODERNIZE," but in addition a large number of these sales mediums actually tell a concrete story as to the type of building; the type of construction and application; the proper usage of designated materials; the comforts and values to be derived from the finished building. Most of these efforts have been wisely and carefully prepared and explained, and put in language which is readily understandable. Every one of the selling factors in this business should carefully study and absorb the actual story which these things tell so that this same message in its carefully planned form can be communicated to the consuming public day in and day out without modification or confusion. Equally important, everyone of these factors must use these sales helps in the exact way they are recommended by the manufacturers; otherwise, the careful planning which originated them is likely to go for naught. Incidentally, whenever any of us fail to include in our envelopes an appropriate stuffer or leaflet provided by a manufacturer we are failing to perform one of the basic necessities of successful merchandising, and are likewise failing to get our money's worth out of our postage stamp.

Sixth—A number of the manufacturers are holding programmed educational meetings with dealer and distributor organizations, and these should be encouraged and faithfully attended to the end that these two selling factors are similarly educated and equipped to tell an identical story to the public.

Seventh—Certain manufacturers are also sponsoring promotional and educational meetings in local communities attended by dealers, distributors, architects, contractors and build-

ers. These should continue on a greater and more effective scale, and the definite programmes thus laid out will sooner or later result in a similarity in thinking and talking, which will be based on the continuity and similarity. The local dealers can play a big part in arranging and programming these meetings, and in insisting upon the attendance of other selling factors in their communities such as the architects, contractors, and builders. (The nominal expense of these meetings will return manyfold and oftimes immediately. At a number of recent meetings of this character sponsored by our own company, the results have been very remarkable and the different factors went from the meetings imbued with an effective and uniform selling story for the job).

Eighth—Regardless of the manufacturer, the local selling factors in a community, beginning with the dealer and including the architect and builder, should get together in meetings off and on currently to establish identical selling and sales stories so that all of them will be giving the public the same message in the same emphatic language. This course of action does not in any way sacrifice initiative or ability, but, on the contrary, it adds a much greater force to these qualities than they enjoy themselves.

Ninth—The local selling factors as well as the manufacturers should establish methods for promptly and properly figuring bills of material for individual home units. Some of these methods are available through retail dealer associations and some from manufacturers. (As an illustration, our own company has issued a series of LOW COST HOUSING FOLDERS which are of considerable aid to all of the selling factors in the industry in this connection.)

Tenth—If these selling teams, involving the factors I have mentioned, can be formed in every community, then ultimately we will have a national sales organization, composed of the dealer, the distributor, the architect, the contractor, the builder, and manufacturer, whose program and whose weight in numbers will accomplish a selling job to the American public such as has never been known before.

The experience of home ownership is unparalled in the privilege of possession. It changes the whole outlook of men and women and creates a community consciousness which no other thing in life will bestow. Adequate and comfortable shelter is certainly important enough to occupy the first place in the family budget, and a vast market for our materials and services can be stimulated to a degree of responsiveness unequaled in the whole history of construction activities once we learn that the way for us to approach it is on the basis of the all for one and one for all idea.

HOME DESIGN

(Concluded from Page 37)

relatively difficult to develop the motor car, for the motor itself does not look like a horse, although the passenger part still slightly resembles the carriage. What we expect of the house, however, has not changed enough, except in an intellectual way, to have radically changed its appearance.

And an accepted appearance of things is the cause of sentimental attachment.

It would have been extremely easy to have painted a Wellsian portrait of the modern house, but looking at the prospects we may say that what the modern house will look like is difficult to foretell. But this we can say: It does not seem possible that a culture can continue to straddle as much as ours does on the question of design. The two streams must come together to achieve a unity which we will agree is desirable. All other design trends, save the house itself, seem now to be in a stream of natural development. It does not take much thought to anticipate a notable change in the appearance and quality of houses of the next decade.

AIR CONDITIONING IN THE HOME

HEATING, FILTERING, HUMIDITY CONTROL, AT NORMAL COST

by Jas. R. Ferguson

HOME-BUILDERS and remodelers interested in air-conditioning should not be confused by the mass of conflicting data devoted to this subject. In reality, air-conditioning is a fairly simple matter and is not a new discovery, having been successfully used for many years in large public buildings such as theaters and auditoriums. Now, it may be practical and economically applied to residences of any size, involving slight additional expense over ordinary heating.

Air-conditioing begins with the idea that for greatest comfort and health, heating in winter is not sufficient. Air inside the home must at all times be **cleaned** and, if necessary, **humidified** to give the most healthful atmosphere. In addition, it must be **circulated** so that a constantly fresh supply of tempered air is moving through the house. Thus, winter air-conditioning is nothing more than the most modern, up-to-date form of heating.

Summer air-conditioning means the cleaning and cooling of warm, dry air and forcing it through the house. In most California communities, cooling by mechanical means is not a major consideration. In the Coast cities, however, control of humidity, by removal of excess moisture from the air during hot seasons, is a great relief to sufferers from sinus and other such ailments.

Following then, are the factors of air-conditioning:

For winter only—heating, humidifying, cleaning, circulating.

For summer only—cooling, dehumidifying, cleaning, circulating.

The advantages of air-conditioning cannot be realized without complete automatic control of these operations. For this reason, gas heating equipment is being most widely used as the basis for year-around conditioning of the air. Its even supply, cleanliness, low cost and adaptability to automatic control make gas fuel most applicable to any function of this kind requiring precision of operation.

In California, three types of gas heating equipment are being efficiently used for year-around air-conditioning. These are the warm air basement furnace, the cabinet or unit type furnace, and the floor furnace. These vary in capacity, and their selection naturally depends upon the size of the house and facilities for installing equipment. All three have one feature in common: treated air is **forced** through the house to provide constant circulation.

The central warm air gas furnace is installed in the basement, with supply ducts leading to each room and return ducts leading back to the furnace. Incoming air is drawn through a fan and blower unit which begins the circulation. The air is first passed through a filter,

removing 85% of dirt, dust and other impurities. If additional humidity is desired, the air then passes through a thin water spray. Finally, it is warmed by passing over the gas heating element, and forced on its way through the house.

Automatic control may be applied to all of these winter heating functions. A clock control will start and stop the furnace at the times for which it is set. The humidistat regulates the amount of moisture in the heated air. Temperature is governed by thermostatic control.

In summer, the furnace operates essentially the same, except that heating is not used. Outside air is filtered and then passed through a cooling system and dehumidifying unit, if this is essential. As previously stated, cooling is not widely used in California, whereas dehumidifying is often advisable. In any event, a fresh supply of cleaned outside air may easily be secured whenever desired, by the simple turn of a switch.

For new installations, central warm air gas furnaces, with air-conditioning facilities, are available in compact units which occupy little basement space. However, nearly any gas furnace already in use may be equipped with facilities for air cleaning, forced circulation and humidity control. Costs are being lowered to the point where heating is actually incomplete without these functions. For example, with a gas warm air furnace costing $200, air cleaning and humidity control may be added for as little as 35% additional. Operating costs of the newer furnaces are considerably less than those of old-fashioned heating systems, due to better design and more effective use of fuel.

The cabinet type gas furnace, now popular in California, is designed for homes without basements. It may be installed anywhere in the house—back porch, kitchen or closet. It operates much the same as the basement warm air furnace and has the same automatic features. Cleaning, humidity control, heating and forced circulation are all combined in a highly compact unit which operates without any mechanical noises.

Summer ventilation, with the cabinet type air-conditioner, is secured by merely turning a switch installed with the room thermostat. By this means, outside air is passed through the cabinet without being heated, and circulated through the house in a fresh supply.

The gas air-conditioning floor furnace is a recently perfected appliance of high efficiency. Its principal advantage is that it may be installed at the floor level anywhere in the house, with ducts leading to the various rooms. Cleaning, heating and forced circulation of air are secured in this simple apparatus. By installing mechanical type cooling coils in the cold air duct, complete air-conditioning is obtained: heating, filtering, humidity control and cooling.

It is evident from the foregoing that a better distribution of clean air, heated or cool, is the outstanding advantage of modern "air conditioning." It means a home free from dust, with cleaner furniture and floors. More important still, it is a contribution to greater health and comfort. Nose and throat ailments, scourges to both adults and children, are caused mainly by dust particles in the air and incorrect humidity. While temperatures have received most of our attention in the past, we now realize that cleanliness and humidity of the air we breathe are just as important. With modern appliances, they are just as easily regulated.

There is a wide variety of gas heaters and air-conditioners to fit the requirements of every home, regardless of its design or size. Builders and remodelers should be certain of competent advice in providing facilities adequate for both present and future needs.

SECTION OF FIGUEROA STREET VIADUCT, LOS ANGELES

FIGUEROA STREET VIADUCT, LOS ANGELES

by Paul R. Watson, C. E.

THE Figueroa Street Viaduct, Los Angeles, which will give that city an additional through traffic highway to the north, thereby relieving congestion on North Broadway, is rapidly nearing completion. Figueroa Street is one of the main north and south arterials in the city and consequently was the logical street to be extended. A barrier formed by the Elysian Park hills and the Los Angeles River made this undertaking very expensive. However, the project has been carried forward one step at a time as State funds became available.

The first step was taken in 1928 when plans were ordered for the first tunnel under Elysian Park. The final or fourth tunnel under the Elysian hills was recently completed. The final barrier is the Los Angeles River and the Southern Pacific tracks over which the Figueroa Street Viaduct is now being constructed.

The viaduct project is the largest one in the southern part of the State to be financed from funds set aside by the Federal government for grade crossing elimination. It is being constructed under the supervision of the Bridge Department, of the State Division of Highways, by the Clinton Construction Company of San Francisco and Los Angeles. Plans for the structure were prepared jointly by the bridge engineers of the city of Los Angeles and the State. The work when completed will cost $625,000.

The structure is a northerly extension of Figueroa Street on a direct line with the four tunnels under Elysian Park hills. It crosses the tracks of the Southern Pacific Railroad which

HUGE STEEL AND CONCRETE VIADUCT SPANS TW(

Center span—200 feet long—is one of the largest plate girder spar four feet thick at center an

occupy both banks of the Los Angeles River. It also crosses the Los Angeles River, San Fernando Road, and the street car tracks of the Los Angeles Railway Company on said road.

The project includes the construction of the viaduct proper; the construction of 850 feet of roadway embankment and pavement to make connection with Figueroa Street at Avenue 22, north of the river; the building of a retaining wall along the embankment on the westerly side of the approach; the construction of 700 lineal feet of slope paving along the westerly bank of the Arroyo Seco, and the construction of a southerly connection to the tunnel road under Elysian Park.

In connection with the construction of the viaduct pier footings, it was necessary to relocate a large sewer pipe which parallels the structure, relocate various public utilities on San Fernando Road, and to temporarily relocate various tracks of the Southern Pacific Railroad which interfered with the foundation work.

The northerly approach to the viaduct is 74 feet wide between curbs, with 5-foot sidewalks on both sides. The width of the structure is 44 feet between curbs, plus sidewalks.

The viaduct consists of five continuous reinforced concrete girder spans, and three continuous steel plate girder spans, all resting on concrete piers and abutments which are skewed to meet the existing conditions. The south abutment parallels the tracks of the Southern Pacific Railroad. Piers on each side

—Courtesy California Highways and Public Works

RAILROADS, RIVER AND HIGHWAY IN LOS ANGELES

n the world — reinforced concrete spans are supported by girders seven feet at haunches

of the Los Angeles River parallel its course at the site, and the tracks of the Southern Pacific on the north bank. The north abutment and north pier parallel San Fernando Road.

The concrete span over San Fernando Road and the Los Angeles Railway tracks has a clearance of 22 feet. The roadway at San Fernando Road is 27 feet above the street. The viaduct is on an easy two and one-quarter per cent ascending grade in a southerly direction to meet existing highway through the tunnels. The roadway is approximately 51 feet above the Southern Pacific tracks near the mouth of the tunnel. The center of the 200-foot span over the river roadway is approximately 72 feet above the stream bed.

Reinforced concrete spans are supported by four girders with curved soffits which have the appearance of flat arches. Girders vary from about 4 feet in thickness at the center of the span to 7 feet thickness at the haunches. Over the Los Angeles River and the Southern Pacific tracks there are three structural steel plate girder spans of variable length.

The center span over the Los Angeles River is 200 feet in length and is one of the longest plate girder spans in the country. The other two steel spans are 104 and 127 feet in length respectively. The steel girders like the concrete girders also have curved soffits.

The design of the steel girders is somewhat unusual. The ordinary plate girder has a single web plate, flange angles, and cover plates. In the construction of the viaduct girders double web plates were used with a filler plate between.

ARCHITECTURAL SERVICE FOR SMALL HOUSES

INSTITUTE HOUSING COMMITTEE ISSUES QUESTIONNAIRE

ONE of the chief comments of European visitors to America, with respect to housing, has been its excessive cost and they point out the danger to the architectural profession which may arise by combinations of capital and manufacturers, looking toward a solution on a large scale housing construction approach where the architect may be left out of the picture and the work done by architectural organizations within such combinations.

A particular case in point was the attack on the Architects' Registration Law at a public hearing in the Ohio Legislature on March 19, 1937, where the National Association of Lumber Dealers insisted that no restriction be placed on the size of a house requiring architectural service. Their chief argument was that the architects were not contributing to the solution of the problem and were in no way prepared at the present time to solve it. Some of the statements made were very harsh in their criticism of the profession.

Appearing, also, at the hearing in opposition to the amendments to the registration law was the president of the National Plan Service Association of New York, which organization is apparently collaborating with the lumber industry to put the lumber dealers into the architectural business.

Further than that, Collier's Magazine, in an issue of April 3, prints an article, entitled "Collier's $7,500 House." At the end of the article, on page 55, is the offer of a set of complete working drawings and specifications with additional material at a total cost of $3.

The Architects Must Decide

Some of the large industrial organizations in the middle west are very definitely pointing their activities toward low-cost housing and whether or not they recognize the architects as a part of this movement depends largely on the architects.

It is not a question of whether or not the ideal solution is service by the individual architect to the individual client on the basis of what we call a standard fee. It is a question of how we can approach the problem to extend the service of the profession beyond the very meagre limits in which it now operates. The problem is far too important for the profession itself to become embroiled in an argument as to whether group service or individual service is the answer. It is a question of educating ourselves first. The education of the public will follow.

There has been recently published a book called "Without Benefit of Architect," by Frazier Forman Peters, the author of "Houses of Stone." Mr. Peters is a registered architect.

In a statement issued with the publication of the book, we find the following:

"About two per cent of the American people acquire their homes with the assistance of an architect; the other ninety-eight per cent acquire them either from previous owners or in speculative developments or by building for themselves from stock plans with a contractor or hired help.

"Mr. Peters, a registered architect himself, neither approves nor condones the practice of doing without the services of an architect. However, he believes it his professional obligation to be of service to people of moderate means who must go ahead without professional service, and in this book he gives generously of his wide experience to the end that their homes may be well built and permanently secure."

Quoting from the introduction by Mr. Peters, we find the following:

"During the next few years, hundreds of thousands of Americans are going to buy or build homes without the aid or counsel of an architect — 'without benefit of architect.' Armed with a few minor facts gleaned from not over-honest nor disinterested advertisements, they are going to appraise their intended purchases or write a specification and contract.

"Armed with top-heavy information, they are going to buy a top-heavy house; it may have no foundation, or be nailed on every fifth stud, but it will have brass pipe, insulation and an air-conditioning system of sorts."

* * * *

In the preparation of the final report of the Committee on Housing of the American Institute of Architects, each member of the committee has been asked to give his general opinions regarding the problem of continuing the attack on the barriers to architectural service by a thorough-going examination of the defects in the present system, and by co-operation with government and industry. Each member of the Institute is now asked to do the same thing.

Questions to Be Answered

In connection with the continued study of this problem, a series of questions recently asked by a committee studying the field of medicine are given below, the only change being the substitution of the word "architect" for "doctor" and the word "architecture" for "medicine."

There is a close parallel between the two professions with reference to scope and necessity for internal investigation.

The questions follow:

(1) Is radical change needed in the present organization of architectural service?

(2) What is adequate architectural service?

(3) What is meant by available?

(4) Are there practical ways of reducing present costs of architectural service?

(5) Is the public really demanding modern scientific architectural service of high grade?

(6) If it were available now to all would half the population still prefer quacks?

(7) How far in the world as at present organized can the individual citizen be responsible for his own home?

(8) Where does Government enter the picture?

(9) Should Government concern be confined to the lack of decent homes of the indigent and low-income group, or should Government promote such service for the whole population?

(10) Is improving architectural education and the personnel of the architectural profession the first step in improving the organization and distribution of architectural service?

(11) Can an individual architect really furnish scientific service alone, or are organized laboratory and consultative assistance an absolute necessity?

(12) In the architecture of the future will the practitioner function as an individual or as a member of a group?

(13) Is there too much specialization?

(14) What is the present status of the individual architect?

(15) Is he passing or is a new version of him just coming into being?

(16) Is the individual architect-client relation an absolute sentimentality or has it a practical value in modern architecture?

(17) How can higher standards of architecture be achieved?

(18) Should the United States have a ministry of construction and set up a Federal department of construction in the President's Cabinet?

(19) Which, if any, of the following is the answer to the present problem: the status quo; group service; thorough-going state service; evolutionary increase in Governmental authority and functioning, integrated with private practice?

The practice of architecture is becoming so bound up with social and economic problems that it cannot be analyzed except in its relation to these problems.

It is proposed that the report of the Institute Committee on Housing shall not be a declaration of final conclusions, but that it shall be a statement of the case as it is—with suggestions and a program for investigation and action.

Architect Must Be Considered in Meeting the Small House Shortage

THE American Institute of Architects, in collaboration with the Federal Home Loan Board and the Federal Housing Administration, has developed a plan to enlist the nation's architects in meeting a housing shortage which, it is conservatively estimated, will involve an expenditure of $12,000,000,000 in the next decade. Provision is made for a simplified mass service, governed by modified fees, with no lowering of professional standards.

"The objective of this program is to make a definite start toward the solution of the small house problem, find a common ground upon which the architect, lender and builder can unite with government agencies in a wise forward movement," explains Walter R. McCornack, chairman of the Institute's Committee on Housing.

"The trend is toward group development in housing. If the architects continue to ignore the single house and its owner, who too often is the victim of unregulated agencies operating on a basis of self-interest, the architect will be forgotten when housing developments come. We spend a lot of time trying to eliminate government architectural agencies after they are created. This affords us an opportunity to prevent the formation of more of them.

"If the small house problem is solved to the advantage of the small house owner the architectural profession will find itself in a dominating position in the home building field and will never again be found on the defensive with governmental agencies, speculative builders or entrenched plan-book services which supply good, bad and indifferent drawings, specifications and supervision through material dealers and builders without regard to the requirements of the individual or the community."

The chief reason why architects should be interested in the small house problem, according to Mr. McCornack, is that "the practice of architecture is a profession, and the architects, having dedicated themselves to their profession, have no right to run out on the American people. It is the duty of the architectural profession to safeguard home investment by working out methods of supplying adequate drawings, specifications and supervision for any and all persons desiring to build a home."

A housing shortage is approaching, says Mr. McCornack, pointing out that the lowest estimate found in the records as to the amount of housing needed is 400,000 dwelling units per year for the next ten years, or a total of 4,000,000 units.

An estimated average construction cost of $3,000 per unit is assumed. This means a yearly expenditure of $1,200,000,000 or $12,000,000,000 for the next ten years.

"Let us assume that private architects would provide full service for one-half of this program at fees ranging from 6 per cent to 10 per cent. This applies to the single house—where no repetitive plans, standard details and specifications, and centralized supersupervision by a centralized office.

"The field that architects are especially interested in is that half of this large housing program in which the architect has had little or no part. This covers the field of multiple houses, and a service to low income home owners where repetitive plans, standard details and specifications, and centralized supervision can be employed by individual architects or by groups.

"This estimated program amounts to $600,000,000 yearly, and $6,000,000,000 for ten years. This amounts to 200,000 dwelling units yearly and 2,000,000 units for ten years. At an average modified service fee of $100 per $3,000 unit, this amounts to $20,000,000 yearly in architects' fees, and $200,000,000 for ten years in architects' fees. If there are 10,000 architects participating this amounts to $2,000 yearly for each one. If there are 5,000 architects participating this amounts to $4,000 yearly for each one.

"The public must not be given the impression that modified service is in any way a lowering of the professional standard. Quite the contrary. The service which it is believed should be evolved should operate on the principle that was a part and parcel of the PWA housing program, for which the architects received modified fees—based on standardization in plan; standardization in details and specifications; and vision are possible.

"This basic principle is adaptable for use by groups or by individual architects. It is quite reasonable to use repetitive plans. That is exactly what would happen in a large scale development of small houses, let us say 500 or 1,000. Relatively few plans skillfully arranged on the site would be better in the low cost home field than many varying designs.

"Standard specifications and details developed by experienced men are entirely logical, and supervision by a centralized agency of able inspectors will insure the owner of protection which is usually lacking in the small house field. This is not partial service; it is a modified service. It is simplified mass service for which a lower fee is reasonable."

Mr. McCornack has appealed to the sixty-eight Chapters of the Institute throughout the country to cooperate with the Federal Housing Administration and Federal Home Loan Board in working with lending agencies "to insure home owners proper drawings, specifications and supervision for the purpose of protecting home values."

ARCHITECTS' BULLETIN

Issued For

THE STATE ASSOCIATION OF CALIFORNIA ARCHITECTS

Northern Section

STATE ASSOCIATION MEMBER
OF THE
AMERICAN INSTITUTE OF ARCHITECTS

Editor
Harris C. Allen

Address all communications for publication in the Bulletin to the Editor (Harris C. Allen) 557 Market Street, Room 218, San Francisco, California.

Architects and Engineers Dine and Wine Together

ON TUESDAY night, May 4, the Structural Engineers' Association arranged a dinner for engineers and architects at the Engineers' Club, which went off according to schedule in spite of the strike which brought confusion to so many gatherings planned at this time in the major hotels. The dinner was a great success, particularly in the pleasant fraternalization of the architects and engineers who were present in approximately even numbers. Most of the men who take an active part in their respective professional betterment organizations were present, and found each other agreeable dinner companions. There was not much moaning over the shortcomings of either profession or of individuals, although there were some who could not forget their rivalry and missed the splendid opportunity by herding together and arguing their prejudices at the very time when they should have learned how unfounded they are.

Architects are naturally individualists who find it very difficult to appreciate the characters of others whose attitude differs from theirs. They find it equally difficult to join with members of their own profession, or those of another group, for concerted action. Surely there are many smaller things in which they can agree with other men and gradually by making reforms generally they will find that their object has been achieved without a great amount of conflict.

TALK BY W. P. DAY

A feature of the evening was the interesting talk on the 1939 Exposition by Will P. Day, vice-president and director of works. Mr. Day said in substance:

"Each one of us knows in a general way of the various features that go to make up a reasonably large city. I refer to buildings, streets, pavements, sidewalks, water supply, light and power, sanitation, drainage, etc. If you will picture a city of some 300,000 inhabitants, all laid out with the conveniences that I have just covered, you will have a mental picture of the problem that confronts the Exposition Company.

"The first operation in connection with the construction of the Exposition was, of course, the making of the fill on this area. When complete, this area will be something over 400 acres. It is more than 5,500 feet long—that is, from the southerly line to the northerly line, and 3,400 feet wide from the west to the east. The filling operations are almost completed—that is, they will be within perhaps three months. The nature of the operations necessary for construction of this character are such that subsidence of the material after it is in place is expected, and in this case actually has occurred, and is still occurring. Provision has been made in the structures that are now under way for such subsidence.

PROGRESS TO DATE

"In order to give you a picture of what has been done at the site, I will point out first those buildings which will become permanent structures for the future Airport. There are three of these — the two

hangars, and the Administration Building. The hangars are 300 feet long by 240 feet wide. They are made of structural steel and reinforced concrete, and are supported on piles approximately 70 feet long. The Administration Building, which will be the Airport Terminal Building, is a reinforced concrete structure, likewise supported on piles

"There will be two principal axes, you might say three principal axes of the Exposition palaces. The palaces themselves will extend northerly a distance of almost 3,000 feet. There will be palaces on either side of this axis, and at right angles to this axis there will be palaces extending from the westerly wall over toward the lagoon. The point of intersection of those two axes is approximately at that point circumscribed by the present railroad tracks. Thereon will be erected a tower almost 400 feet high, which will command, or at least be a major element of the Exposition buildings. The third axis will extend in an east-west direction from the ferry slips on the westerly line, and one ferry slip on the easterly line. The three on the westerly line will take care of ferry boats from San Francisco. That on the easterly line will take care of ferry boats from the East Bay. Ferries will be able to handle approximately 40,000 people per hour.

VAST PARKING AREA

"The area to the north, approximately 80 acres in extent, will be used as a parking area. Approximately 12,000 automobiles may be parked in the area, and will be reached by a road passing up the west side of the fill. Plans and specifications have been prepared for the water supply system to the Exposition, and this work is just about to start. Water from the Hetch Hetchy system will be received at a point on the Embarcadero in a pump house, pumped into a pipe which will traverse the San San Francisco-Oakland Bay Bridge to Yerba Buena Island, and will terminate in a reservoir which is about to be constructed on the Island. This reservoir will be a huge bath tub hewn out of rock, and will be capable of holding three million gallons. A supply pipe will extend from the reservoir down the island across the causeway, which is a strip of land between the island and the shoal fill, at which point it will be distributed to the various palaces and other buildings on the site. The reservoir is at such an elevation that there will be available what is known technically as a high pressure fire system; that is, the height of it is such that the pressure will be sufficient for fire-fighting purposes to preclude the necessity of fire engine or pumpers on the island. There will, of course, be hose carts and hook and ladder equipment. In my judgment, there will be one of the best fire-fighting pieces of equipment that any Exposition has ever had.

"It is necessary, of course, to prepare sanitation, drainage, sewage, domestic water supply. Plans are being prepared now for these purposes, and within a short time construction on these utilities will begin. The sewer system will discharge into the bay at a point some 1500 feet off of the northeasterly corner of the fill. A reservoir will be built to hold three million gallons of water.

ROAD WORK PLANNED

"Up to the present time it has been more or less difficult for men and trucks to move around through the sand. It is our intention now to build construction roads for the purpose of moving materials more handily, and these construction roads will be so located as to become part of the finished avenues and pavements of the Exposition. Roads connecting the Transbay Bridge to Yerba Buena Island are designed in such a way that there will be no cross traffic—one permanent road and one supplemental road.

"Whilst this work is going on at the site, an enormous amount of work has been done in the way of obtaining trees, plants and shrubs for the horticultural development on the site. A nursery has been constructed in Balboa Park in San Francisco, and thousands and thousands of trees, plants and shrubs have been collected and are being propagated, preparatory to transmission to the Exposition grounds. It is my belief that the horticultural display will even exceed that of the 1915 Exposition. We intend to spend about a million and three-quarters dollars for horticultural work.

"There is less than two years remaining to create this city in the middle of the Bay, but we have every confidence that it will be ready on the proposed date of opening, and I predict that hundreds of thousands of people will have roamed the reclaimed area two years from now."

LEGAL MATTERS

As the Legislative season draws to a close the emphasis of the Association office moves toward the daily activity of the architect rather than the Laws under which he works. The office for some years has printed for its members forms for Certificate of Payment and Supplement to Contract (Change Orders), for which there has been a considerable demand. As the stock of the present edition is being depleted it is suggested that they be re-edited. There are many who use them who have from time to time made valuable suggestions for the improvement of these forms. It is now a good time for them to submit these suggestions in writing so that they may be carefully considered by Henry C. Collins who is to take charge of this work.

STORE AND LOFT BUILDING

A. A. Cantin is architect of a two-story frame store and loft building to be built at Sutter and Steiner Streets, San Francisco, for A. C. Sweigert, for $15,000. Mr. Cantin has also completed plans for rebuilding the Milano Theater on Powell Street, San Francisco, recently damaged by fire; also bids have been taken by the same architect for remodeling the Fox U. C. Theater, University Avenue, Berkeley.

PERSONAL

Douglas Dacre Stone and **J. Charles Lee** have formed a partnership for the practice of architecture, with offices at Bush and Kearny Streets, San Francisco.

James S. Arnot, formerly with the architectural bureau of the Bank of America, San Francisco, has opened an office at 315 Brix Building, Fresno. He desires trade catalogues and building material samples and literature.

John Little, structural engineer in the San Francisco Building Bureau since 1916, has been appointed superintendent of the bureau to fill the vacancy caused by the death of Erle L. Cope, who had been in charge of the bureau since the retirement of John B. Leonard two and a half years ago.

William Mooser, Jr., has been appointed director of the Works Progress Administration for San Francisco, being promoted to the post from the position of assistant director. He has been connected with the WPA since 1935.

Francis H. Fassett, architect, has moved his office to 615 Miller Building, Yakima, Washington. Associated with him is **H. D. Gochnour.**

John S. Hudson, veteran Seattle architect and recently a member of the Seattle Eminent Domain Commission, recently opened an office for the practice of architecture at 732 Republic Building, Seattle.

Alvin S. Erickson, architect, who has practiced for several years at Wenatchee, Washington, has opened an office at 412 Hodges Building, Hewitt and Rockefeller Avenues.

Charles V. Rueger, Tacoma architect, and his associate and brother, **Clarence R. Rueger,** have moved from 249 Tacoma Avenue South to 1322 Puget Sound Bank Building, Tacoma.

Kenneth M. Saunders of Los Angeles, and **Herman O. Ruhnau** of Riverside, announce they have formed a partnership and will maintain an office at 3484 Jackson Street, Riverside. Mr. Saunders is also associated with his father, W. J. Saunders, architect, with offices at 785 East Pico Street, Los Angeles.

RADIATION LABORATORY BUILDING

Harry A. Thomsen, Jr., 315 Montgomery Street, San Francisco, is preparing working drawings for a one-story reinforced concrete radiation laboratory building to be built on the Campus of the University of California, Berkeley, at a cost of $100,000.

Architects Chapters

NORTHERN CALIFORNIA CHAPTER

The regular monthly meeting of Northern California Chapter, A. I. A., was held at the Hotel Stewart, San Francisco, at 6:30 p. m., Tuesday, March 30.

Those present were: William Ambrose, John Bakewell, Jr., John K. Branner, Morris M. Bruce, Will G. Corlett, Albert J. Evers, Edward L. Frick, Henry H. Gutterson, Wayne S. Hertzka, Ellsworth E. Johnson, Thomas J. Kent, Lawrence A. Kruse, Frederick H. Meyer, Harry M. Michelsen, James H. Mitchell, Irving F. Morrow, Gwynn Officer, Warren C. Perry, John Davis Young.

The meeting was conducted by Will G. Corlett, president.

Francis P. Watts sang a group of songs accompanied by Mary Munn. This was not his first appearance before the Chapter, and the hearty applause was indication that the members hoped he would be with them again.

Butler S. Sturtevant, Member of the American Society of Landscape Architects, gave a talk on European gardens, illustrated by some fine lantern slide views in color. Spanish, Italian, French and English garden scenes were shown in sequence during which the speaker dwelt upon the basic principles embraced in the garden design of each country and their application to American gardens.

The clarity with which Mr. Sturtevant presented his subject left definitely with the members a fine understanding of the fundamental differences in the garden structure of each country.—J. H. M.

SOUTHERN CALIFORNIA CHAPTER

Thomas Jefferson's influence on the development of architecture in the United States, was the theme of an address by Paul Robinson Hunter at the monthly meeting of Southern California Chapter, The American Institute of Architects, held at the University Club in Los Angeles, April 13.

Mr. Hunter's remarks were confined principally to a few unfamiliar anecdotes dealing with Thomas Jefferson's architectural experience, which had its inception in the design of his home, Monticello, and culminated in the design of the University of Virginia buildings. He was reputedly a fine draftsman, had a good sense of proportion and developed many ingenious devices for the interiors of buildings. During Mr. Jefferson's term of office as president of the United States, he designed many buildings for friends, but never collected a fee for his work.

Proposed low-cost housing legislation, now pending, was reported on by Eugene Weston, Jr., who outlined plans that may be used in the development of this type of housing.

S. B. Marston, chairman of the committee on by-

laws, made a preliminary report on proposed changes to Chapter by-laws and recommendations his committee has made about these changes.

Ralph Flewelling, who presided, introduced William Templeton Johnson, a member of the San Diego Chapter, and his son, Winthrop T. Johnson, an attorney. Other guests introduced were Ralph Cornell and Tommy Tomson, landscape architects; Alfred J. Grimes of the Vermont Marble Company; H. D. Smith of the Otis Elevator Company; Edward B. Rybolt, Henry L. Eggers and Donn Emmons.

WASHINGTON STATE CHAPTER

The Seattle city building code was discussed by Harry E. Fowler, assistant building superintendent and chief building inspector of Seattle, before the members of the Washington State Chapter, A. I. A., at the monthly dinner meeting, April 1. Henry J. Olschewsky, architect and faculty member, University of Washington, gave a talk on water colors. There was on display an exhibit of problems, projects and sketches from the School of Architecture, University of Washington.

ARCHITECTS SPONSOR BUILDING UNITS

A movement has been started by the American Institute of Architects, headed by William Stanley Parker, of Boston, to set up in every community in the country a building council in which builders, architects, labor interests and material dealers of the immediate locality will meet and discuss problems peculiar to the area. The sixty-eight Chapters of the Institute functioning in regional centers of the country have been enrolled in the movement, which emanated from the Committee on Construction Industry Relations, William Orr Ludlow, vice-chairman. This movement was advocated some time ago by Mr. Ludlow, but for some reason it did not make progress. This time there is reason to believe that the movement, which also aims to lift government coercion and raise the industry to a new level, will be taken up in every center in the sixty-eight Chapter regions of the Institute.

A declaration issued to each Chapter by Mr. Ludlow's committee contains the following summary of purposes:

"Let the construction industry take the responsibility of running its own affairs.

"Let every community set up its own construction industry organization, comprising all of the elements of the industry.

"Let it be the first duty of such organizations to agree on principles and draw up a code of ethics and a code of practice.

"Let every man in the industry realize that he will succeed in the same measure as the industry succeeds and the industry will succeed in so far as its practice is built on honesty and fair dealing.

"A determined effort should be made by all engaged in building to correct the abuses from which the industry has so long suffered," Mr. Ludlow says.

"Better practice in the construction industry will come only with better ethics. Unfair competition, hidden commissions, bid peddling and internal dissensions in labor hurt the public and every man engaged in building from owner to laborer.

"Law codes and regulations by government reach some abuses, but the real trouble lies in the disregard by many of fair play and honest work. Most cities should revise their antiquated building laws. There should be laws making mandatory the supervision of all building operations by qualified architects or engineers. Unsafe building should be dealt with like other crimes.

"Coercive regulation of industry by government has been tried, but laws of that sort will not be obeyed, and in the end will fall of their own weight.

"Government assistance is a possibility, but in the main the construction industry must run its own affairs," Mr. Ludlow declares. "It must formulate its own principles of fair competition and must put in practice voluntary regulations which will be respected by those who believe that reputation is an asset.

"To accomplish the needed reforms, the construction industry must be more thoroughly organized. A few construction councils and building congresses now exist, and the Construction League of the United States is composed of many national industry groups, but every community should have its own construction organization, where all the elements of the industry—architects, contractors, subcontractors, material dealers and labor—can come together on common ground for the common purpose of formulating in a code of ethics the principles of what all believe to be fair practice. These principles should then be embodied in a code of practice.

"Such codes cannot and should not be made compulsory, but should be statements of what reputable men will live up to, and there are plenty of reputable men in the building industry who, if they will stand together on a common ground of fair practice and seek the support of organized public opinion, can raise the entire industry to a new level."

FORM PARTNERSHIP

W. Chelse Boynton and F. Edward Brown are now associated with C. Frank Mahon, Tacoma architect, on the fourth floor of the Provident Building, Tacoma. Mr. Boynton is an architectural designer who has considerable experience in residential construction and grew up in the business in association with his father, who was a master builder. Mr. Brown is a recent arrival from the Atlantic Coast. He took a special course in architecture at the University of Pennsylvania.

With the Architects

INSTITUTE CONVENTION

Pacific Coast architects who have been named delegates to the annual Institute Convention in Boston, June 1, 2, 3 and 4, will leave shortly, some via train and others by plane. A good attendance is promised at the convention and many subjects of vital interest to the profession are expected to come up for decision. One of the most important will be the question of architectural service for small houses which is discussed more fully on another page.

OFFICE BUILDING ADDITIONS

An addition of several stories is contemplated to the Balboa Building, Market and Second Streets, San Francisco. Plans are also reported to be under way for extensive remodeling of the Claus Spreckels Building at Market and Third Streets, San Francisco, the improvements to include removal of the present dome and building in its place several additional stories.

SACRAMENTO BANK BUILDING

Contracts have been awarded for the construction of a one-story reinforced concrete bank building with granite base and marble interior for the American Trust Company. Structure will occupy a business lot on Tenth Street, between J and K Streets, Sacramento, and will cost in excess of $100,000. Harry J. Devine is the architect.

WAREHOUSE AND WINERY

California Products Company of Fresno will spend $125,000 building a one-story reinforced concrete warehouse and remodeling its present winery at Butler Avenue and O Street, Fresno, from plans by Architect H. Rafael Lake, Mattei Building, Fresno.

GRANDSTAND AND STABLES

Frame grandstand and stables will be constructed on the Napa County Fair Grounds at Calistoga at an estimated cost of $15,000. The buildings have been designed by William Herbert, Rosenberg Building, Santa Rosa. Mr. Herbert has also completed plans for a duplex residence in Santa Rosa for Miss Florence Talmadge.

OFFICE BUILDING REMODELING

The Royal Insurance Company will make some interior improvements to its Sansome Street building, and will also replace the old elevator fronts with new ones. Bliss & Fairweather are the architects.

SORORITY HOUSE ADDITION

Preliminary drawings are in progress in the office of Architect Charles K. Sumner, for a two-story frame and stucco addition to the Sorority house on the Stanford Campus for the Alpha Omicron Pi.

ALBERT H. LARSEN BUSY

New work in the office of Albert H. Larsen, 333 Kearny Street, San Francisco, includes a $15,000 English style residence to be built in Piedmont and for which a contract has been let to the Ruegg Company of San Francisco; a Monterey style, 9-room residence near Gridley, Butte County; a $12,000 residence for the Happy Homes Building Company on Tenth Avenue, San Francisco; a $9,000 Spanish style home in Menlo Park for John Arata and three 5-room dwellings to be built in Bernal Heights for Sala & Sala, Sixteenth and Valencia Streets, San Francisco.

AUTO SALES BUILDING

The Marin Investment Company is the owner of a $25,000 two-story reinforced concrete auto sales and service building to be erected at Fourth and Shaver Streets, San Rafael, Marin County, from plans by N. W. Sexton, San Francisco.

TWO APARTMENT BUILDINGS

From plans by Architect William I. Green, 233 Post Street, San Francisco, construction will start shortly on two frame and stucco apartment buildings to contain four apartments each in the Baywood District, San Mateo County. The owners are Freed & Coakley.

CLARKSBURG RESIDENCE

An eight-room residence is being constructed at Clarksburg, Yolo County, for George Holmes, from plans by W. R. Yelland, Financial Center Building, Oakland.

SANTA ROSA RESIDENCE

C. A. Caulkins, Architect, of Santa Rosa, has completed plans for a nine-room residence to be built at Graton, Sonoma County, for Oscar Hallberg, for approximately $12,000.

PIEDMONT RESIDENCE

Revised drawings are being made for a Colonial house on Wildwood Avenue, Piedmont, for Herbert I. Dunn. Clarence W. Mayhew of Oakland is the architect.

COLD STORAGE BUILDING

Drawings are complete for a one-story tile roof cold storage building and office for the Union Ice Company at Watsonville. A. W. Story, Pajaro Valley Bank Building, Watsonville, architect.

STRUCTURAL ENGINEERS ASSOCIATION
OF NORTHERN CALIFORNIA

ARCHITECTS AND ENGINEERS IN JOINT MEETING

THE joint meeting of Architects and Engineers, May 4, was well attended, the commodious dining hall of the Engineers' Club being taxed to its limit. The dinner was excellent. At the meeting which followed, the 1939 World's Fair was made the theme for discussion with Col. J. Franklin Bell, executive vice-president of the Exposition, Arthur Brown, Jr., and W. P. Day the outstanding speakers.

Mr. Bell spoke on "The Creation and Management of a World's Fair." He said in part:

"The creation of a World's Fair is very similar to the creation of any major engineering project. In the early stages the major problems are to secure legislative authority, the necessary financing and a site. Then come the problems incident to the preparation of architectural and engineering plans. Not until these problems have been mastered and the work incident thereto well advanced is there any need to give serious thought to sales and operating problems.

"Everybody seems to understand these chronological developments for ordinary engineering projects but seem to think that for a World's Fair salesmen and operators are needed before any architectural and engineering plans have been completed. Few people realize how long it takes to secure legislative authority, to prepare sound budgets, and to develop architectural and engineering plans which will be well designed for the purposes which they must serve. Any attempt by anyone to secure exhibitors and concessionaires, either at home or abroad, before the general plans for physical features have been made and the budget limitations known, is about as futile as sending men out to construct a building without plans, equipment or tools.

Objectives and Limitations

"A World's Fair must be beautiful and educational; it must portray its theme and leave an enduring impression upon its visitors; it must have a gala atmosphere and provide amusement and entertainment; and to be successful financially, it must be planned with three important limitations.

"These objectives are not inconsistent with the limitations but it requires careful planning to avoid a sacrifice in ideals or a financial loss. The World's Fair corporation (or association) frequently fails to pay its financial obligations, but, in general, a community benefits largely from holding a World's Fair. If a World's Fair is financed by governmental subsidies, failure to recover all funds invested is not regarded very seriously as the taxpayers are supposed to derive contingent benefits from the holding of a World's Fair. But when the financing must be secured by the issue of bonds or notes, the prospective buyers of the bonds and notes must be convinced that World's Fair planning is being done on a sound financial basis.

Accessibility

"The first limitation pertains to the site. A site readily accessible for several million people must be selected; not only should there be adequate approaches to the site for several forms of transportation, but good terminal accommodations and adequate parking facilities should be provided also. But the job is not complete unless the terminals and parking areas are near the entrances into the World's Fair grounds.

World's Fair Clients

"The second limitation pertains to service. A World's Fair should be planned to serve its clients and not to glorify any profession or group. These clients consist of four groups: visitors, exhibitors, concessionaires and the World's Fair Corporation itself. In determining what features should be included in a World's Fair plans and what the arrangements for circulation and service should be, the needs and desires of these four groups should be the controlling considerations. Any planning which anyone may do, without careful study of the needs and desires of these four groups, is merely a waste of time.

"a. **Visitors.** Visitors make, or break, a World's Fair. Consequently, one of the most important requirements is a circulation plan which will make it possible for visitors to ride or walk about without too much fatigue; and the food, drink and toilet services should be arranged to suit their tastes and convenience.

"The entertainment provided, whether by exhibitors, concessionaires or by the World's Fair itself, must be pleasing to the visitors or they will not come back. Their needs and tastes are important considerations in determining the size and arrangements of buildings and open spaces, the width of aisles and the seating arrangements, both indoors and in outdoor spaces.

" 'The visitors must be served, and served courteously,' is an excellent World's Fair slogan. Well planned

service for visitors combined with courteous treatment will pay greater financial dividends than any other effort or expenditure made by a World's Fair.

"b. **Exhibitors.** Few people seem to know that most of the exhibits at a World's Fair are installed and operated by exhibitors and not by a World's Fair itself. Exhibitors spent about $32,000,000 for participation in a Century of Progress Exposition in 1933 and 1934, and their exhibits were the products of the best minds available in their research laboratories and among their employees. Should a World's Fair neglect to secure the cooperation of industry, through some narrow-minded desire to avoid commercialism, three very grave consequences would result: the World's Fair itself would have to bear the financial burden of collecting, installing and operating the exhibits; the exhibitions would be the products only of the minds of the World's Fair staff; and the attendance at the World's Fair would suffer as the employees of industry would not be as much interested in the exhibits, and the industrial corporations would not cooperate in promoting and publicizing the World's Fair.

"c. **Concessionaires.** Some people are inclined to deprecate concession activities at a World's Fair because some of them may be of a low order of merit. But it should not be overlooked that concessionaires provide most of the services for visitors on a World's Fair grounds and a large proportion of the entertainment. Nor can we afford to overlook the fact that concessions provide much revenue for a World's Fair. The gross receipts of concessionaires at a Century of Progress in 1933 and 1934 exceeded $44,000,000 and the Exposition derived about $6,000,000 in revenue therefrom. Consequently, the needs of concessionairies are entitled to every consideration in World's Fair planning.

"d. **World's Fair Corporation (or Association).** The needs of a World's Fair itself, both during the construction and the operating periods, requires careful study. During the construction period, the administrative needs of the World's Fair during the operating period are likely to be overlooked. The sites and sizes of general exhibit and concession structures should be determined from needs and convenience rather than from engineering or architectural considerations. Structures and areas must be provided for events, ceremonies and special features. Seldom are the arrangements for events and ceremonies adequate. Visitors at a World's Fair will not spend time looking at the type of events which they can see in their home towns; they want to see things at a World's Fair which are different and unusual.

Financial Considerations

"The third limitation is imposed by financial considerations. Hundreds of requests are received by World's Fair officials that there be included among World's Fair features things which would serve to glorify or benefit certain groups or interests. In so far as any group or interest is benefited by a World's

Fair, it should be willing to bear the expense. A World's Fair must provide many things to enhance the beauty of the buildings and grounds, and present exhibits which will portray the theme. If any group or groups derive benefits therefrom, that is their good fortune, but the World's Fair owes no obligation to anyone to present things which would benefit him or to glorify his profession.

"Only by resisting the demands of these applicants who seem to feel that a World's Fair is a philanthropic institution of some kind, can a World's Fair avoid the road to bankruptcy. Contracts with exhibitors and concessionaires should be made on a strictly business basis, with a view to obtaining as much revenue therefrom as practicable; no favoritism should be shown. Every member of the World's Fair staff should keep in mind at all times that one of his principal duties is to assist in paying off the obligations of the World's Fair whether it be by entering into favorable contracts to obtain revenue or by guarding funds carefully to avoid unnecessary or excessive expenditures. Only by the most scrupulous and continued adherence to this policy by all members of the staff can a World's Fair pay off all of its obligations.

Architects As Salesmen

"Many architects seem to think that if they are not appointed on the Architectural Commission or employed by the Department of Works that they will have little if any part in the creation of a World's Fair. They overlook the fact that exhibitors and concessionaires will be employing architects to do a volume of work greater than that done by the World's Fair Company. Architects have the opportunity to aid the Department of Exhibits and Concessions in securing desirable exhibitors and concessionaires, and at the same time obtain work for themselves. By obtaining sets of plans and literature from the Department of Exhibits and Concessions, together with information as to what prospective exhibitors they might contact effectively, architects will be in a position to prepare and present preliminary exhibit plans to these prospective participants which may influence them to employ the architects to have charge of the preparation of their plans."

SOUTHERN CALIFORNIA ENGINEERS

At the April meeting of the Structural Engineers' Association of Southern California, Mark Falk, chairman of the legislative committee, discussed proposed legislation pending in the State Legislature. Ralph DeLine presented the new revisions of Appendix A, rules and regulations of the State Division of Architecture governing public school construction. The principal speaker was Preston D. Richards, Los Angeles attorney, former assistant legal adviser to Secretaries of State P. C. Knox and W. J. Bryan, who discussed the Federal Constitution of which he has made an extensive study. Of 25,000 laws enacted by Congress only about 75 have been held unconstitutional, he said.

Estimator's Guide

Giving Cost of Building Materials, Wage Scale, Etc.

Amounts given are figuring prices and are made up from average quotations furnished by material houses to San Francisco contractors. 3% Sales Tax on all materials but not labor.

Note—Building costs are rapidly mounting; many quotations here are subject to daily change.

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

Bond—11/2% amount of contract.

Brickwork—

Common. $40 to $45 per 1000 laid, (according to class of work).

Face, $100 to $110 per 1000 laid, (according to class of work).

Brick Steps, using pressed brick, $1.25 lin. ft.

Brick Veneer on frame buildings, $ .75 sq. ft.

Common f.o.b. cars, $14.00 at yard. Cartage extra.

Face, f.o.b. cars, $45.00 to $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f.o.b. job)

3x12x12 in.	$ 84.00 per M
4x12x12 in.	94.50 per M
6x12x12 in.	126.00 per M
8x12x12 in.	225.00 per M

HOLLOW BUILDING TILE (f.o.b. job)
carload lots.

8x12x5 1/2	$ 94.50
6x12x5 1/2	73.50

Building Paper—

1 ply per 1000 ft. roll	$3.50
2 ply per 1000 ft. roll	5.00
3 ply per 1000 ft. roll	6.25
Brownskin, 500 ft. roll	4.50
Brownskin, Pro-tect-o-mat, 1000 ft. roll	9.00
Sisalkraft, 500 ft. roll	5.00
Sash cord com. No. 7	$1.20 per 100 ft
Sash cord com. No. 8	1.50 per 100 ft
Sash cord spot No. 7	1.90 per 100 ft
Sash cord spot No. 8	2.25 per 100 ft

Sash weights cast iron, $50.00 ton.
Nails, $3.50 base.
Sash weights, $45 per ton.

Concrete Work (material at San Francisco bunkers)—Quotations below 2000 lbs. to the ton. $2.00 delivered.

No. 3 rock, at bunkers	$1.45 per ton
No. 4 rock, at bunkers	1.45 per ton
Elliott top gravel, at bunkers	2.10 per ton
Washed gravel, at bunkers	1.45 per ton
Elliott top gravel, at bunkers	2.10 per ton
City gravel, at bunkers	1.45 per ton
River sand, at bunkers	1.40 per ton
Delivered bank sand	1.00 cu. yd.

Note—Above prices are subject to discount of 2% per ton on invoices paid on or before the 10th of month, following delivery.

SAND

Del Monte, $1.75 to $3.00 per ton.

Fan Shell Beach (car lots, f.o.b. Lake Majella), $2.75 to $4.00 per ton.

Cement (paper sacks) $3.00 bbl., warehouse or delivery.
Car-load lots delivered $2.70, f.o.b. cars $2.52
(Cloth sacks) $3.00 bbl..
Rebate 10 cents bbl. cash in 15 days.

Atlas White, Calaveras White, Medusa White — 1 to 100 sacks, $1.50 sack, warehouse or delivery; over 100 sacks, $1.25; 2% discount 10th of month.

Forms, Labors average $40.00 per M.
Average cost of concrete in place, exclusive of forms, 35c per cu. ft.; with forms, 60c.
4-inch concrete basement floor . . . . . 12 1/2c to 14c per sq. ft.
Rat-proofing 7 1/2c
Concrete Steps . . . . . $1.25 per lin. ft.

Dampproofing and Waterproofing—

Two-coat work, 20c per yard.
Membrane waterproofing—4 layers of saturated felt, $4.50 per square.
Hot coating work, $1.80 per square.
Medusa Waterproofing, 15c per lb., San Francisco Warehouse.
Tricocel waterproofing.

Electric Wiring—$12.00 to $15.00 per outlet for conduit work (including switches). Knob and tube average $3.50 per outlet.

Elevators—

Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in four-story building, $2800; direct automatic, about $2700.

Excavation—

Sand, 60 cents; clay or shale $1 per yard.

Teams, $12.00 per day.

Trucks, $22 to $27.50 per day.

Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—

Ten-foot galvanized iron balcony, with stairs, $115 installed on new buildings; $140 on old buildings.

Floors—

Composition Floors—18c to 35c per sq. ft In large quantities, 16c per sq. ft. laid.
Mosaic Floors—80c per sq. ft.
Dureflex Floor—23c to 30c sq. ft
Rubber Tile—50c to 75c per sq. ft.
Terazzo Floors—45c to 60c per sq. ft.
Terazzo Steps—$1.60 lin. ft.

Hardwood Flooring (delivered to building)—

13-16x3 1/4" T & G Maple	$120.00 M ft
1 1-16x2 1/4" T & G Maple	132.00 M ft
7/8x3 1/2 sq. edge Maple	140.00 M ft

	13-16x2 1/4" T&G	3/8x2" T&G	5-16x2" Sq.Ed.
Clr. Otd. Oak	$200.00 M	$150.00 M	$180 M
Sel. Otd. Oak	140.00 M	120.00 M	135 M
Clr. Pla. Oak	135.00 M	107.00 M	120 M
Sel. Pla. Oak	120.00 M	88.00 M	107 M
Clear Maple	140.00 M	100.00 M	
Laying & Finishing	13c ft.	11 ft.	10 ft

Wage—Floor layers, $7.50 per day.

Glass (consult with manufacturers)—

Double strength window glass, 20c per square foot.

Quartz Lite, 50c per square foot.
Plate 75c per square foot (unglazed) in place, $1.00.

Art, $1.00 up per square foot.

Wire (for skylights), 40c per sq. foot.

Obscure glass, 30c square foot.

Glass bricks, $2.40 per sq. ft., in place.

Note—If not stipulated add extra for setting.

Heating—

Average, $1.90 per sq. ft. of radiation, according to conditions.

Iron — Cost of ornamental iron, cast iron, etc., depends on designs.

Lumber (prices delivered to bldg. site).

No. 1 common	$38.00 per M
No. 2 common	34.00 per M
Select O. P. common	39.00 per M
2x4 No. 3 form lumber	26.00 per M
1x4 No. 2 flooring VG	65.00 per M
1x4 No. 3 flooring VG	55.00 per M
1x6 No. 2 flooring VG	65.00 per M
1 1/4x4 and 6, No. 2 flooring	70.00 per M

Slash grain—

1x1 No. 2 flooring	$50.00 per M
1x4 No. 3 flooring	40.00 per M
No. 1 common run T. & G.	35.00 per M
Lath	8.00 per M

Shingles (add cartage to price quoted)—

Redwood, No. 1	$1.10 per bdle.
Redwood, No. 2	.90 per bdle.
Red Cedar	1.00 per bdle.

Millwork—Standard.

O. P. $110.00 per 1000. R. W., $115.00 per 1000 (delivered).

Double hung box window frames, average with trim, $6.50 and up, each.

Doors, including trim (single panel, 1 3/4 in. Oregon pine) $8.00 and up, each.

Doors, including trim (five panel, 1 3/4 in Oregon pine) $6.50 each.

Screen doors, $4.00 each.

Patent screen windows, 25c a sq. ft.

Cases for kitchen pantries seven ft. high per lineal ft., $8.00 each.

Dining room cases, $8.00 per lineal foot.

Labor—Rough carpentry, warehouse heavy framing (average), $17.50 per M.

For smaller work average, $35.00 to $45.00 per 1000.

Marble—(See Dealers)

Painting—

Two-coat work ..... 35c per yard
Three-coat work ..... 45c per yard
Cold Water Painting ..... 12c per yard
Whitewashing ..... 4c per yard
Turpentine, 75c per gal., in 5 gal. cans, and 65c per gal. in drums.
Raw Linseed Oil—$1.02 gal. in bbls.
Boiled Linseed Oil—$1.05 gal. in bbls.
Medusa Portland Cement Paint, 20c per lb.

Carter or Dutch Boy White Lead in Oil (in steel kegs).

	Per Lb.
1 ton lots, 100 lbs. net weight	11¾c
500 lbs. and less than 1 ton lots	12c
Less than 500 lb. lots	12½c

Dutch Boy Dry Red Lead and Litharge (in steel kegs).

1 ton lots, 100 lb. kegs, net wt.	11¾c
500 lbs. and less than 1 ton lots	12c
Less than 500 lb. lots	12½c

Red Lead in Oil (in steel kegs)

1 ton lots, 100 lb. kegs, net wt.	12¼c
500 lb. and less than 1 ton lots	12½c
Less than 500 lb. lots	13c

Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.00 lineal foot
8-inch	1.50 lineal foot
10-inch	1.75 lineal foot
12-inch	2.00 lineal foot

Plastering—Interior—

	Yard
1 coat, brown mortar only, wood lath	$0.75
2 coats, lime mortar hard finish, wood lath	.80
2 coats, hard wall plaster, wood lath	.85
3 coats, metal lath and plaster	1.30
Keene cement on metal lath	1.30
Ceilings with ¾ hot roll channels metal lath	.75
Ceilings with ¾ hot roll channels metal lath plastered	1.50
Single partition ¾ channel lath 1 side	.85
Single partition ¾ channel lath 2 sides 2 inches thick	1.50
4-inch double partition ¾ channel lath 2 sides	1.30
4-inch double partition ¾ channel lath 2 sides plastered	3.00

Plastering—Exterior—

	Yard
2 coats cement finish, brick or concrete wall	$1.00
2 coats Calaveras cement, brick or concrete wall	1.35
3 coats cement finish, No. 18 gauge wire mesh	1.50
3 coats Calaveras finish, No. 18 gauge wire mesh	2.75

Wood lath, $7.50 to $8.00 per 1000.
2.5-lb. metal lath (dipped) ..... .17
2.5-lb. metal lath (galvanized) ..... .20
3.4-lb. metal lath (dipped) ..... .22
3.4-lb. metal lath (galvanized) ..... .28
¾-inch hot roll channels, $72 per ton.
Finish plaster, $18.90 ton; in paper sacks.
Dealer's commission, $1.00 off above quotations.
$13.85 (rebate 10c sack).
Lime, f.o.b. warehouse, $2.25 bbl.; cars, $2.15
Lime, bulk (ton 2000 lbs.), $16.00 ton.
Wall Board 5 ply, $50.00 per M.
Hydrate Lime, $19.50 ton.
Plasterers Wage Scale ..... $1.25 per hour
Lathers Wage Scale ..... 1.25 per hour
Hod Carriers Wage Scale ..... 1.10 per hour

Composition Stucco—$1.80 to $2.00 sq. yard (applied).

Plumbing—

From $70.00 per fixture up, according to grade quantity and runs.

Roofing—

"Standard" tar and gravel, $6.50 per sq. for 30 sqs. or over.
Less than 30 sqs. $7.00 per sq.
Tile, $20.00 to $35.00 per square.
Redwood Shingles, $8.00 per square in place.
Copper, $16.50 to $18.00 per sq. in place.
Cedar Shingles, $9.00 sq. in place.
Recoat, with Gravel, $3.00 per sq.
Asbestos Shingles, $15 to $25 per sq. laid.
Slate, from $25.00 to $60.00 per sq. laid according to color and thickness.

Sheet Metal—

Windows—Metal, $1.75 a sq. foot.
Fire doors (average), including hardware $1.75 per sq. ft.

Skylights—

Copper, 90c sq. ft. (not glazed).
Galvanized iron, 30c sq. ft. (not glazed).

Steel—Structural

$110 ton (erected), this quotation is an average for comparatively small quantities. Light truss work higher. Plain beams and column work in large quantities $80 to $90 per ton cost of steel; average building, $95.00.

Steel Reinforcing—

$80.00 to $120.00 per ton, set.

Stone—

Granite, average, $6.50 cu. foot in place.
Sandstone, average Blue, $4.00, Boise, $3.00 sq. ft. in place.
Indiana Limestone, $2.80 per sq. ft. in place.

Store Fronts—

Copper sash bars for store fronts, corner, center and around sides, will average 75c per lineal foot.
Note—Consult with agents.

Tile—Floor, Wainscot, Etc.—(See Dealers)

Asphalt Tile—18c to 28c per sq. ft. installed.

Venetian Blinds—

40c per square foot and up. Installation extra.

SAN FRANCISCO BUILDING TRADES WAGE SCALE

Recommended by the Impartial Wage Board, June 18, 1936. Effective July 1, 1936

This scale is based on an eight-hour day and is to be considered as a minimum and employees of superior skill and craft knowledge may be paid in excess of the amounts set forth herein. This scale applies only to work on buildings and does not include inside or shop workers.

CRAFT	Journeymen Mechanics
Asbestos Workers	$ 8.00
Bricklayers	12.00
Bricklayers' Hodcarriers	8.00
Cabinet Workers (Outside)	9.00
Carpenters	9.00
Cement Finishers	9.00
Cork Insulation Workers	9.00
Electrical Workers	10.00
Electrical Fixture Hangers	8.00
Elevator Constructors	10.40
Engineers, Portable and Hoisting	9.00
Glass Workers (all classifications)	8.50
Hardwood Floormen	9.00
Housesmiths, Architectural Iron (outside)	9.00
Housesmiths, Reinforced Concrete, or Rodmen	9.00
Iron Workers (Bridge and Structural)	11.00
Iron Workers (Hoisting Engineers)	11.00
Laborers (six-day week)	$ 5.50
Lathers, Channel Iron	10.00
Lathers, all others	9.00
Marble Setters	10.00
Millwrights	9.00
Mosaic and Terrazzo Workers (outside)	9.00
Painters	9.00
Painters, Varnishers and Polishers (outside)	9.00
Pile Drivers and Wharf Builders	9.00
Pile Drivers Engineers	10.00
Plasterers	12.00
Plasterers' Hodcarriers	8.00
Plumbers	10.00
Roofers (all classifications)	8.00
Sheet Metal Workers	9.00
Sprinkler Fitters	10.00
Steam Fitters	10.00
Stair Builders	9.00
Stone Cutters, Soft and Granite	9.00
Stone Setters, Soft and Granite	12.00
Stone Derrickmen	9.00
Tile Setters	10.00
Tile, Cork and Rubber	9.00
Welders, Structural Steel Frame on Buildings	11.00
Welders, All Others on Buildings	9.00
Dump Truck Drivers, 2 yards or less	6.00
Dump Truck Drivers, 3 yards	6.50
Dump Truck Drivers, 4 yards	7.00
Dump Truck Drivers, 5 yards	7.00
Dump Truck Drivers, 6 yards	7.50
Truck Drivers of Concrete Mixer Trucks:	
2 yards or less	6.50
3 yards	7.00
4 yards	7.50
5 yards	7.50
6 yards	8.00

GENERAL WORKING CONDITIONS

1. Eight hours should constitute a day's work for all crafts, except as otherwise noted.
2. Where less than eight hours are worked pro rata rates for such shorter period should be paid.
3. Plasterers' Hodcarriers, Bricklayers' Hodcarriers, Roofers' Laborers and Engineers, Portable and Hoisting, shall start 15 minutes before other workmen, both at morning and at noon.
4. Five days, consisting of not more than eight hours a day, on Monday to Friday, inclusive, should constitute a week's work, except for building laborers.
5. The wages set forth herein should be considered as net wages.
6. Except as noted the above rates of pay apply only to work performed at the job site.
7. Transportation costs except for intra-city fares should be paid by contractor.
8. Traveling time in excess of one hour each way should be paid for at straight time rates.
9. Overtime should be paid as follows: For the first four hours after the first eight hours, time and one-half. All time thereafter should be paid double time. Saturdays (except for Laborers), Sundays and Holidays from 12 midnight of the preceding day, should be paid double time. Irrespective of starting time, overtime for Cement Finishers should not commence until after eight hours of work, except that after 12 midnight overtime for cement finishers should be paid at the rate of time and one-half for the first four hours and double time thereafter. Shift work for cement workers should be subject to the provisions of paragraph 11.
10. On Saturday Laborers should be paid straight time up to eight hours. Overtime rates should be paid as specified in paragraph 9.
11. Where two shifts are worked in any twenty-four hours, shift time should be straight time. Where three shifts are worked, eight hours' pay should be paid for seven hours on the second and third shifts.
12. All work, except as noted in paragraph 13, should be performed between the hours of 8 A. M. and 5 P. M.
13. In emergencies, or where premises cannot be vacated until the close of business, men then reporting for work should work at straight time. Any work performed on such jobs after midnight should be paid time and one-half up to four hours of overtime and double time thereafter.
14. Recognized holidays to be: New Year's Day, Decoration Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Christmas Day.
15. Men ordered to report for work, for whom no employment is provided should be entitled to two hours' pay.
16. This award should be effective in the City and County of San Francisco.

STUDENTS MEET STRUCTURAL ENGINEERS

As noted in these columns in the April issue the Structural Engineers Association of Northern California held a combined regular and special meeting for engineering students at the Engineers' Club, San Francisco, April 6, with a large attendance. At the dinner were selected graduate and senior students who are specializing in structural and civil engineering at Stanford University, University of California, Santa Clara University and other universites and colleges in Central and Northern California.

The purpose of the meeting was to have the university student engineers meet the outstanding structural engineers of the Bay Region and to acquaint them with the work and practices of the experienced professional engineers.

Walter Dreyer, Assistant Chief of the Division of Structural and Civil Engineers of the Pacific Gas & Electric Company and chairman of the committee of the Structural Engineers Association of Northern California, presided at the student portion of the meeting.

The University engineering students were introduced and were given an opportunity to ask questions of the professional structural engineers present. The students wanted to know what qualifications were required to be assured of success in the profession; whether a University graduate should begin his career in the field or office; what type of college thesis would be of most assistance to him after graduation; whether post-graduate work was as beneficial to him as actual experience, and the advice as to how best to approach a firm for a position.

The principal speaker was Sydney W. Taylor, Jr., consulting traffic engineer, whose subject was "The Golden Gate Bridge and its Approaches." He told of the probable increase in travel across the Golden Gate and of the relationship between the travel across the Golden Gate and that between San Francisco and Oakland. He illustrated his talk with traffic charts and flow diagrams of automobile travel around San Francisco.

A resolution was adopted on the passing of the late Earl L. Cope, former Superintendent of Building Inspection for the City and County of San Francisco, and former president of the Structural Engineers Association.

AGE OF CIVIL SERVICE WORKERS

The California state civil service has more than its share of men and women who have passed the 40-year mark in proportion to their part of the total population, according to figures released by William Brownrigg, executive officer of the California State Personnel Board.

One-half of the men employed by the state government are more than 40 years of age, according to the Personnel Board's figures, and one-half of the women employed by the state are older than 35 years. One-fourth of the men employed under state civil service are 50 years of age or more. In the age group from

51 to 60 years, there are nearly two thousand men employed by the state. Eight hundred over 60 years of age are in the service. The retirement age for state employees is 70 years.

Only three per cent of all state employees are less than 24 years old, and only twenty-five per cent are less than 31 years of age. Women tend to be concentrated in slightly lower age groups than men.

The high proportion of older persons in the state service is partly due to the high age limits on state civil service examinations. More than two-thirds of all state civil service examinations have upper age limits of 50 years or more. Only one-third of the state examinations are limited to applicants less than 50 years of age. Most of these are jobs which appeal only to younger persons, such as the position of messenger boy, junior clerical positions, printing apprentices, internes in the state hospitals, and other student and junior work in the state departments. Beginning positions in the California Highway Patrol and in the Fish and Game service also are included in the lower age groups because of the strenuous physical activity involved in this work.

PIONEER TACOMA ARCHITECT HURT

Frederick Heath, pioneer architect of Tacoma, observed Traffic Safety Week from a cot in the Tacoma General Hospital, which building he designed 28 years ago. He suffered a broken leg and other injuries when he alighted from a streetcar at Sixth Avenue and Cushman Street one night early in February.

"Here lies a 100 per cent example of a man who forgot to look," said Mr. Heath. "It was all my fault. I had my mind on something else and out I stepped, right into the driver's path."

Mr. Heath is senior member of Heath, Gove and Bell, architects, Puget Sound Bank Building, Tacoma.

CHURCH BUILDING PROGRAM

Sylvester Q. Cannon, L. D. S. (Mormon) Church presiding bishop, Salt Lake City, Utah, reports that a $2,600,000 world-wide church building program will be undertaken this year.

Chapels will range in cost between $7,000 and $15,000. Buildings scheduled for the Pacific Northwest will be built at Kellogg, Idaho; Great Falls, St. Ignatius, Chinook and Charlo, Montana; Seattle and Wenatchee, Washington; Klamath Falls and Eugene, Oregon.

The church is to contribute 60 per cent of the building costs with the remainder required to be raised by the community affected.

PORTLAND ARCHITECT BUSY

Building activity in the small cities and towns of Oregon is being reflected in the office of J. W. De Young, 730 S. W. Salmon Street, Portland. At present he is handling the construction of three modern residences at St. Helens. Recently he completed a theater at Labanon, and a church in Portland.

IN NEW PLANT

The Roll-Away Window Screen Company has moved to its fine new Berkeley factory at Eighth and Carlton Streets, culminating fifteen years of constant growth and expansion.

In addition to the Roll-Away screen, the company manufactures the Tubular metal frame screen, Nu-Frame metal screen for steel sash, outside Nu-Frame metal screen for double hung windows, underscreen operators and locking bars for steel sash.

All products of the Roll-Away Company are marketed through a nation-wide dealer organization. Branch offices are maintained in San Francisco at 557 Market Street and in Los Angeles at 169 North La Brea Street. Officers of the company are E. F. Schlott, president; H. J. Rudiger, secretary-treasurer and general manager; A. Lang, director and superintendent.

SEEKS EASTERN BUSINESS

Calaveras Cement Company has entered the New York market with its products—the first instance of a California cement company invading the major building materials field of the East.

H. C. Maginn, sales manager of the company, who has returned from New York where his negotiations resulted in the John A. McCarthy & Company ordering three cars of Calaveras white cement, reports that the McCarthy firm henceforth will represent the cement company in New York.

Conditions in the building industry differ greatly in New York, Washington and Chicago, Maginn reports, following a month's study of these three large cities. Commenting further Maginn said:

"There is a great deal of building activity in Chicago. Not only in residential construction underway in a major way but also many new office structures are being built in downtown Chicago. In New York, however, the only large activity is to be found in the small homes field," he states.

"Before capital will become interested in construction of new office buildings and apartment houses in New York there will come first the major job of renovating many old buildings."

GYMNASIUM ADDITION

An $11,000 concrete addition is to be built to the Madera Union High School building from plans by Elmore G. Ernst.

WAS IT WORTH EFFORT AND EXPENSE?

In August, 1934, Title I of the National Housing Act was put in operation by the Federal Housing Administration. At midnight March 31, 1937, its activities came to an end.

What was accomplished in those two and three-quarter years of modernization activities? How efficacious was this emergency measure primarily devised to relieve unemployment and to provide a quick stimulant to the prostrate building industry while the permanent phase of the Act which concerned home construction was getting underway?

A measure of its accomplishments can be recorded in figures, but these do not tell a complete story of its achievements. More than the material stimulation of the building industry was the effect of the modernization credit plan upon the morale of those directly and indirectly connected with the building industry, home owners and financial institutions. That phase of its accomplishments can only be judged by looking beyond the figures.

From the beginning of operations of Title I of the National Housing Act, to March 31, 1937, when it expired, 1,419,453 modernization and repair notes were insured by the Federal Housing Administration, amounting to $542,808,055, and it is likely that the final figures will be increased by several million dollars, since lending institutions are permitted thirty days in which to report notes for insurance.

Nearly one and one-half million properties were improved or modernized by insured loans, the vast majority of them the homes of people in very modest circumstances. No one has attempted to analyze the reactions of those owners when they were offered an opportunity to obtain funds, heretofore not easily obtainable, to repair homes which, through the depression years, had been necessarily neglected and which were in various stages of disrepair and obsolescence.

That so many hundreds of thousands of homes were rehabilitated,

made more comfortable and valuable, and pleasanter places in which to live surely had an appreciable effect upon increasing the morale of their owners and their families.

Over a half billion dollars is a sizable sum to be divided among groups of the building and allied industries in less than three years. Contractors and dealers began to get out of the red as orders for work and materials came in due as the modernization of property got well under way in the spring of 1935. The renewed activity of manufacturers of building equipment was reflected in their sales and advertising departments when the modernization credit plan began to function.

Financial institutions with swollen deposits waiting for some assurance that loans could be made with safety, realized that here was a profitable outlet for unproductive funds. Several thousands of them, had never before made character loans, and lending money under the modernization credit plan attested to the soundness of the plan.

This renewed confidence in the future and caused thousands of property owners, who had funds or who could obtain them independently of the modernization credit plan, to undertake over $2,000,000,000 worth of modernization and repair work, after the example set by the program of the Federal Housing Administration.

Through insured notes totalling $542,808,055 and $2,000,000,000 of modernization business generated by the Federal Housing Administration program, a total of $2,542,808,055 has directly stimulated the building and allied industries.

There have been certain psychological gains as well as material gains on the credit side of the record. There is a renewed confidence in home ownership and home maintenance; a scarcity of skilled labor is being reported in many localities and statistics are available that show the improved conditions of concerns engaged in the building and allied industries; character loans have been established as sound business and the

average property owner finds renewed confidence in him as a credit risk.

Through March 20, insurance claims paid under Title I, less collections, repossessed properties and net amount due on notes reinstated amount to $4,769,930, which is a loss ratio of less than 1 per cent.

Originally $200,000,000 was made available by Congress for losses on modernization and repair loans insured under Title I. At the suggestion of the Housing Administration, this amount was reduced at the last session of Congress to $100,000,000 and the amount of the government's liability was reduced from 20 to 10 per cent. It is estimated that after all claims for insurance under Title I have been liquidated approximately $75,000,000 of the amount available for such losses will not be needed.

That amount, officials say, is not large considering the increased revenue flowing into the national Treasury from taxes paid by corporations and individuals, formerly "in the red," who derive their income directly or indirectly from the revived construction industry, and also to the lightening of the Government relief load as a consequence of providing employment for hundreds of thousands of workers in the construction and related industries.

The results show that the operation of Title I of the National Housing Act, through the Federal Housing Administraiton, has supplied the impetus that has revived the giant building industry.

ARCHITECTS WILL LECTURE

The School of Architecture of Columbia University will inaugurate a program of training for art in industry at the thirty-eighth summer session, which begins on July 12 and continues for six weeks.

Courses in interior design, featuring European styles, will afford "American designers expert professional guidance in fields not yet as fully developed in this country as they have been abroad," according to the announcement. The studies will be continued under the Faculty of Archi-

tecture during the winter and spring sessions.

"Architects who are interested in interior design have realized for many years the importance of constant study of our furniture, our hangings, our rugs, and the whole range of objects used in homes and offices," Director Coss said. "To meet this need, the summer session will offer work in furniture design for contemporary living and in the application of printed patterns to textiles and to paper."

Professor Emmy Zweybrueck, designated professor of design by the State of Austria, trained in the methods of the Wiener Kunstgewerbeschule, and a student of Professors Cizek, Hoffman and Kolo Moser, will conduct a Columbia summer studio in which types of design of printed paper and cloth will be presented in the styles developed in Vienna in the last forty years and taught in her studio in Vienna.

The application of these designs to various materials and for various purposes will be discussed, illustrated, and worked upon in the studio. The designs will be carried through to working completeness. Instruction will be in English.

Frederick J. Kiesler, known for his furniture design of all types for contemporary apartments and offices, will be a member of the summer faculty. Mr. Kiesler, expert in the types of Dutch, German and Swedish modernity, will direct a course which will include the principles of contemporary furniture design, the study of construction methods, materials, textures and color values. Designs will be carried through from preliminary sketches to the full size detail drawings and will include material schedules and price estimates. Students will visit the factories and workshops of the metropolitan area.

Summer studies at Columbia, in which the enrollment is expected to reach approximately 11,500, will include instruction in architecture and in realty problems. Among the lecturers will be Harvey Wiley Corbett, who was head of the architectural commission of the Century of Progress Exposition.

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THE ARCHITECT & ENGINEER

June · · 1937

THE ARCHITECT AND ENGINEER, INC., 68 Post Street, San Francisco, EXbrook 7182. President, K. P. Kierulff; vice-president, Frederick W. Jones; secretary, L. B. Penhorwood. Los Angeles office, 832 W. Fifth Street. Chicago representative, Harry B. Boardman, 123 West Madison Street, Chicago, Ill. Published on the 12th of each month. Entered as second class matter, November 2, 1905, at the Postoffice at San Francisco, California, under the Act of March 3, 1897. Subscriptions, United States and Pan America, $3.00 a year; Foreign countries, $5.00 a year; single copy, $.50.

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Notes and Comments

FRANK LLOYD WRIGHT, eminent exponent of modern architectural design, in a recent address at Cranbrook Academy of Art, Detroit, stated he had just returned from the deserts of Arizona, which he considered a good place to wipe the slate clean, something which society sorely needs at intervals, and in the words of Victor Hugo, "A place where God is and man is not."

Mr. Wright chooses not to call his architecture modern or contemporary, but architecture a la mode, an integrated architecture which builds from the inside out. Space, he said, is the symbol of modern architecture. Too often is our society messed up and in need of integration. This integrated, organic architecture means not a style but rather avoidance of a style. Mr. Wright stated he is a devotee of style but as to a style—never.

He states that the modern American architect is a scientific artist and that any architect worthy of the name has a philosophy of his art. He related that he once analyzed his own philosophy to the extent of being able to put it into words, and then he discovered that his supposedly original thought had been expressed 5000 B. C. He then gave up the idea of trying to be original, but he still had reason to feel proud that he had made an approach toward integrated thought.

Louis Sullivan he said did his thinking in symbols and realized that organic architecture had a great new simplicity.

Mr. Wright stated that most architects today do not begin at the beginning. They haven't the time because they must make a living.

He expressed a belief that the architectural schools are doing harm in educating many beyond their capacities. He praised American inventive genius for its affording opportunities to do great things in this country, if we only knew how to make use of them.

He panned the styles most prevalent today in house architecture, stating that colonial "hates the ground" and the only reason for its starting here was because the early settlers brought only ship carpenters who knew no other style. The average colonial house, he said, is not fit to live in but it was all our ancestors had and it still stands in the way of progress.

He sees no reason for making the chair that grandmother sat in sacred. In most cases it was badly designed.

Wright sees the doom of big cities in America. Urban life is dead, he said, but not buried. New York is on the way out.

Mr. Wright believes we should throw away our books, close the universities for ten years and declare a cultural holiday to give us time out with something new.

Some of the questions after the lecture were most interesting. To the question as to what could be accomplished within a ten-year period toward a new civilization, Mr. Wright stated that the possibilities in America are very much misunderstood, that with our modern methods we can accomplish in ten years what formerly took a century. He pictures the architect of the future as a master builder, carrying a job through from start to finish, practically doing everything connected with the building.

* * *

A FEW minutes after the elegant new $6,000,000 Pittsburgh post office was opened to the public, customers began complaining that there was no letter drop. Dismayed, Postmaster Turner got in touch with the architects, who shamefacedly confessed they had actually forgotten all about that important item.—N. Y. Herald Tribune.

* * *

THREE dominant architectural excitements center at the moment in Washington, D. C. They are projects, first, to erect to Thomas Jefferson a memorial; second, to rebuild the east portico of the Capitol; and third, to accept Andrew Mellon's national gallery.

Following the action of the Thomas Jefferson Memorial Commission on February 18, in adopting the design submitted by John Russell Pope for a $3,000,000 memorial to be located on the Tidal Basin facing the White House, a number of organizations, including the designers of "Shelter in America," the staff of the School of Architecture, Columbia University, the League for Progress in Architecture and the Society of American Sculptors, have written lengthy letters of protest in opposition to the carrying out of Mr. Pope's design and also insisting that an open competition be held.

* * *

OUR own Fred Meyer made the front page of the metropolitan dailies, June 3, in a dispatch from Boston, announcing his election to the vice-presidency of the American Institute of Architects. It is a signal honor not only for Mr. Meyer but for the entire Pacific Coast. Charles D. Maginnis of Boston was re-elected president and Edwin Bergstrom of Los Angeles again was honored with the office of treasurer. Not a bad showing for California!

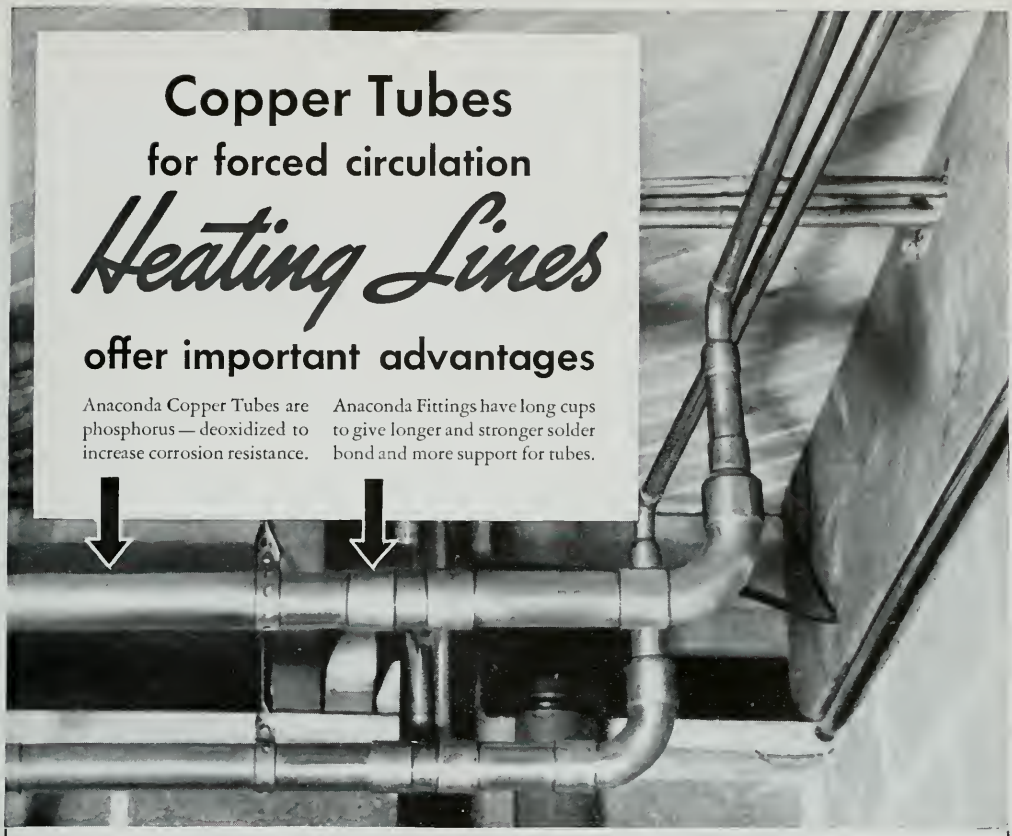
* * *

THE national government has looked at the nation's housing and has declared it inadequate. The United States Senate has estimated that 13,200,000 new dwelling units should be built by 1945. This means an annual average of 1,320,000 and it appears improbable that this can be anticipated, even though the building industry achieves predepression levels. What is more, past experience indicates that lower income groups, that are most inadequately housed, will be little better off than now.

Deplorable conditions in low rent districts of large cities are indicated by the fact that of 500,000 residences in 64 cities 275,000 needed major repairs, 250,000 were overcrowded, 75,000 had no running water, 202,000 had no indoor water closet and 303,000 had no provision for bathing. And it is exceedingly difficult to do anything about this situation because most of the residents are unable to buy better housing under present conditions.

The high cost of construction and the high cost of financing have combined to perpetuate slum areas. Recent years have witnessed great progress in the reduction of financing costs but the high cost of construction remains an unsolved riddle. Thus, PWA has begun a program of low cost housing construction and is applying planning technique to the work.

Substitution of governmental effort for private building is not the goal of the Federal program. It is intended rather that this effort will supplement private building in a field where it is uneconomic for private builders to operate. A further hope is that the planning technique will set the pace for private builders and thus place the industry upon a sounder foundation than it has had in the past.



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ENTRANCE TO COURT, RESIDENCE OF STANLEY HILLER, BERKELEY, CALIFORNIA

JOHN KNOX BALLANTINE, JR., ARCHITECT

A HOME IN THE HILLS

Where Urban Standards Join with Country Customs

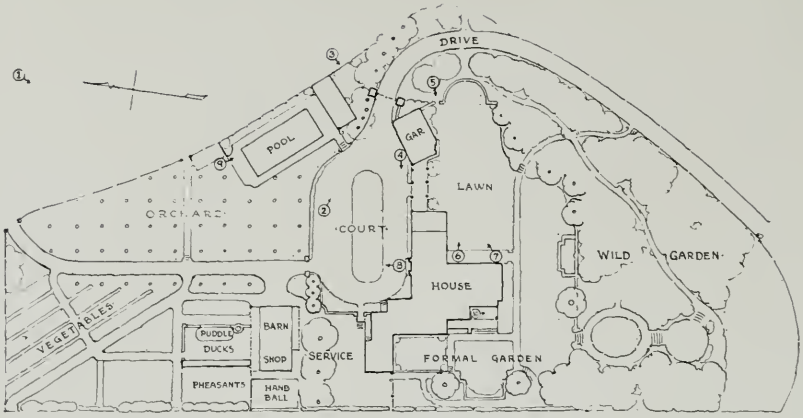
by Harris C. Allen, F. A. I. A.

LOOKING EAST FROM TERRACE AND BALCONY
"Over the Hills and Far Away"

WELL up in the hills above Berkeley (but through motoring by road and bridge, within an incredibly short time distance from metropolitan commerce and convention) is the new home of Mr. and Mrs. Stanley Hiller designed by John Knox Ballantine, Jr. It is a modern version of the sort of thing many of the Roman nobles loved to develop—a small estate intended partly for pleasuring and partly for farming. There was the villa with its closely associated gardens and pavilions, and the orchards and kitchen gardens and pastures with their necessary out-buildings. The contours of the Italian countryside lent themselves admirably to an intelligent combination of formality and informality in the treatment of architecture and landscape architecture. And the world has admired the happy results, during the centuries that have added to their charm.

It is not for nothing that the San Francisco Bay region has been compared to Bella Italia—the "Naples of the West," and so on and oft. Contours and climate justify comparison. There is something, too, in the character of our citizenry, whether inherited or acquired, which of living; a method planned to extract all posmatters of fiestas and holidays do not concern us now, but rather a more permanent manner often suggests the Latin type. However, the sible happiness from the days and ways of life.

Something like this, it would seem, must have been in the minds of Mr. Ballantine's clients when they showed him the chosen site and gave him the problem of developing it. It was required, primarily, to plan a home which would get the fullest possible advantage of views in three directions, and to arrange all the princi-



PLOT PLAN, RESIDENCE OF STANLEY HILLER, BERKELEY

(Numbers on plan indicate points from which views were taken.)

1. General view—This page
2. Entrance Gates—Page 14
3. Entrance to court—Frontispiece
4. Loggia—Page 15
5. Living Room Wing—Page 16
6. Lawn from Balcony—Page 11
7. View from Balcony—Page 17
8. From doorway—Page 43
9. Swimming pool—Page 18
10. West porch—Page 13

Lumber by E. K. Wood Lumber Co.

PERCHED ON A NORTHERN TERRACE, THE ESTATE COMMANDS THE COMPASS, ASSURES THE SUN

FLOWERS AND SHRUBBERY BECKON YOU INTO THE OPEN FROM THE WEST PORCH

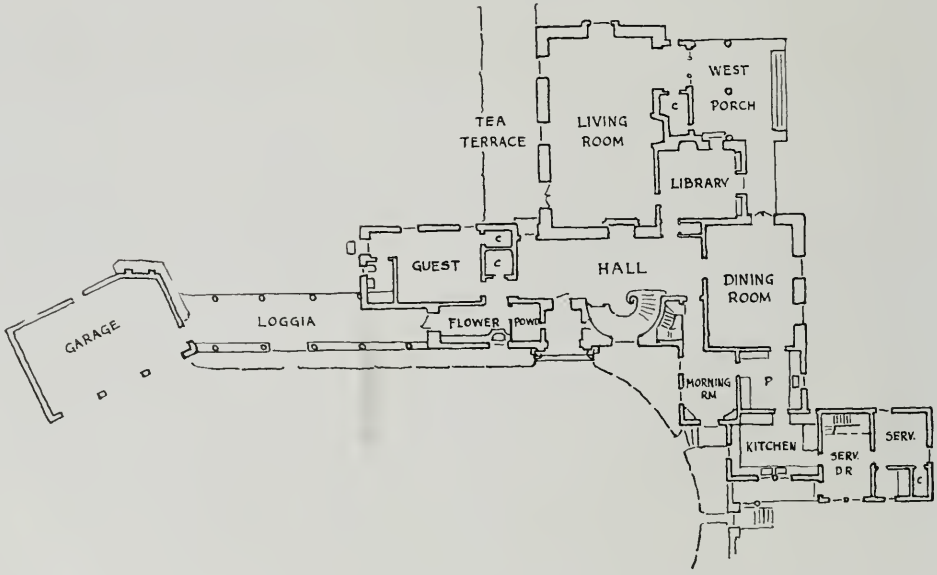
pal rooms to have outlooks on gardens, with ample privacy and sunshine. In addition, space was to be provided for a miniature farm—and these two elements were to be associated and harmonized. It goes without saying that countless other requirements entered into the problem, ranging from such major points as the architectural treatment of exterior and interior, to the minor minutiae of closets and equipment. All such items were handled satisfactorily, no doubt, to the owners; and even the smallest details are important as they fit into an ordered scheme of living. It is with the major essentials of the buildings and their disposition that any public comment—and commendation—is concerned.

As to the general plan, there can be no question. Not only the beauties, but also the difficulties of the site have been skillfully handled; the relations of trees and open spaces, of views and exposures and contours, to the buildings and their uses, have evidently been so carefully studied that their obvious rightness is not the result of happy chance, but of logical determination. The forecourt divides the property into its separate functions, but it also unites; part of the farm becomes an extension of the landscaping and is distinctly decorative as well as utilitarian, part is screened by shrubbery, and the pool with its accessories becomes a link between garden and farm.

The buildings themselves form an interesting group. Their irregular arrangement, and in fact

(Please turn to Page 43)

THE ENTRANCE GATES SWING WIDE



FIRST FLOOR PLAN, RESIDENCE OF STANLEY HILLER, BERKELEY
JOHN KNOX BALLANTINE, JR., ARCHITECT

THE FORECOURT IS FORMAL BUT NOT FORBIDDING

LOGGIA, RESIDENCE OF STANLEY HILLER, BERKELEY, CALIFORNIA
JOHN KNOX BALLANTINE, JR., ARCHITECT

LONG MORNING SHADOWS on the LAWN LEND COLORFUL CONTRASTS

AIR CONDITIONED AND HEATED BY ALLADIN

LIVING ROOM WING, RESIDENCE OF STANLEY HILLER, BERKELEY, CALIFORNIA
JOHN KNOX BALLANTINE, JR., ARCHITECT

ON GARDEN SIDE GARAGE PRESENTS APPEARANCE OF A GAZEBO

VIEW FROM THE BALCONY, RESIDENCE OF STANLEY HILLER, BERKELEY, CALIFORNIA
JOHN KNOX BALLANTINE, JR., ARCHITECT

TALL EUCALYPTI CAST FANCIFUL SHADOWS IN PLACID WATERS

SWIMMING POOL, RESIDENCE OF STANLEY HILLER, BERKELEY, CALIFORNIA
JOHN KNOX BALLANTINE, JR., ARCHITECT

REGISTRATION OF ARCHITECTS

Fundamentals of the Law are Definitely Defined

by C. Julian Oberworth, A. I. A.

THROUGHOUT all the ages men have sought the utopia of utter freedom. We claim that one of the shining attributes of American life is "liberty," and that here above all places this luxury may be enjoyed to its fullest extent. Yet we know that we are not, that we never can be, free; that, in truth, the very happiness of mankind, wherever men are, either by necessity or choice, grouped together depends upon human restrictions.

There are too many instances in which people differ honestly as to what is fair, and too many selfish people, some of them mentally incapable of "playing the game," to make any form of unrestricted society possible. We must set up rules or laws, and these, to be just, must be for the good of the majority.

Liberty, in its more practical sense, has come to mean that any man may do whatever he pleases—but only insofar as his actions have no adverse effect upon anyone other than himself, or that such effects are justified in the eyes of his fellow men.

Even in what might be called the beginning of American liberty, our forefathers gathered to write a Constitution, setting up rules to bind them to righteous actions and to provide a guard that would insure them that all those laws which they knew were yet to be made, would be made in a righteous manner.

America was a new country, and independent, so we started from the bottom. We observed when and how the actions of men, in following the dictates of their own desires, caused material losses or unjust annoyances to others, and we made laws to prevent repetition of these acts.

And the older the country became the more we realized that there were, after all, few things which needed no restriction. Property and the right of the property holder were the most jealously guarded of all against the encroachment of restrictions, and even down to recent years men have held tenaciously, though blindly, to the thought that the free use of their own property was a last sacred stronghold of liberty and not to be molested. In only comparatively recent years has the public come to realize that it is one of the most dangerous liberties men can have in an organized society. So all of a sudden we start passing city planning laws, zoning laws, slum clearance laws, and registration laws, to try to give some small amount of correction to the errors of the past, and to give future building the legal guidance which it should have had from the beginning of American history. And, like all other laws, there are many who don't like it and some who fight against it.

I don't blame those who don't like it—I don't like it either—but I concede the necessity of the evil. Therefore, I do blame those who strike out against such laws in the blindness of rage and those who sometimes are committed to violation, or even to violence, in their opposition to laws which, more often than not, are of greatest benefit to the loudest objectors.

Down in Louisiana a sheriff and his chief deputy went out to quell an organized opposition to a law providing for the compulsory dipping of cattle to prevent ticks. These very people for whom the law was passed and for whom it would have been of infinite benefit yielded to unsound leadership, struck out in their wrath, and murdered the sheriff and his chief deputy who wanted to enforce the law. I say this is a display of cowardice and senselessness that sometimes typifies the "die hard" exponent of utter freedom of individual action regardless of where the burden might fall.

I give you this argument in behalf of registration laws because it is absolutely necessary that anyone who sits upon an examining board created by such laws, must have some kind of a true picture of its foundation. And it is even more necessary that he realize, from beginning to end, that all registration laws must have, for their raison d'etre and for a background of operation by the examining body, the good of the majority of people of that State.

I know that many of us have the feeling that the reason for passing these laws is to elevate the standards of the profession of architecture; or, more frankly, to keep business in the hands of reliable architects. Some even go so far as to admit that the reason they think registration laws are passed is so there won't be so many architects, and those who are practicing will get more work. Even the ears of legislators are held open when you tell them that the real reason you want a law passed is to enable the architects of your home State to hold the axe over the heads of architects of other States in the same manner and to the same extent that it is held over their heads.

Registration Improves Professional Standards

And registration laws do all of these things. Professional standards **are** raised, because that is a necessary step in assuring to the public professionally qualified men. Business **is** increased, because many unqualified men who would be doing work are eliminated from the picture in the public interest. Certain forms of reciprocity **are** set up to protect the State against the practice of unqualified men from that direction. All are, happily I grant you, a necessary part or **result** of the legal procedure, but never the **reason** for the law. There is no legal justification for any other conclusion. Let the public and the profession beware of the examining board which does not acknowledge these facts, for such a board is apt to turn quickly into a mere political power, dishing out licenses with a background of selfish purpose, with the public and the real good of the profession forgotten. A law that does that is a bad law and should not be tolerated. We must assume from the first, therefore, that a fair, impartial, unselfish jury of qualified professional men will form the body of examiners to be set up under the provisions of the Registration Act.

We must also understand that the true duty of the examining body is to test, preferably by examination, the qualifications of applicants for practice for the purpose of admitting all who are qualified and preventing practice by all who have not proven their qualifications. In other words, all men must of necessity be rated as **unqualified** until they have proven themselves otherwise. And right here I want to say that that is the whole job, minus the details with which each board is entrusted. I have yet to see why or how there can be any real justification for, or wholesome effect from petty arguments over so-called "reciprocal agreements" between States, or how they can benefit the public! I think it is absolutely essential that we recognize our own State borders as a barrier to nothing but incompetence.

Essentially, a good registration law is a carefully written legal authorization for fairly, effi-

ciently and practically carrying out the job of determining who, among those who wish to practice architecture, are qualified for such practice; of admitting all of these and preventing practice by all others; for doing all of the routine, detail and other work; and for operating under the procedures which years of experience have taught us to be best.

Back in the time when the first registration law for architects was passed it was difficult, if not impossible, to pre-determine what these provisions should be. But now, with registration having progressed through a period of nearly forty years of practical operation, and with the experience of nearly forty boards of examiners from which to draw, we are in a position to write a law that is reasonably fortified with practical conclusions and enforcible requirements. Such a law should be purely a grant of power within the constitutional limitations of the particular State. Since we have assumed an honest qualified examining body, we may assume a fair administration of such power. It is not necessary then that the law require that certain things be done in a certain way, but rather that the examining body be authorized to do the necessary things in the way it deems best, with as much latitude as possible in the handling of each problem.

Following this line of reasoning our laws should provide the examining body with the power to make just rules under which all architects shall practice, and I hold that this grant of power is one of the most important parts of any law if judiciously and militantly used.

Examining Body Should Have Latitude

You will note that throughout a good law you will find the terms "satisfactory" experience, "capable" architects, "equivalent" training, "recognized" schools, etc. These words are purely and simply for the purpose of qualifying certain requirements with a word which gives the examining body the final right to determine whether or not any of these come up to the standard which that particular body acknowledges. The attorney-general of Kentucky, and I dare say of many other States, has ruled that in all such cases these terms leave the final decision to the examining body.

In a few cases a good law will be found to have provisions that an examining body **shall** do certain things, instead of saying that it **may** do them. There is a definite reason for this breaking from the principles already set out. They are for a double purpose. First, to prevent an unscrupulous board which might possibly find its way into office, from dishonest or unfair collection or disposition of money before it could be checked; and, second, to require that it keep sufficient records of its procedures and reports of them, that it would be impossible for such a board to long continue any unscrupulous acts or abuse of lawful power. Therefore, the good law must **require** publication of lists of architects so that all may know to whom they have given the right to practice. A limitation is placed upon the amount of all fees, allowing the board to collect such funds as is necessary for its operation, but without power to exceed reasonable limitations. A record of proceedings must be kept in order that a check upon its actions is always available.

In a few instances the word "shall" is used in preference to "may" in order that anyone reading the law will understand it is **intended** that those things be done, and that the board is not merely exercising its right of power, but is carrying out a demand in the law. This is usually true, for example, where a law says that an examining body **shall** make necessary rules and regulations. While this is practically a demand that it be done, it leaves entirely to the examining body the text of such rules or the decision as to whether or not **any** are "necessary."

It may be seen from these statements that close coordination of all parts of any law and a clear use of the English language is essential. It is indeed disastrous, to say nothing of being confusing, to find, after passage of a law, that in one place it says one thing, while in another it requires an exactly opposite action. Then you have the only perfect example I know of

an irresistable force meeting an immovable body.

And it is just as disastrous to find, after passage of a law, that a devilish little comma has upset the entire meaning—a thing that has actually been known to happen. In pondering these matters one day I went to our Attorney General and asked him how to go about writing a good law. "Do you know what power and authority you want the law to provide?" he asked. I said: "Yes, I believe I will know with a little more study." "Then," said the Attorney General, "put all of it that is constitutional down in honest-to-God good English, and you've got it." "Remember," he added, "that what the law **says** is going to count, and not what you **intended** to say."

As we have already seen from our preliminary discussion of essentials, the most important perhaps of all the powers and duties written into a registration law is that of examination. In my humble opinion it is a grave mistake to do anything more than state in any law that the examining body shall have the power to set up its own examinations. Standards are forever changing. What is today a fair and comprehensive test of knowledge in the practice of architecture may tomorrow be a poorly devised, outmoded examination. Since we who are members of the Council have acknowledged examination credit as the basis of all transfer of registration between States, and since such transfer is more prevalent in our profession than in any other, the examining body which is without power to go ahead with the demands of time is not only unequipped to properly carry on the work of examining candidates but is at an extreme disadvantage in the process of making transfers of registered men to other States.

Scope of Boards Authority Questioned

There are those who hold, perhaps correctly so, that the law itself should set out at least the two divisions of Senior and Junior classifications for examination. In this I am forced to disagree. Time may as easily cause a change in this procedure as in the examination, and I remind you that the entire matter of a Senior examination, while intended to be the full practical equivalent of the Junior examination, is, in fact, merely a part of our adopted formula for "reciprocity," or, as we prefer to call it, for transfer of registration by those men of long years of proven qualification and experience who were admitted to practice by some method other than examination, or by an examination not the equivalent of that in the State to which transfer is desired.

There are others who hold that to give the examining body full authority in the matter of examinations is an unconstitutional grant of power. In dispelling this thought the Attorney General of Kentucky cites the following decision of the Supreme Court of California of October 1930:

"It is concluded upon this proposition that the Legislature has the power to delegate to a commission or board, trained in a given profession or skilled in a given art, the right to fix the qualifications of applicants desiring to practice such professions or art. The Legislature itself is not obliged to fix the standard of excellence of knowledge in the given profession which an applicant for admission thereto shall be required to possess. Such requirements may be left to the sound discretion of the commission or board, which will be accountable in the courts for any abuse or unjust exercise of discretion with which it is vested. A familiar instance of this is found in the law touching the admission of attorneys to practice before the courts of this State."

In closing this paper I want to say that I have tried to outline the essentials of a registration law as seen upon the background of thought that has gone into the preparation of the Report of the Committee on Registration Laws to The American Institute of Architects.

It was enlightening to find that so many of the members of that Committee were so unselfishly in accord upon the basis of registration laws as herein related.

PUEBLO

Chapman Park Hotel, Los Angeles, Offers Unique Housing Plan for its Guests

by Carleton M. Winslow, Architect

AIRPLANE VIEW OF CHAPMAN PARK HOTEL PUEBLO, LOS ANGELES, CALIFORNIA

THE Pueblo of the Chapman Park Hotel in Los Angeles occupies the southerly or Wilshire Boulevard frontage of the hotel grounds, between Alexandria and Mariposa Avenues, the grounds being directly connected with the hotel, situated on the northerly end of the block.

This property has been a part of the Chapman Park estate for many years and was originally bisected by a barranca which has long since been filled.

The hotel needed expansion. After careful consideration the management decided that instead of building a wing to the present building which would have been an obvious and easy solution of the problem, a group, or little village of detached cottages, would be as economical and of far more interest and enjoyment to the guests.

The general plan fell into place simply enough, consisting of an axis on the centre of the hotel building and running north and south with a cross axis which formed a broad open space and which finally materialized into a pleasant garden with lawn, flowers and some carefully selected trees. The streets and frontages are bordered with tall Washingtonia Sonora palms. The landscaping was placed in the capable hands of Katherine Bashford, landscape architect.

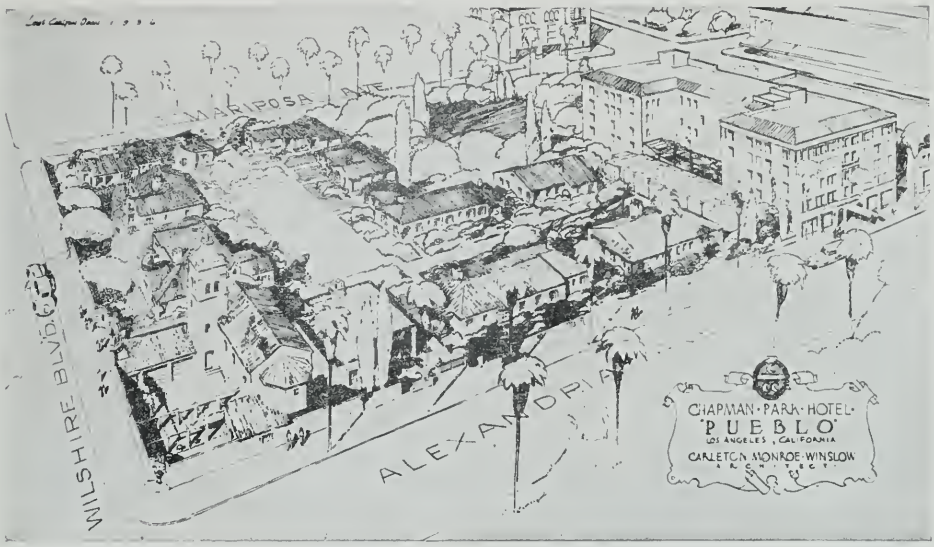
For the use and pleasure of the guests it was decided to build a private chapel in the corner of the grounds at Wilshire and Alexandria. This was designed in the manner of the small churches in the environs of Mexico City and gives dominating character to the group.

The pueblo is surrounded with a rather high wall for privacy and lends a sense of security to the guests. It also serves to muffle traffic noise. Now that the work is finished one steps out of the bustle of a busy city into a quietude surprisingly like that of an old world convent garden.

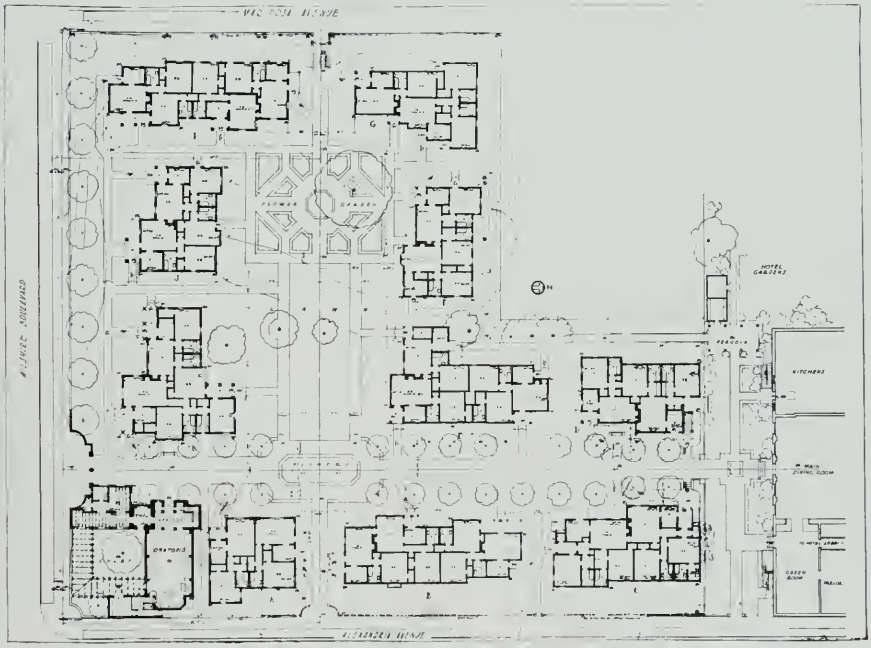
The general scheme of the cottages is to have them arranged mostly into single suites, consisting of a sitting room, dinette completely electrified, bed room, ample closets and a bath. Some suites have two and even three bed rooms and some can be thrown together to make ample provision for families or groups. While the rooms are more or less uniform in size each has its own individuality. This has been carefully emphasized by the furniture and decorations all specially designed. Throughout the bungalows, inside and out, are found rare old

WILSHIRE BOULEVARD ENTRANCE GATEWAY, CHAPMAN PARK HOTEL PUEBLO, LOS ANGELES

CARLETON M. WINSLOW, ARCHITECT



PERSPECTIVE OF PUEBLO, CHAPMAN PARK HOTEL, LOS ANGELES
CARLETON M. WINSLOW, ARCHITECT



PLOT PLAN, CHAPMAN PARK HOTEL PUEBLO, LOS ANGELES
CARLETON M. WINSLOW, ARCHITECT

THE ORATORIO AND LAS FLORES BUNGALOW, CHAPMAN PARK HOTEL PUEBLO, LOS ANGELES
CARLETON M. WINSLOW, ARCHITECT

ORATORIO, LOOKING TOWARD THE ALTAR, CHAPMAN PARK HOTEL PUEBLO, LOS ANGELES

CARLETON M. WINSLOW, ARCHITECT

Kilgen Organ

INTERIOR OF ORATORIO, LOOKING TOWARD THE ORGAN LOFT
CHAPMAN PARK PUEBLO, LOS ANGELES

pieces of furniture, pictures, panels of tile, wrought iron grilles and hangings from a collection made by the hotel management before the Pueblo was started.

The interior of the oratorio is arranged choirwise with stalls built in along the walls, the middle of the nave having benches instead of pews. The little chancel is apsidal in shape and an old Italian credenza was used for an altar, being of just the right size and character. The dossal was made up of pieces of brocade and velour taken from an old frontal, a cope and some hangings found in the before mentioned collection.

Some fine candle sticks and an old crucifix completed the furnishings, the whole pulled together and dominated by a splendid mural of the Annunciation, done in tempera by Ramos Martinez, a noted Mexican painter. The nave floor is laid with tiles brought from Seville, Spain, years ago. A Kilgen organ is being installed. In the tower is a bride's retiring room for before the chapel was finished applications for its use for weddings began to come in.

In a way, the Chapman Park Pueblo is an experiment in city hotel planning but its success from the management's point of view leads the architect to believe that it will be of considerable influence upon future hotel projects undertaken in Southern California.

LOOKING SOUTHWEST TOWARD THREE OF THE BUNGALOWS, CHAPMAN PARK HOTEL PUEBLO, LOS ANGELES

CARLTON M. WINSLOW, ARCHITECT

TECHOS ROJOS AND LA HACIENDA BUNGALOWS IN FOREGROUND; HOTEL IN THE DISTANCE

DINETTE IN ONE OF THE BUNGALOWS

THE BATH

SITTING ROOM IN ONE OF THE BUNGALOWS,
CHAPMAN PARK HOTEL PUEBLO, LOS ANGELES

BEDROOM IN ONE OF THE BUNGALOWS
CHAPMAN PARK HOTEL PUEBLO, LOS ANGELES

Architecture of Early Spain Reflected in Chapman Park Pueblo

Each bungalow is given a Spanish name, the meaning of which is translated here in English

The Market

The Homestead

Named for "Our Lady of Guadalupe"

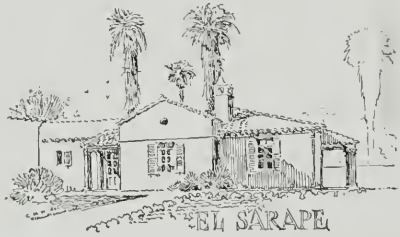
Red Roofs

Named for Xochimilcho Gardens

Named for a tile picture painted at Churubusco

The Flowers

The Balcony



The Shawl

Named from the Chapultepec Palace

REINFORCED BRICKWORK

A Review of What Has Been Written on the Subject

by Robins Fleming

THE time has come when an acquaintance with reinforced brickwork should be part of the equipment of the structural engineer. To serve as an introduction to such an acquaintance, or to further it, is the purpose of this article. It is intended to give a review of what has been written on the subject. Because of space limitations this is necessarily incomplete. No appraisal of its value as a system of construction will be attempted, nor any analysis or method of design be presented.

To the eminent engineer Brunel is credited the first application of metal reinforcement to brick masonry. Richard Beamish, F.R.S., in his "Life of Sir Marc Isambard Brunel" describes the building of Brunel's greatest engineering achievement, the Thames River Tunnel. Two paragraphs will be quoted: "On the 16th of February, 1825, arrangements were so far advanced as to permit ground to be cleared for the construction of a shaft fifty feet in diameter and forty-two feet in height." . . . "From the timber curb there ascended 48 wrought iron bolts one inch in diameter, which were built into the brickwork, and at the top they were united to another timber curb by nuts and screws, thus binding the whole work into one solid mass. Iron hoops and timber bonds nine inches deep and half an inch thick, were also let into the brickwork at intervals as the work was brought up."

Comparatively little interest was shown in this feature of Brunel's work. For a hundred years brick reinforcement was rarely used, if at all. In 1923 Technical Paper No. 38 of the Public Works Department, Government of India, was published at Calcutta. This two-volume "Notes on Reinforced Brickwork," by A. Brebner, has been drawn upon by practically all writers on the subject. The author was Under Secretary, Public Works Department, and his "Notes" are largely based on his personal experience. During the three years previous to writing them nearly 3,000,000 square feet of reinforced brick were laid in India.

Quoting from Section I: "Reinforced brickwork construction is in all essential features practically the same as reinforced concrete construction save that brickwork in concrete mortar is substitute for cement concrete. The principles of reinforcement are similar and steel is used in various ways where necessary as in reinforced concrete to give the necessary strength to the material." "No special materials of any kind are required," he says, "all that is wanted are (a) Bricks, (b) Cement, (c) Sand, (d) Ordinary mild steel rods or bars." "The main requisite of good reinforced brickwork," he says in Section III, "are I—sound centering, II—Good materials, III—Careful work."

It is interesting to note that the University of Missouri Bulletin Vol. 29, Number 17, "Reinforced Brickwork," by Mason Vaugh, is based

on the author's six years' experience in India as Agricultural Engineer. During this time he carried out considerable building work. A brief description of conditions in India is given as a background. The Bulletin, dated October 1, 1928, a monograph of 84 pages, like Brebner's Report, is often quoted. It may not be amiss to call India the home of reinforced brickwork.

British literature on reinforced brickwork is scant. A recent article is "Reinforced Brickwork, a Review of its Possibilities and Development to Date" by L. W. Burridge in the 23 January, 1937, issue of the Journal of the Royal Institute of British Architects. Seldom is so concise and comprehensive information found as in the eleven pages of this article. The four sections are entitled: "History of Reinforced Brickwork"; "Theory of Reinforced Brickwork Design"; "Problems"; "Possible Development of Reinforced Brickwork."

American literature on reinforced brickwork is extensive and most of it easily accessible. The files of Engineering News-Record for the past ten years are a rich mine of information on the subject. A score of articles, records of tests and editorial comments could be quoted. "The Possibilities for Reinforced Brickwork," by J. B. Lentz, are given in the issue of February 21, 1929. "Reinforced Brickwork: A New Construction Material" is the title of a staff article in the issue of July 21, 1932. A reservoir in Washington, D. C., completed in 1861 and a dam near Ithaca, N. Y., built in 1905 are cited as early American examples of reinforced brick. Two sand storage bins, built in 1931, one 25 feet and one 16 feet diameter, each 52 feet high and together supporting a screen house is believed to be the first large structure of the kind built in this country.

Allusion is made to the early tests of Powers (1923), Danforth (1924), and Vaugh (1928). The issues of March 16, 1933, and January 4, 1934, give data of tests on 33 brick columns twelve and one-half inches square and ten feet high conducted by Professor Lyse at Lehigh University. A design formula was proposed on the basis of the test results. An enclosure for a steel tank 110 feet diameter and 52 feet high, of 4 inch wall between brick columns is described in the issue of June 23, 1932. A 42-foot span brick arch erected without false-work is described in the issue of June 28, 1932, and the substructure of an Ohio highway bridge of two spans each 32 feet clear in the issue of February 28, 1935. Tests made in New York City are the subject of a staff article: "Thin Slab of Brick and Metal Lath Shows High Strength and Low Cost." It is stated that the slabs were designed by J. H. Hansen and Odd Albert of the Brick Manufacturers' Association of New York, "to demonstrate a sturdy, economical type of floor for small houses." "Bleachers for Ohio School Built of Reinforced Brick Masonry" is the title of an article by H. C. Plummer in the issue of August 27, 1936. The bleachers are about 300 feet long and required 110,000 bricks in their construction.

The files of Brick and Clay Record are likewise a storehouse of information. In those of the years 1930 to 1936 more than 40 articles may be found relating to reinforced brick masonry (often referred to as R. B. M.) mostly describing structures that had been recently erected. A noteworthy article is that in the issue of July 15, 1930, by Dr. Eng. Shigeyuka Kanamori, Civil Engineer, Department of Home Affairs of the Imperial Japanese Government, entitled "Reinforced Brickwork Opens Greater Possibilities." The editor says that Dr. Kanamori speaks with authority. When but little known in the United States reinforced brick was recognized in Japan as a standard form of construction and its use became quite common. This is said to have been greatly facilitated by a special form of brick invented and patented by Dr. Kanamori "after many years of study." This special form is a notched brick which provides continuous openings to accommodate steel rods. (See also Engineering News-Record, July 24, 1930; Engineering, January 9, 1931.) Dr. Kanamori states, "I have built many structures such as buildings, retaining walls, bridge piers, abutments, and so forth where my construction practices have been employed." A house at the Chicago Century of Progress Exposition, "built entirely of brick

and not containing one piece of inflammable material in the construction of the house itself," attracted considerable attention. More than 1,000,000 persons passed through it during the Exposition. A detailed description is given in the issues of June, July and September, 1933. The April, 1933, issue has an article, "New Unit for Earthquake-proof Reinforced Brick Masonry." A new shape of common brick having indented slots along the top and sloped edges along one side was being used in Los Angels for earthquake-proof brick masonry. The shape was developed by Walter Simmons of the Simmons Brick Company of that city. An article of like nature is "New Methods of R. B. M. Construction Use New Type Grooved Brick" in the issue of July, 1935. An article: "Design and Construction of R. B. M. Lintels" by J. F. Nichols, may be found in the May, 1935, issue.

An article, "Reinforced Masonry for Industrial Use," by H. S. Haworth in Civil Engineering, April, 1933, describes what is believed to be the first industrial building in the United States with 4-inch reinforced brick masonry walls between brick columns. It was completed in June, 1932, at the Wood River Refinery in Illinois of the Standard Oil Company. The dimensions of the main building are 44 ft. 8 in. x 78 ft. 4 in. An adjoining room is 13 ft. 8 in. x 32 ft. 6 in. The heights in main room floor level are: 10 feet to under side of girder seats of a 12-ton crane, 15 feet 6 inches to under side of steel trusses, 18 feet 6 inches to eaves and 22 feet 6 inches to ridge of roof. The reinforced brick side columns are 23 in. x 27 in. up to crane girder seat, above which they are 23 in. x 14 in.

Paper No. 504 dated September 17, 1932, Volume 9, Journal of Research of the U. S. Bureau of Standards is entitled, "Shear Tests of Reinforced Brick Masonry Beams." The authors are D. C. Parsons, A. H. Stang and J. W. McBurney. Eighteen beams 14 feet long and about one foot square in cross sections were tested to determine the resistance of such beams to failure by diagonal tension, and data recorded.

The American Society for Testing Materials in Volume 33, 1933, Part II, Technical Papers, present a paper, "Tests on Brick Masonry Beams," by Professor Withey of the University of Wisconsin. Data are given on the shear and bending strength of twenty-five 8 inch x 12 inch reinforced brick beams tested under third-point loading over an 8-foot span. In Volume 34, Part II, Technical Papers, of the same Society is a paper, "Tests on Reinforced Masonry Brick Columns," also by Professor Withey. Tests of thirty-two twelve and one half inch by twelve and one half inch brick columns six feet high are recorded. In volume 35, 1935, Part II, Technical Papers, is given, "Tests of Mortars for Reinforced Brick Masonry" by Professor Withey and Instructor Wundt.

A paper, "Developments in Reinforced Brick and Masonry," by James H. Hansen in Transactions, American Society of Civil Engineers, Volume 99, 1934, is well worth attention. "Historical Notes," "Characteristics of Brick and Brick Masonry," "Comparison of Test Data" and "Conclusions" are the headings of respective sections. Many references are given in the footnotes. The paper and the Discussions thereon have been reprinted as a monograph of 28 pages.

The most extended treatise on the subject is, "Reinforced Brick Masonry. Principles of Design and Construction," by Hugo Filippi, copyright date 1933. The book is Volume III of a series, "Brick Engineering," published by the Brick Manufacturers' Association of America of which Association the author is named as Consulting Engineer. Of the 240 pages about 100 are taken up with drawings, tables and illustrations of structures completed. The "Historical Notes" are quite full as well as the footnotes throughout the book. Many tests are recorded. A chapter is entitled "Theory of Design," another "Suggested Specifications for the Construction of Reinforced Brick Masonry." The book merits high praise.

An outstanding feature of the Exhibit by the London Brick Company, Ltd., at their stand in

(Please turn to Page 43)

SUNSET PLAZA APARTMENTS, WEST HOLLYWOOD, CALIFORNIA

PAUL R. WILLIAMS, ARCHITECT

KITCHEN SHOWING GAS RANGE INSTALLATION

CORNER OF LIVING ROOM

HOME-LIKE APARTMENTS

Individual Taste of Tenants Anticipated by Builders

by J. R. Ferguson

DURING the hey-day of apartment building several years ago, we thought we had reached just about the last word in multiple housing. However, new trends in living and the development of new construction materials have now brought on a fresh era of apartment house design.

Long halls, with ten or twelve apartments opening off from them, are things of the past, having given way to the grouping of numerous small homes under one roof. This allows for more individuality, both in the arrangement of rooms in each apartment, and in the exterior treatment.

The question has often been discussed as to why apartment houses built in California should follow the usual office building type so prevalent throughout the East, when one of the main reasons for coming to California is to take advantage of the sunshine and out-of-doors. With this in mind, many of the new developments are being planned on large areas, spreading the apartments out to give each its own front door wherever possible.

Planning of this nature brought out many new problems for the architect, one of which was heating. However, the perfection and popularity of flexible gas-fired heating and air-conditioning equipment has satisfactorily solved the problem by allowing separate units for each small group of apartments. This has worked out very well in permitting apartments with southern exposure to regulate their heaters for less heat than apartments with northern exposure.

Another radical change has come about in the planning of color schemes and furnishings, breaking away from the stereotype apartments in which every living room is the same size, shape and color. In other words, why shouldn't a family living in an apartment have the same opportunity to express their individual taste as those who build their own home? True, it costs more to build each apartment differently from the rubber stamp type. On the other hand, the owner is compensated by the fact that apartments designed individually bring higher rent and tenants regard them as homes rather than temporary housing.

These were the factors considered in designing the Sunset Plaza Apartments in West Hollywood. The eighteen deluxe apartments are, insofar as possible, individual units in themselves. Forced air unit gas furnaces of the latest type provide thermostatically controlled heating for each apartment according to its needs. In these furnaces, the air is cleaned at all times, and may be circulated unheated for summer ventilation.

In the Sunset Plaza Apartments, architect and owner have also advanced a step further in today's trend by including a tennis court and outdoor swimming pool. These not only form a nucleus for social festivities, but play an important part in the landscaping of the property.

THE MODERN TREND

PACIFIC MUTUAL
OFFICE BUILDING,
LOS ANGELES,
BEFORE AND AFTER
MODERNIZATION

JOHN AND DONALD B.
PARKINSON,
ARCHITECTS

Illustrations courtesy
Southwest Builder and Contractor

ACOUSTICS OF BROADCASTING STATION

KFWB STUDIOS IN HOLLYWOOD HAVE MODERN EQUIPMENT

by C. M. Mungler

NEW and unusually effective treatment of acoustical problems has been carried out in Warner Brothers KFWB Studios in Hollywood.

The novelty of these innovations lies principally in the manner in which new combinations of building materials were found to aid in the maintenance of a proper acoustical balance. Discarding the "live and dead end" type of construction for selective absorption and contours, KFWB now operates from a station which need concede nothing to any recent construction in the radio field from the standpoints of modern equipment and efficiency.

Another interesting point is the fact that while the station and its new transmitter represent a cost of nearly $200,000, both its builder and owners consider it in a way experimental and presaging another studio construction second to none. In fact, the buildings housing both the studio and transmitter have been laid out with the idea of allowing for just such expansion.

The studio building houses an auditorium with stage and dressing rooms, a large sized studio for use by orchestras without an audience, a smaller studio for chamber music groups, studios for speakers and announcers, sponsor's rooms, a master control room, studio controls, two organ reverberation rooms and quarters for the station's news service.

The auditorium is unusual in that instead of being a stage and auditorium acoustically coupled, it is built with no proscenium arch and as a single room. Simplicity and dignity mark the lines and the auditorium proper has a seating capacity of 500, with a projection room built in at the rear.

The stage runs the width of the house, and has a "splayed" ceiling and back. It occupies the full width of 50 feet, is 20 feet in depth and is raised 5 feet above the house level. Standard footlights at the front of the stage, and two sets of border lights in the splayed ceiling augment the spotlights from the booth when an audience show is being staged.

The "splaying" here, which more nearly resembles in appearance the bellows of an accordion than anything else, is not a haphazard breaking up of a straight wall, but a planned contouring, which in each case has been figured out for the individual room. These walls are made of wood, stiffly braced and backed by four inches of selected and combined absorptive materials.

A screen drops from a pent house to the stage for use whenever it becomes necessary to broadcast from sound film, or use pictures for a sponsor and the projection room equipment consists of projectors, spot lights and two sets of light control switches. As a result, all of the lights here may be controlled from any one of four spots—either of the booth positions, the studio's control room or at the panel backstage in the power room.

In the foreground is the console of the master control room of Warner Brothers KFWB, with the announcers' studio showing through the glass panel. This room is finished in a grey to match the instrument racks.

Typical of the individual control rooms for the different studios in KFWB at Hollywood.

Side walls in the auditorium have been acoustically treated, with the ceiling left untreated so that it will act as a sounding board to carry back to the audience. Decorative pilasters used here also take care of the ventilation, and lighting comes from a set of recessed boxes at the ceiling, set to give the effect of sunlight filtering in from the outside.

The second largest studio presents an entirely different problem, in that it was planned for use by setting the source of sound anywhere that might be desired. Parallel reflective surfaces were therefore broken up on two sides by vertical pilasters, while the ceiling is marked by "splayed" panels which are opposite a maple floor. The wood here was chosen for its variegated coloring, and maple used because tests have shown it to be the best under-reflecting material for studios where an orchestra is to perform.

Six different materials went into the walls of this room. There were recurring panels from floor to ceiling of U. S. Gypsum Acoustone,

Auditorium and stage of Warner Brothers new KFWB at Hollywood, showing in detail the "splayed" wall treatment which was used to back up the musicians. At the back center is seen the penthouse from which the motion picture screen is dropped. At the right of the stage is the manual of the Wurlitzer organ and at the upper left hand side are seen the sponsors' booth and the studio control room. This differs from ordinary construction in that the auditorium and stage are built as a single room, instead of being two acoustically coupled units.

with splayed plaster panels in between. On the other walls perforated "Perfasheet," with an absorbent mineral wool backing, runs horizontally, with alternative strips of tightly stretched linen covering the mineral wool backing. This has the effect of damping tones in the very low frequencies through diaphragm action, and of reflecting the high frequencies by its nonporous surface, and is a style of treatment which was pioneered by the KFWB designer.

This made it possible to do away with a wainscoting for this room, and proved a further aid through the consequent control of "flutter" echoes. "Perfasheet" proved more than helpful here, since it will stand so much more abuse than will plaster. The third studio was also planned to remain uncarpeted, but it had a fixed source of sound and was therefore treated differently as to acoustical plans.

The end intended for the musicians or speaker was made of hard plaster, with Acoustone and hard plaster alternated in the side walls

The interior of one of the two organ reverberation rooms showing the introduction of "splayed" ceiling to eliminate any parallel surfaces.

Studio Five in Warner Brothers KFWB at Hollywood was planned for the presentation of orchestra and choruses without audience, and its acoustical design allows placing the source of sound to any point desired in the room. Six different materials were used in the wall construction. Elimination of the wainscoting proved a distinct aid in the control of flutter echoes.

and Acoustone on the rear wall. This example of mis-matched impedence—tapering from a live to a dead material — proved successful on every test so far.

"Splayed" walls were also carried into the two organ reverberation chambers. These rooms were lined with wood and covered with heavy linseed oil, giving the organ music broadcast entire freedom from blurring of tone and distortion.

Wherever it was necessary to break the studio walls with glass, three plates of different thicknesses were used, with the frame felt insulated. The glass plates vary as to thickness, since tests have shown that while a single pane of glass may show an affinity to, and vibrate, for certain frequencies, the introduction of other panes of different thicknesses will largely halt cases of sound leakage.

Doors were treated with equal care. Each was made of several steel plates, with sound absorbing materials in between to offset the reflective qualities of the steel. The adjoining panels were carefully shielded and each door closes against thick rubber strips.

Especial care was taken in the planning of the studios to achieve restful and luxuriant effect. The auditorium was done in autumn gold and pastel chocolate browns, with royal blue upholstery and a rust carpeting, while the stage has a Chartreuse and pastel canary yellow color scheme. The second largest studio was finished in peach, French grey and powder blue and the small studios in warm shades of brown. Sponsors' booths were finished to match their respective studios and the control rooms in a grey to match the equipment racks.

Many of these constructional changes from

early day studio methods can be traced to the understanding of electrical sound reproduction and transmission which have come with sound pictures and the KFWB designer drew freely upon his experience as a builder of sound and scoring stages and review rooms for the major film companies and his work with the studios of the larger Pacific coast broadcasting companies.

The builders of the first studios found that too live walls had a tendency to overstress the lower ranges, so to offset this all walls were deadened. These modern methods allow the broadcaster to keep the higher frequencies at full value without overstressing the lower ones.

Credit for this goes chiefly to three Californians, the writer, with the Acoustical Engineering Company, Los Angeles, who was the designer; Bertham Teitelbaum, studio architect for Warner Brothers, and Les Hewitt, chief engineer for Warner Brothers. Constant assistance was also received from Major Nathan Levinson, Sound Director, of Hollywood, who is in charge of Warner Brothers Motion Pictures Studio sound recording activities.

REINFORCED BRICKWORK

(Concluded from Page 35)

the recent Building Exhibition (Olympia, 1936) were canopies 5 feet wide, projecting from each side of the central brickwork and extending the whole length of a building. They were made entirely of reinforced brickwork. An illustration of the building with a canopy prominent is given in The Builder (London) of September 18, 1936, (Vol. CLI, p. 545). A diagram of a canopy with detailed description is given in the issue of September 25, 1936, (Vol. CLI, p. 601). The writer states, "The example incorporated in the stand is that of a cantilevered slab, which has been fully calculated by Hugo Filippi, consulting engineer, U. S. A., and properly built with the essential features of reinforced brickwork kept in mind at all stages of the work. The slab as built is 7¾ in. thick, this thickness having been adopted for architectural reasons, but structurally the slab could have been 4¾ in. thick."

A HOME IN THE HILLS

(Concluded from Page 13)

the very informal outline of the main residence building, would suggest a "picturesque" informal treatment. On the contrary, here is a conventional Colonial design with a strong flavor of the Georgian and Italian prototypes. But it is very effective (both as to physical and social aspects), and will become more so as tracery of vines embroiders white walls, brick and wood are mellowed by age and weather. Meanwhile, extending wings relieve the formality; and the quiet dignity of the facade keys in with the spacious simplicity of forecourt and garden court.

Mr. Ballantine is to be congratulated upon a solid architectural achievement which is well calculated to stand the test of time; and the owners are to be congratulated upon the possession of a property unique and inspiring, so developed as to give full opportunity to a chosen scheme of living. This would seem to promise the urbanities of modern civilization added to the bounties of generous Nature!

FROM THE MAIN ENTRANCE, NORTHERN VISTA TOWARD THE FARM, THE STANLEY HILLER RESIDENCE, BERKELEY

CHRISTOPHER HENRY SNYDER - CIVIL ENGINEER

A Tribute by ARTHUR BROWN, Jr.

THE architectural and engineering fraternity has lost one of its most distinguished and outstanding members by the death of Christopher H. Snyder. For the past thirty years he was intimately associated with the design and execution of much of the important engineering and architectural construction that has been done in the San Francisco bay region, and the architects for whom he acted in the capacity of consulting and designing engineer will always be grateful to him for his splendid work in structural design, upon which they could confidently depend.

C. H. Snyder was singularly fitted for his task as designing and consulting engineer for the architectural structures to which he gave so much of his professional attention. Thoroughly schooled in engineering theory at the University of Illinois, he passed a long apprenticeship in practical application in the steel manufacturing plant of the Keystone Bridge Company. Following this training in structural design from the producer's standpoint, he joined the organization of Milliken Brothers, contractors, where he had many years of experience and responsibility in the actual administration and execution of engineering enterprises of the first order.

These three phases of his career rounded out and completed his highly competent professional equipment. His recommendations could be confidently depended upon for rational design and feasibility, and his estimates of cost were based on positive knowledge and experience.

Mr. Snyder died May 27 at the Peralta Hospital, Oakland, following an illness of less than one week.

SNYDER, Christopher Henry, 251 Kearny St., San Francisco; res. 2713 Forest Ave., Berkeley, Calif. Civil Engineer; b. Fulton, Ill., June 12, 1865; s. William Cowperwaite and Isyphene Caroline (Pearce) Snyder; ed. pub. schs., B. S. in C. E. Univ. of Illinois, 1890; Tau Beta Pi; m. New York, N. Y., Oct. 14, 1890, Harriet Runyon; ch.: Henry R., William C., Helen J., John R. Draftsman Keystone Bridge Co., Chicago, 1890-92, in Pittsburgh, same co., 1891-93; draftsman, Milliken Bros., N. Y. 1893-98, chief draftsman, 1898-1901, contracting Engr. Honolulu, 1901-02, contracting Engr. Pacific Coast, 1902-12; since 1912, pvt. practice in designing and cons. eng. Among some of the more important buildings for which he developed the structural designs are the following:

City Hall, San Francisco
Pacific Gas & Electric Co., San Francisco
Horticultural Building, Panama Pacific Internat'l Expo. 1915
Federal Office Building, San Francisco
San Francisco War Memorial Opera House and Veterans' Building
Coit Tower, San Francisco
Financial Center Building, San Francisco
450 Sutter Street Building, San Francisco
25 Modern School Buildings, San Francisco
Dormitories, Auditorium, School of Education, and other buildings at Stanford University, Palo Alto
Department of Labor and Interstate Commerce Commission buildings, Washington, D. C.

Invented and patented "Flat slab-steel frame" constr. for bldgs. Mem. Am. Soc. C. E., Western Soc. Engrs., Pacific Assn. Cons. Engrs. (pres. 1921); Recreations: Music, golf. Clubs: Kiwanis, Commonwealth (San Francisco), Union League, Engineers, Commercial (San Francisco), Claremont Country, Mount Diablo Country (Danville), Olympic. Republican.

Excerpt from "Who's Who in Engineering"

Thus he was an invaluable collaborator for those architects with whom he was associated. His designs were always simple and direct—as was his personal character. His brilliant engineering imagination was founded on precise knowledge and his ingenuity and resourcefulness followed naturally from a thorough familiarity with the details of his craft. He did not consciously concern himself with making engineering history, but concentrated his attention strictly to his prime objective of conceiving safe, practical and economical structures. His drawings were models of clearness and gave precise, systematic and complete information. Possessed of high ideals he never wavered in defending his convictions, nor was he known to compromise on safety and good practice.

Mr. Snyder's professional qualities were a clear reflection of his temperament. He had little sympathy with the vague experiments of some of the innovators in either engineering, economics, or politics, but defended sturdily the fundamental convictions born of his long experience of life and professional endeavor. He believed in hard steel, hard dollars, and hard common sense—in spite of new trends. These high qualities were generally recognized and, consequently, he enjoyed the highest respect of everyone in the community.

His friends will long mourn his passing, and will long cherish the memory of a stalwart and likeable personality.

HOUSING MAJOR THEME

Institute Convention Indorses Nation-Wide Program to Meet a 4 Million Dwelling Shortage

Seven California architects were honored at the 69th Convention of the American Institute of Architects in Boston. Frederick H. Meyer of San Francisco, was named vice president and A. H. Bergstrom of Los Angeles was reelected treasurer. The following were honored with a Fellowship: Harris C. Allen, John Bakewell, Jr., and John Reid, Jr., San Francisco, and Roland E. Coats, Los Angeles. Geo. W. Marston of San Diego was elected an honorary member of the Institute in appreciation of his efforts to preserve and restore historic landmarks.

MORE than 1,000 architects, builders, producers of construction materials, educators and representatives of allied arts participated in the sixty-ninth convention of the American Institute of Architects in Boston June 1 to 5.

Housing was the major theme of the assembly, and plans were made to develop a nation-wide program to advance the construction of homes, now impeded by costs and other factors, under the leadership of the architectural profession. The architects propose to launch studies of large-scale low-rent housing which will clear the way for concerted action to meet the shortage, which, it is estimated, will require 4,000,000 dwelling units and an expenditure of $12,000,000,000 in the next decade.

Anticipating "a tremendous forward movement in housing construction of all types," the Institute will build up a housing policy which will be carried out through committees to be organized by each of its sixty-eight Chapters throughout the country, and in which the Federal Government and the construction industry, as well as civic and other groups, will cooperate.

"Second only to the doctors, the architects are more necessary to the health, safety and economic security of the American family than any other group," says a statement by the Institute's Housing Committee, of which Walter R. McCornack of Cleveland is chairman.

"Yet we have submitted and have allowed the public to submit to all sorts of abuses from commercialized quack plan services which, while they may not reach a large field, are definitely destroying the confidence of the public in the integrity of the building industry and in the practical value of architectural service."

Favoring the passage of the Wagner-Steagall Bill, the Committee points out that if a National Housing Authority is set up it will be possible for the first time to have a single point of housing contact with the government. This Authority, according to the Committee, will enable organized architecture to work effectively in behalf of programs of housing in the various regions of the United States.

Stephen F. Voorhees, President of the Institute, and Chairman of the Board of Design of

the New York World's Fair, presided at the opening session at the Somerset Hotel. Following an address of welcome by the Right Reverend William Lawrence, retired Episcopal Bishop of Massachusetts, Mr. Voorhees delivered the president's address. Edwin Bergstrom of Los Angeles submitted his report as treasurer, and the report of the Board of Directors was presented by Charles T. Ingham of Pittsburgh, secretary of the Institute.

On Tuesday afternoon, the architects visited Gore Place in Waltham, Mass., where a reception was held by Mr. and Mrs. Voorhees. The Institute will lend its aid to the preservation of Gore Place, seat of Governor Christopher Gore (1758-1827), which is called "one of the half-dozen outstanding houses in the United States." Lexington, Concord and other historic cities, and the routes of Paul Revere, were included in the itinerary.

Wednesday's session opened with the report of the Credentials Committee, followed by the nomination of officers and directors.

Dean William Emerson of the Massachusetts Institute of Technology, chairman of the Institute Committee on Education, welcomed the architectural students and read the report of his committee. Dr. Walter Gropius of the Harvard Faculty of Architecture spoke on "Essentials for Creative Design." Dean Everett V. Meeks of Yale University discussed "Foreign Influences on Architectural Education in America."

The report of the Committee on Housing was presented by Chairman McCornack, the central theme being "Rebuilding America." Practically every aspect of housing was considered. New methods of construction to meet the housing shortage were considered.

The architects will move to supply the need for architectural advisory and supervisory service in the small home field. "The greatest volume of home building occurs in the $4,000 to $8,000 price range, centering around the $5,000 house," it is explained. "The reason why competent technical advice and supervision seldom filter down to this field is relatively unimportant."

"The vital fact is that thousands of small homes go wrong because the owners rely on ready-made plans 'that just need a little shifting around.' Perhaps the contractor roughs out what he thinks they should have. In any event, the results are all too often quite different from the owner's original conception and too many such homes start to disintegrate at a surprisingly early date."

A joint meeting of the Institute with the Producers' Council, an organization of manufacturers of building materials and equipment representing an invested capital of nearly $2,000,000,000, was a feature of the convention. The principal speaker was E. Kent Hubbard, President of the Connecticut Manufacturers' Association, whose subject was "The Relation of the Building Industry to Recovery from a Business Angle." William Stanley Parker of Boston, chairman of the Institute's Committee on Construction Industry Relations, presided.

Thursday afternoon the architects visited Harvard College and attended a tea at Lowell House. They also visited Longfellow House, Elmwood and the Judge Lee House, the home of Dean and Mrs. Emerson.

On Friday afternoon a reception was held at Fenway Court, the annual dinner of the Institute taking place in the evening. Fellowships and honorary memberships were presented and the new officers were inducted. Among those honored with a Fellowship was Harris Allen, former president of Northern California Chapter, San Francisco. Saturday was devoted to an inspection of notable old houses in Rhode Island and to a social program at Providence. Other cities visited included Newport, Bristol, Portsmouth and Middletown.

Many other subjects affecting architecture and building were discussed at the Boston convention. They included allied arts, public works, building, education, structural service, public information, preservation of historic buildings, registration laws, civic design,

foreign relations, construction industry relations, the professional organization of architects, and the development of the National Capitol. More than a score of committee reports dealing with progress in these and other fields were submitted.

The Producers' Council held sessions during the A. I. A. convention, the president, F. R. Gilpatric of the Stanley Works, New Britain, Conn., presiding. A proposal to consolidate the Manufacturers Housing Promotion Council and the National Housing Advisory Council with the Producers' Council was acted upon. The plan contemplates the creation by the Producers' Council of a Sales Promotion and Education Division. On Friday, the Council's directors met. J. C. Bebb of the Otis Elevator Company, New York, is chairman of the Board.

EDUCATORS PARTICIPATE IN SESSIONS

Educators from all over the country attended the twenty-fourth annual meeting of the Association of Collegiate Schools of Architecture in Boston May 30-31, and took part in the sessions of the Institute's Committee on Education.

Professor Sherely W. Morgan of Princeton University, president of the Association, spoke on the opening day, when reports of committees were received. Dean George S. Koyl of the School of Fine Arts of the University of Pennsylvania, reported on a proposed exhibition of fine arts, collegiate grade, in the Department of the Interior, Washington, D. C. Professor Roy Childs Jones of the University of Minnesota discussed "The Inter-School Problems in use at Minnesota, Massachusetts Institute of Technology, Cornell and Armour." Addresses were delivered by Professor L. C. Dillenback of the Department of Architecture, Syracuse University, and Professor Charles W. Killam of Harvard.

A feature of the second day's meeting of the Association was an open meeting on professional examinations, at which construction, professional practice, and design were topics.

The Boston Society of Architects, of which Henry R. Shepley is president, was host to the American Institute of Architects and to the allied bodies which were meeting in connection with the Institute's convention. The Institute last met in Boston forty-five years ago. At that time Benjamin Harrison was President of the United States and the country was looking forward to the World's Fair in Chicago. At the 1937 convention, national as well as architectural interest is centered on the New York World's Fair of 1939, and the Golden Gate International Exposition in San Francisco the same year.

NATION WIDE HOUSING PROGRAM

An eight-point nation-wide housing program was outlined in a report made public by the Board of Directors at the opening session. More than 200 delegates from the organization's sixty-nine Chapters throughout the country participated.

Recommended by the Institute's Committee on Housing, of which Walter R. McCornack of Cleveland is chairman, and approved by the Directors, the resolutions provide for a working alliance between architects, builders, and Federal agencies, entailing both cooperative and independent studies of the nation's housing problems, allocation of $200,000 to the Department of Commerce for development of a new technological approach to construction with a view to lowering costs, and creation of a joint national investigating committee to inspect completed Federal Housing projects.

Other suggestions in the report, which was read by Charles T. Ingham of Pittsburgh, secretary of the Institute, included preparation of a real property inventory "necessary in the replanning of American cities," organization of a committee of architects to cooperate with the National Housing Authority in formulating a code of basic principles for the national housing movement, a study of unemployment in the building industry, development of moder-

ate cost housing for rent rather than sale, and inauguration of a campaign for a general minimum standard for dwelling units.

The Board also went on record as favoring the appointment of a commission to pass on the qualifications of architects seeking national employment under the jurisdiction of the Treasury Department, but advised that the Convention take no official stand with regard to proposed alterations on the national capitol.

Citing the reports of regional directors as indicating a general improvement in the building industry throughout the country, the directors urged the necessity for a unified program "which will demonstrate that the Institute is prepared to meet the problems of the day with continued vitality." The convention marked the completion of eighty years of service by the Institute.

"JERRY" BUILDING MUST BE CURBED

A sweeping program of detailed and continuous cooperation between the architectural profession and the construction industry to eliminate "jerry-built houses and slap-up commercial and industrial structures" during the "steady climb toward prosperity in building" was urged by E. Kent Hubbard, president of the Connecticut Manufacturers' Association.

Speaking at a joint luncheon meeting of the American Institute of Architects and the Producers' Council Mr. Hubbard pointed out that the building industry recovered in 1936 approximately a quarter of the ground lost during the depression, and that while it still failed by 60 per cent to reach its pre-depression peak, "normal construction has begun." The return of sound economic conditions in the industry, he said, is dependent upon "stimulation of sound expansion in private building."

"The challenge, therefore, to the architectural profession and to the Producers' Council is a real one," Mr. Hubbard told the meeting.

"It is provoked, first, by the present faith in the fallacy that modern science and the machine age can produce miraculous prosperity for all—without end and without effort; second, by the general superstition of the omnipotence of a providential and paternal government; third, by the burden of a new cost of the enlarged state and its waste of national income at the expense of the consuming public; and fourth, by the passing of the control of so many factors of creating national income from efficient business management to wasteful political direction.

"So far as the building industry is concerned, a closer cooperation between the architect and the producer to avoid waste and mistakes will do more today than at any time in the history of this affiliation between the American Institute of Architects and the Producers' Council. The individuals in both groups are, because of their training and viewpoint, able and, I know, willing to meet the challenge.

"Normal construction, as we knew would be the case, has begun with the construction of homes, because that is the greatest need. The home instinct and the desire not to be doubled up gave rise to this beginning. Following closely upon it, even in some cases antedating home construction, was construction of factory buildings, with the result that new jobs were opened up and wages began to rise.

"That we shall avoid jerry-built houses and slap-up commercial and industrial structures, is a responsibility of the two groups that are meeting here today. Such a method of conducting what is perhaps the greatest single business in the United States must be avoided at all costs—a business which in 1930 employed over 3,000,000 workers in direct construction alone.

"This can be done only by year-round day-in-and-day-out cooperation and by continuing conferences between the two groups where more than mere words will be passed. It can be done if you of the architectural profession, organized as you are in the American Institute of Architects, will make recommendations in specification form to the makers of builders'

hardware, to the manufacturers of roofing materials, to the suppliers of electrical appliances, and to all those engaged in producing what you must fit into your ideas and the needs of the pocketbooks of your clients. It can be done of you of the Producers' Council will not depend solely upon what many of you feel is your infallibility in telling the architect what materials he should use, but will request of him his opinion and submit to him in specification form the product that you have conceived before you enter production.

"There is no need for additional expensive organization to bring about direct and frequent cooperation. The American Institute of Architects is already well organized, and it merely awaits more intimate approaches from the various groups in the Producers' Council, already organized. Neither the profession nor the industry can go it alone. Individually they cannot meet the challenge. But collectively, the world is at their feet."

A PLEA FOR SOUND HOME EXPANSION

"The building industry depends upon the construction of homes. The construction of homes depends in turn upon sound economic conditions generally. Therefore while we have a cycle or circle, we must regard the building industry as the neck of the economic bottle. Consequently it is up to those who are allied in this great industry to eliminate any friction which might exist and work wholeheartedly toward a common end. This common end can best be attained through the stimulation of sound expansion in private building.

"A real start was made in 1935 when privately financed construction rose to 45.4 per cent from the 1934 low of 36.8 per cent. I presume that for the first quarter of 1937 the percentage of privately financed building has risen well toward the 65 or 70 per cent mark. Surely there is evidence everywhere that conditions have become more favorable for private enterprise. More people want new homes and are securing them. The construction of productive buildings has materially increased.

"Great numbers of people have regained their purchasing power and are utilizing no small part of that purchasing power to house themselves properly. How rapidly we shall approach the peak in all types of building construction depends upon the individuals in both of our groups working together to improve the condition which exists at the neck of the economic bottle, to the end that complete recovery will be attained.

"I point to these facts and present these figures to indicate that while we are on the upgrade, we still have a considerable way to go. The heartening part of the entire situation, however, is that the profession and the industry still have time to build solidly before we are materially under way."

Material progress must come before private initiative, Mr. Hubbard warned. The goverment did "prime the pump," he said, "but there must be a tapering off.

"The omnipotent, providential, and paternal state must of necessity cease being omnipotent, providential, and paternal," he added. "The bottom of the till has been reached, and the burden must be passed on. The Secretary of the Interior has announced most firmly that it must be passed on to the cities, but it should be remembered that the cities do not have the taxing power of the Federal Government, and the States, but the multiple burden of many cities cannot long continue, even jointly, any measure of the enormous spending activities of the Federal government. Therefore, while we cannot rely entirely upon the so-called machine age to carry us out of our dilemma, we can and we must enter into the present period with a new zeal for strengthening and improving our economic order.

"I believe that all honest evidence, not only in the remote past, but in the immediate past, points to the fact that business management, with all its mistakes, has produced the widest possible distribution of national income and an increased elevation of the general standard of

living. I have no way of knowing what would have happened if the Treasury and War Departments had not embarked upon their spending programs. I do not know, by and large, what effect the work of the Public Works Administration, the Federal Housing Administration, and the Home Owners Loan Corporation have had upon recovery, which has been too long delayed.

"There is no way of determining the effect of the work of the Bureau of Reclamation or the Resettlement Administration, nor the work of the National Park Service nor the Bureau of Indian Affairs. But I do give full credit to the honest attempt that was made, not only by the government in alleviating distress, but by the initial efforts of private management throughout the land to spread the work.

"Surely the minds that have conceived in architectural and industrial design need not the advice of the uninitiated or of the superminded economists to tell them that united and cooperative effort can bring to them and to our civilization greater things than we have ever enjoyed before."

CALIFORNIANS ELECTED TO FELLOWSHIP

The election of two honorary members and twenty-three fellows to the American Institute of Architects was announced by Stephen F. Voorhees of New York, President of the Institute. The new honorary members are Gilmore D. Clarke of New York, cited as "one of the foremost landscape architects of the present day," and George W. Marston, 86 years old, of San Diego, California, pioneer in city planning and in the development of the park systems.

Mr. Clarke is consulting landscape architect for the New York City Department of Parks.

Mr. Marston is called the father of San Diego's city planning, having employed John Nolen at his own expense a quarter of a century ago to lay out a city plan. A prime mover for California's park system, including Balboa Park, he presented to the state 2,500 acres of land as the initial gift in developing Borego Valley State Park, which will ultimately comprise about 500,000 acres of desert flora. Mr. Marston is also known for his efforts to preserve and restore historic landmarks.

The twenty-three new fellows include:

Harris C. Allen, Berkeley, for public service and devotion to the high ideals of the Institute.

John Bakewell, Jr., San Francisco, for distinction in design, notably in public buildings.

Ralph Haywod Cameron, San Antonio, for his influence in improving the practice of architecture in the State of Texas and for his qualities of citizenship.

Roland E. Coate, Los Angeles, for distinguished contributions to domestic architecture, the beauty and excellence of his work and his high professional standards.

John Reid, Jr., San Francisco, for contributions to school house architecture, distinction in design, excellence of construction, civic interest, and devotion to his profession.

Charles D. Maginnis of Boston, leader in the field of ecclesiastical architecture, is the new President of the Institute, succeeding F. Voorhees of New York.

Born in Londonderry, Ireland, in 1867, Mr. Maginnis attended Cusack's Academy, Dublin, and won the Queen's prize in mathematics at South Kensington, London, in 1883. He came to America in 1885.

He is a member of the Boston architectural firm of Maginnis and Walsh, designers of the Boston College group; St. Catherine's Church, Boston; Trinity College Chapel and National Shrine, Washington, D. C.; Sulpician Seminary, Baltimore; Carmelite Convent, Santa Clara, California; novitiate buildings at Weston, Mass., and Wernersville, Pa.; seminary at Ossining, N. Y.; churches at East and South Orange, N. J., and at Chevy Chase, Md.; the Immaculate Conception Church, Waterbury, Conn., and the Cathedral of St. Paul, Minnesota.

Mr. Maginnis is a member of the examining committee of the Architectural School of Harvard University and the Municipal Art Commission of Boston.

ST. JAMES CHURCH
VANCOUVER, B. C.

ADRIAN G. SCOTT, ARCHITECT
G. L. THORNTON SHARP AND
C. J. THOMPSON, ASSOCIATES

Southern California Chapter Again Sponsors Honor Award Program

Because of the lack of building during the depression, the Honor Award Programs of Southern California Chapter, A. I. A., were not carried out during the past three years. However, with improved business conditions, renewed interest has developed in this attempt to give recognition to the development of good architecture in the South. In the past, the Honor Awards Program has received a great amount of interest on the part of the general public, as well as members of the building industry and has had a marked influence in encouraging the improvement of architectural design. In this manner, such notable works as the California Club, the State Mutual Building and Loan Association, the Pasadena City Library, the homes of Mr. and Mrs. Malcolm McNaughton, Mr. and Mrs. W. W. Fox, Mrs. R. B. Fudger, William C. and Mrs. Lydia McDuffie, and many other outstanding buildings have brought recognition to the owners, to the contractors, and to others who have cooperated in their production, as well as to the architects.

To simplify inspection and judging of entries, residential and non-residential work will be considered in alternate years. The program this year is devoted to residences and their related arts.

The conditions governing the Awards, as formulated by the executive committee of the Chapter, follow:

1. These Awards shall be known as the "Honor Awards of the Southern California Chapter of the American Institute of Architects."

2. Awards shall be made for executed and completed work which is within the territory under the jurisdiction of the Southern California Chapter of the American Institute of Architects. Awards shall be made only for such work as has been completed subsequent to the last awarding of Honor Awards in 1933.

3. The number of Awards will be governed by the merit of the works submitted. As one of the paramount purposes for which the Awards are to be made is that of encouraging the creation of better Architecture, Awards must be rigidly confined to works of exceptional merit.

4. The Awards shall be made by a Jury of three members of the American Institute of Architecture selected by the Executive Committee, two of whom are not members of this Chapter. Members of the Honor Awards Committee may not serve on the Jury, and members of the Jury may not submit their work for Honor Awards.

5. The Jury in making its Awards must consider the work in its entirety, though this shall not be construed to prevent an Award being made upon any detail of such work. The Jury shall, in making its decision as to merit, consider whether the work is an adequate solution of the problems involved. No Award shall be made until the Jury has inspected the erected work. A unanimous vote of the Jury shall be necessary to make an Award.

6. Entries shall be judged in following Groups:

a. Residences with less than 6 rooms.
b. Residences with 6 to 8 rooms inclusive.
c. Residences with 9 to 11 rooms inclusive.
d. Residences with more than 11 rooms.
e. Remodeled Residences, exteriors or interiors.
f. Interior Deroration of residences.
g. Landscape Architecture of residences.
h. Decorative Arts related to residential Architecture.

Two classes of Awards may be given: "Honor Awards" and "Distinguished Honor Awards."

An "Honor Award in Architecture" may be made for any work of Architecture which, in the opinion of the Jury, merits such distinction.

A "Distinguished Honor Award in Architecture" may be made for any work which the Jury finds sufficient merit to warrant such distinction above other work.

An "Honor Award in Fine Arts" may be made for any work of Fine Arts which, in the opinion of the Jury, merits such distinction.

A "Distinguished Honor Award in Fine Arts" may be made for any work in which the Jury finds sufficient merit to warrant such distinction above other work.

The Chapter under its seal and the signature of its officers will present as evidence of the Awards certificates of award in the classes listed above.

In order that the appreciation of the Chapter may be extended to the owners and builders of the work as well as to the creators thereof, the Chapter will present in every Award made its certificate:

1. To the Architect.
2. To the Owner.
3. To such of the Contractors as the creator shall nominate as having contributed most to the aesthetic merit through their skill and sympathetic execution of the thought of the creator.

Nominations for Awards may be made by any person, and shall consist of the following exhibits and information:

1. 8"x10" black and white glossy photographs, showing sufficient details to properly illustrate the work.
2. Pen and ink plans drawn to a scale of 1/8" equals one foot.
3. Clearly indicated in ink on the back of each exhibit shall appear:

a. The title of the work.
b. The location of the work.
c. The date of completion.
d. The classification as listed above. (See "Conditions.")
e. The name and address of the Architect, or creator.
f. The name and address of the Owner.
g. The name and address of the Contractor.
h. The signature and address of the person nominating the work.

Nominations shall be delivered to the Chapter Office, Room 201 Architects Building, 816 West Fifth Street, Los Angeles, not later than July 1, 1937. This material will be retained by the Chapter for use in reproductions and as a permanent record of the development of Architecture in Southern California.

To defray the cost of exhibition and publicity, the exhibitors shall contribute a Hanging Fee of $5.00 for each work submitted. If the Jury does not select a work for exhibition, the Hanging Fee will be returned.

Honor Awards will be presented to the recipients at a regular monthly meeting of the Chapter and a public Exhibition of Honor Awards and such other works as may be of educational value will be opened at that time. Exhibitors whose work is chosen for display shall furnish larger photographs uniformly mounted, according to the requirements of the Honor Awards Committee for display.

ARCHITECTS' BULLETIN

Issued For

THE STATE ASSOCIATION OF CALIFORNIA ARCHITECTS

Northern Section

F I E S T A

TYPICAL of San Francisco and, in fact, of California generally, is the whole-hearted way in which the people surrender themselves to the intectious atmosphere of a Fiesta. As this is written, Market Street has become an avenue lined with massive redwood trees, past which surge crowds of people with eager, smiling faces. The trees are of painted canvas, but astonishingly effective from a distance; the smiles may be on the surface, but they warm the air. Occasional holiday making is good for anyone—especially on the Big Occasion. And what bigger than the completion of the Golden Gate Bridge? It should open the way for fuller development of the beautiful northern counties; and ahead of us looms the big Exposition. The natural outlook is for largely increased building activities in the next few years; may any obstacles to this consummation be overcome.

F. H. A. CONFERENCES

And this leads us to the old, new problem of small house design. How can architects share in this phase of building activity, which bulks so large in the mass—amounting to over a billion dollars a year now?

Mr. Howard Leland Smith, Chief Architect of the Federal Housing Administration, is touring the country to confer with interested parties. He has just visited the San Francisco Bay District. He leaves no doubt in the minds of his audiences (including many contractors and realtors) that the Administration desires and recommends architectural services on the homes it insures. No attitude could be more satisfactory and encouraging; a public agency could not be expected to go further. Mr. Smith, indeed, has invited some criticism in being so outspoken. He is fully justified, of course, by the comparative records of property values. Competent expert service is in the long run not only an economy, but the factor which determines ultimate success or failure.

The two well-known obstacles are (1) the objection of the small house builder to pay a standard fee to the architect, and (2) the small profit (if any) made by an architect on a small house. To meet this problem, the only apparent solution consists in "mass production;" whereby a multiple operation can be performed for an adequate fee, which reduces the amount per unit to a sum small enough to be accepted by the individual as reasonable and within his means.

At his well-attended meeting with Bay District architects, Mr. Smith expressed his belief that a way would eventually be found to accomplish this difficult task, and urged the profession to take a cooperative and united stand. He described the great potential market and the crying need for expert service, and impressed his audience with the sympathetic, encouraging and decidedly optimistic attitude of the Administration.

JOINT CONFERENCE BOARDS

Harry Michelsen, our genial representative and Chairman of the San Francisco Board, is so thoroughly sold on the practical value of this form of cooperation between the various

branches of the industry, that he visions similar organizations in large centers throughout the country, and is corresponding vigorously toward that end. When Harry gets set on a course it is hard, in fact it is practically impossible to divert him—witness his determination to win a set of fine golf clubs in one of our Convention Tournaments! We shall watch, with wishful interest, Harry's progress in his plan for unified activity. A similar ideal is shown in the plans for the next National Convention of the Building Officials' Conference, to be held in Cleveland May 31st on. Here they hope to assemble the material manufacturer, the architect, the engineer, the contractor and the building official.

DISTRICT ELECTIONS

The Secretary wishes to warn District Advisors that elections for new Advisors should be arranged well ahead of the District Council meeting, to be held early in September. Better to be ahead than behind time, he thinks; and one can see that process would save much wear and tear on the secretarial calendar. What a pleasant surprise the Secretary will get if some District notices this plea and sends in its election returns in July—or even in August!

SUBSCRIPTIONS

Not to be outdone, the Treasurer wishes to remind members that the customary annual $5.00 subscription is still welcome and, in fact, ardently desired, in order to carry on Association activities and obligations effectively and honorably. The Association is the only form of organization to represent and protect the profession in its local problems and practices —legal, business and political. One can see how important it is for our priceless, invaluable Comptroller the Currency to have material with which to demonstrate his wizardry. If you have not yet transmitted, go ahead—obey that impulse—dig out the old check book and unchain the fountain pen!

S. A. C. A. OFFICE FORMS

We wish to repeat a former Bulletin notice. The large supply of change orders and payment certificates which were published by the Association some years ago, is nearly exhausted. Many of our members have found these very useful, and some few suggestions have been made for possible improvement. Any such suggestions should be sent promptly to the office, or directly to Henry C. Collins, Chairman of the original committee which prepared these forms, who has kindly consented to act in the same capacity for revising them.

PUBLICITY

The "California Homes" magazine is again calling for entries for an edition on interesting small homes, an issue approved by the F. H. A. There are two classes, one from $3000 to $5000 and one for homes under $3000. Entries should submit floor plans and either perspective or photograph of exterior, sent to C. A. West, F. H. A., 433 California St., San Francisco. Jobs have been obtained through the publication of these designs.

ACKNOWLEDGMENT

The editor's compliments and gratitude to Secretary Ellsworth Johnson for columnizing herein during said editor's sojourn in a hospital and the following convalescence. In the words of the poet "he done a swell job" proving his versatility as well as his ability. Thus the Pen was mightier than the Sword.

MR. HAGUE RETURNS

William Hague, secretary of one of the local chapters of the Associated General Contractors, has been ill. It was he who originated the idea and created the organization of the Joint Conference Board, which, beginning with the architects and the contractors, has now come to include representatives of all the major interests in the construction industry. This board does a truly remarkable work, acting as a clearing house for the problems of the various member groups and studying out mutually satisfactory solutions and in other ways unifying their program of activity, avoiding conflict and bringing the weight of the whole industry behind every valid cause. Perhaps it is only the officers of the various professional and industrial groups taking part who will ever adequately appreciate what Mr. Hague has done for the industry and its component groups. Now, as he is planning to return to active work, let us welcome him with a sincere appreciation of his worth.

ANNUAL MEETING

The annual convention and outing of the Association will be held October 14, 15 and 16 at Santa Barbara. This is earlier than last year's meeting which took place at Del Monte.

PIEDMONT RESIDENCE

Edwin L. Snyder, 2104 Addison Street, Berkeley, has awarded a contract for construction of a $10,000, seven-room residence in Piedmont for Marvin Sherwin of 4031 Balfour Street, Oakland.

GRAMMAR SCHOOL BUILDING

Bonds have been voted and plans are being prepared for a ten-classroom grammar school building for the Beardsley Grammar School District near Bakersfield, Kern County. The office of E. J. Symmes will be in charge of the work.

TO REMODEL GYMNASIUM

Harold B. Hammill, Structural Engineer, 381 Bush Street, San Francisco, has completed plans for remodeling a one-story frame and stucco gymnasium building for the Mountain View Union High School District in Santa Clara County.

PRELIMINARY GRADUATE SCHOLARSHIP

The School of Architecture and Allied Arts of the New York University announces a competition for the selection of two students of unusual ability to pursue graduate work leading to the degree of Master of Architecture during the academic year 1937-1938. One scholarship of $900 is open only to graduates of other institutions. Another scholarship, also of $900, is open only to graduates of New York University. Of this amount, $600 will be paid in cash and $300 will be retained to cover tuition.

The competition is open to graduates who are between twenty-two and thirty years of age on July 1, 1937, and who are citizens of the United States. Together with the formal application, the applicant must present the following: (1) a photostat or official copy of the applicant's college record or degree and a letter of recommendation from the Dean of the school; (2) A recent photograph of the applicant; (3) The name and address of the supervisor. The candidate is expected to fulfill all requirements enumerated above for the completion of the Master's Degree course.

The competition will consist of a one day design problem and a four day design problem. Problems must be done under supervision from 9:00 a. m. to 5:00 p. m. and the work submitted daily to the supervisor on the five consecutive days. Programs will be mailed to the supervisor to reach the contestant on July 19, 1937. Drawing must be done without criticism or aid except from reference works and must bear a postmark prior to 10:00 p. m., July 23, 1937. The competitor must work under the supervision of a member of the American Institute of Architects (or a practicing architect satisfactory to this institution), or the problem may be taken at the school in New York under the supervision of New York University. Application forms must be filed on or before July 9, 1937.

The competition will be judged by three nationally known architects who are in no way connected with New York University. The successful candidates will be notified immediately and the drawings of unsuccessful competitors returned.

RADIATION LABORATORY BUILDING

Harry A. Thomson, Jr., 315 Montgomery Street, San Francisco, has completed plans for a one-story reinforced concrete radiation laboratory building to be built on the Campus of the University of California, at Berkeley. The Dinwiddie Construction Company will be in charge of construction on a fee basis.

$20,000 SAN FRANCISCO RESIDENCE

Architect Sidney A. Colton, 544 Market Street, San Francisco, has awarded a contract to G. P. W. Jensen to build a ten-room $20,000 house on Marina Boulevard, San Francisco for Thomas W. Gilboy.

Architects Chapters

SOUTHERN CALIFORNIA CHAPTER

At the May 11th meeting of Southern California Chapter, A. I. A., the following subjects came up for discussion: "Standard Form of Chapter By-Laws," a report on which was submitted by S. B. Marston; "Public Housing," reported on by Eugene Weston, Jr.; "Small House Plan Service Bureaus," by H. C. Chambers; "Competitions" by Reginald D. Johnson, and "Affiliated Societies," by Samuel E. Lunden.

A proposed form of working code between architects and the construction industry was read by Mr. Lunden. W. L. Risley submitted a resolution in favor of creating junior associateships in the Chapter. Both of these matters will come up for approval later.

Allen L. McGill, Allen G. Siple, Roger Hayward and Walter L. Reichardt were accepted as associate members of the Chapter, and Robert H. Ainsworth was made an Institute member. Mr. Winslow presented the membership certificates.

Ralph Flewelling, who presided at the meeting, introduced Robert D. Morrison, a member of the firm of Dodge & Morrison, New York City architects. He also introduced J. M. LaMontagne and Thomas A. Clarke, members of the Producers' Council Club.

WASHINGTON STATE CHAPTER

Varied activities occupied the attention of the Washington State Chapter, A. I. A., at meetings held early in May and late in April under the direction of Lance E. Gowen, president. At the regular monthly dinner meeting May 6, motion pictures illustrating their travels last fall through Mexico were shown jointly by Arthur L. Loveless, Seattle architect, and Richard Anderson of the McBride and Anderson Studios.

"Architectural Ethics" was the title of an address given by William H. Crowell, regional director and member of A. E. Doyle and Associaties, Pacific Building, Portland, at a special meeting May 8.

Union affiliation in architectural practice, as suggested by the Seattle Association of Technical Engineers and Architects, was considered at a special meeting April 26. The matter was referred to a committee for study and report.

The Tacoma group were hosts to Chapter members at the June meeting.

EXHIBITION PRIZE WINNERS

Some 16 prizes were awarded to architects, draftsmen and students participating in the eighth annual sketching competition sponsored by the Washington State Chapter, A. I. A., at the exhibit which closed May 11. Prize winners, all of equal rank, were announced together with their work titles, as follows:

Carl Gould Jr., Seattle—French Chapel; Marvel

Johnson, Tacoma—Autumn Trees; Gordon N. Johnston, Seattle—Still Life, Paul Kirk, Seattle—Lake Shore; Charles Lawrence, Seattle—Seward Park; Carl Gould Sr., Seattle — French Chapel; Les Quist, Seattle — Wharf; Edwin J. Peterson, Spokane—Harvard Law School; John Rohrer, Seattle—Lighthouse; M. Shank, Tacoma—Wood Cut; Victor Steinbrueck, Seattle—Study; Roland Terry, Seattle—Meany Hall; Harvey Warren, Tacoma—Portrait; William MacLaurin, Victoria — Landscape; William Meyer, Seattle — Three Peaks; V. M. Barmuta, Seattle—Cherry Trees.

George L. Gove, Tacoma, was chairman of the exhibit committees. The judges were: Dudley Pratt, professor of sculpture, U. of W., and architects Arthur L. Loveless and John T. Jacobsen, Seattle.

ATTENDED ENGINEERS' CLUB DINNER

As noted in the May issue cooperation was the key-note of a joint meeting of Northern California Chapter, A. I. A., and the Structural Engineers Association of Northern California at the Engineers' Club, San Francisco, Tuesday, May 4. About two hundred were in attendance, the following of whom were Chapter members:

John Bakewell Jr., John Knox Ballantine Jr., Arthur Brown Jr., E. Geoffrey Bangs, Morris M. Bruce, John H. Christie, Will G. Corlett, Will P. Day, John J. Donovan, Albert J. Evers, Edward L. Frick, Lewis P. Hobart, Henry T. Howard, Ellsworth E. Johnson, Thomas J. Kent, George R. Klinkhardt, Lawrence A. Kruse, G. Albert Lansburgh, Frederick H. Meyer, Harry M. Michelsen, James H. Mitchell, Leffler B. Miller, Irving F. Morrow, George B. McDougall, Gwynn Officer, Warren C. Perry, Houghton Sawyer, Wallace A. Stephen, Roland I. Stringham, Ernest E. Weihe, John Davis Young.

In a short business session of the Chapter, after the dinner, the minutes of the previous meeting were approved as published and the following were elected delegates to the 69th Annual Convention:

Messrs. John Bakewell, W. G. Corlett, A. J. Evers, W. C. Hays, F. H. Meyer and Warren Perry.

During the program that followed, President Will Corlett of the Chapter presided as chairman.

Those present praised the talks by Mr. Day and Arthur Brown, Jr., Chairman of the Commission of Architects, who presented a fine picture of the architectural side of the Exposition in a talk illustrated by sketch designs, lantern slides, and a large plot plan.

VISIT BROADWAY TUNNEL

On June 12th members of the San Francisco section, American Society of Civil Engineers, conducted an excursion through the new Broadway low-level tunnel which connects Alameda and Contra Costa Counties. The tunnel will shortly be opened to the public and will be a great convenience to the north and south bound automobile traffic. Members only enjoyed the inspection trip.

NEW STATE LAWS

Senate Bill No. 240 amending the State Contractors' Act was passed by the California Legislature at its late session and it now awaits action by the governor. As passed, according to Chairman R. M. Butcher of the State Contractors' License Board, the bill provides for prequalification of applicants for contractors licenses; reducing the value of exempted contracts from $200 to $100; modification of the present agricultural exemption clause which would allow erection of certain farm buildings without a license and strengthening the punitive features of the act.

Assembly Bill 2694, by Mr. Burns, which prohibits employers from taking a rebate in wages paid to workers or paying a wage below the scale fixed in a collective bargaining agreement, passed by the legislature was signed by the governor.

Assembly Bill 2673, which deletes from the Engineer's Registration Act exemption of subordinates of persons exempt from the act, and Assembly Bill 2674, making it unprofessional conduct for a civil engineer to abet a person violating the act, and Assembly Bill 2575, extending the act to include all engineers in public and private practice, all bills by Mr. Weber, were passed and await the governor's signature.

Under Senate Bill 539, by Mr. DeLap, passed by the legislature and awaiting the governor's action, cities and counties would have authority to establish capital outlay funds for erection of public buildings and other improvements.

Unable to agree upon any major legislation the Assembly and Senate in the closing hours of the session adopted a joint resolution calling upon the governor to appoint independent mediation and arbitration commissions to deal with the labor disputes during the next two years.

AUTO SALES BUILDING

Architects Whitehouse and Church, 619 Railway Exchange Building, Portland, are preparing working drawings for converting a two-story fireproof building into a motor car sales building with a large display window. About $50,000 will be spent on the project.

$50,000 SCHOOL BUILDING

Architect C. N. Freeman, Concord Building, Portland, has been retained by School District 17 of Multnomah county to prepare plans for a $50,000 school building to be built at Columbia Boulevard and N. E. 60th Street, Portland.

VALLEJO STORE BUILDING

Bids have been taken by Architect Frederick H. Reimers, 233 Post Street, San Francisco, for a $15,000 store and office building in Vallejo. Construction will be brick veneer and glass brick. Russell F. O'Hara is the owner.

With the Architects

BERKELEY APARTMENTS

H. A. Scharey, 605 Market Street, San Francisco, is preparing working drawings for a six-story and basement steel frame and reinforced concrete apartment building at Durant Avenue, near Dana Street, Berkeley, for Dr. R. S. Haller of 2312 Durant Avenue, that city. There will be forty two- and three-room apartments served by an automatic passenger elevator and equipped with steam heat, electric refrigeration, incinerator, built-in wall beds, etc.

WILDWOOD GARDENS HOME

Miller & Warnecke have completed plans and bids have been taken for a $17,000 eight-room dwelling to be erected in Wildwood Gardens, Alameda County, for Dr. Thompson. The house will have stucco and brick exterior, shake roof, steel sash, and gas hot air heating. The same architects have let a contract for a $12,000 house in the Oakmore Estates, Oakland, for Val Strough.

WAREHOUSE AND OFFICE BUILDING

Dodge A. Riedy has completed plans for a one-story frame warehouse and office building to be erected on Berry Street, west of Seventh, San Francisco, for the Willig Transportation Company.

BARRACKS BUILDING

Alameda County will spend $75,000 constructing a one-story frame barracks building near the County Farm, San Leandro, and for which James W. Plachek of Berkeley has been commissioned to prepare the plans.

TULARE THEATER

Structural plans are being prepared by L. H. Nishkian, San Francisco, for a $40,000 moving picture theater for the T. & D. Circuit at Tulare. Construction will be of concrete and wood and seating capacity will be 700.

OAKLAND RESIDENCE

Bids have been taken by Messrs. Williams & Wastell, 384 - 17th Street, Oakland, for a $14,000 eight-room house to be built in Romany Road, Oakland, for an unnamed client.

MODERN STYLE HOME

Richard J. Neutra, 251 Kearny Street, San Francisco, is preparing preliminary drawings for a modern style six-room house to be erected in Lafayette for Dr. Robert Brady.

COURT HOUSE

Architects Tourtellotte and Phillips, Postal Building, Portland, have been retained to prepare plans for a $280,000 court house at Albany, Oregon.

MEDICO DENTAL BUILDING

George E. Ellinger, of Oakland, has prepared plans for a one-story frame and stucco medico-dental building, having ten offices, and to be built in the Diamond District, Oakland. The name of the owner is not given.

APARTMENTS AND RESIDENCES

A two-story frame building containing eight four-room apartments and two six-room residences has been designed by Wm. E. Schirmer, 437 - 13th Street, Oakland. The owner is W. E. Davis of Watsonville where the building will be erected. The style will be early California.

ALAMEDA COUNTY GARAGE

A one-story steel trussed reinforced concrete garage is to be constructed in Oakland for county owned automobiles. Plans for the $30,000 structure are being prepared by Architects H. A. Minton and Carl Werner. L. H. Nishkian is the engineer.

PIEDMONT PINES RESIDENCE

R. F. D. Le Mon of 26 Ascot Court, Oakland, is owner of a $10,000 eight-room residence to be built on the west side of Castle Drive in Piedmont Pines from plans by Architect F. H. Slocombe of Oakland.

STORE BUILDING REMODEL

Alterations aggregating $15,000 will be made to the East Main Street store building in Stockton of the Dietrich Estate. Edward G. Bolles, Monadnock Building, San Francisco, is the architect.

TO REMODEL GRAMMAR SCHOOL

Earthquake strengthening and miscellaneous improvements are planned for the Mill Valley Grammar School at Mill Valley, Marin County. Walter C. Falch, of San Francisco, is the architect.

TO REMODEL DETENTION HOME

Interior and exterior alterations to the Alameda County Detention Home at 18th and Poplar Streets, Oakland, will cost $12,000, according to preliminary estimates of the architect, Edward T. Foulkes, 357 - 12th Street, Oakland.

WATSONVILLE HOSPITAL

A one-story frame and stucco hospital to accommodate forty patients is being planned by the Watsonville Hospital Corporation, headed by Dr. H. G. Watters, 125 East Third Street, Watsonville. A. W. Story has preliminary plans for the $70,000 improvements.

PERSONAL

Earl F. Giberson has moved his office from 607 Scripps Building, San Diego, to 426 "B" Street, in that city.

John B. Lyman, formerly of San Diego, is now associated with Russell E. Collins at their new offices, 3305 Wilshire Boulevard, Los Angeles.

Earl N. Dugan of Sutton, Whitney and Dugan, Tacoma architectural firm, is busy these spring days making frequent trips to Kelso and Chehalis. At the former place he is supervising construction of a new high school.

Warren H. Milner, Seattle architect who recently returned from Vancouver, B. C., has formed a partnership with Harry E. Nordquist, Jr., under the name of Nordquist and Milner, 704 Textile Tower, Seattle.

George M. Post, Portland architect who has been handling remodeling and maintenance work for the Portland School Board during the past several years, is preparing to resume private practice at his office in the Weatherly Building, Seattle.

Harry G. Hammond, who has been practicing architecture in Seattle since 1913, recently moved his office from 125 Queen Anne Avenue to 907 Textile Tower, Seattle.

Arthur R. Hutchason, formerly at room 1004 Architects' Building, Los Angeles, announces the removal of his offices to larger quarters in room 1204 in the same building.

HOSPITAL POWER HOUSE

Architect Francis B. C. Jacobberger, McKay Building, Portland, is preparing plans for a boiler house for St. Elizabeth's Hospital at Baker, Oregon. He will take bids for the two-story reinforced concrete building which will be 67'x62'6" in size. The hospital is owned by the Sisters of St. Francis, Baker.

FRATERNITY HOUSE AT PALO ALTO

A contract has been awarded by John K. Branner, 210 Post Street, San Francisco, for the construction of a three-story frame and stucco fraternity house, Palo Alto, for Beta Theta Pi. The estimated cost is $30,000.

COLONIAL HOUSE

E. L. Harris of St. Helena has had plans prepared by F. E. Lloyd, architect, 360 Pine Street, San Francisco, for a two-story Colonial ten-room house near Rutherford, Napa County.

DRIVE IN MARKET ADDITION

A one-story 50x60 foot reinforced concrete addition to the Malloway Drive-in market at Monterey will start shortly from plans by C. J. Ryland of Monterey.

TWO SAN FRANCISCO DWELLINGS

C. O. Clausen, 746 Forty-sixth Avenue, San Francisco, has completed plans for two dwellings to be built on Thirty-seventh Avenue, San Francisco, by Kenneth Evers at a cost of $5,000 each.

BOOK REVIEWS

By Edgar A Kierulff

THE NEW ARCHITECTURE AND THE BAUHAUS: By Walter Gropius; The Museum of Modern Art, Publishers; New York. Price: $1.75.

A little book that bespeaks the modern trend in architecture. It explains two very illuminating thoughts —just why throughout the world industry and architecture have been feeling the influence of the German Bauhaus, and why this new trend has a particular significance for Americans. The architect of today who wishes to keep abreast of the times in a rapidly changing world will find value in this book.

MODERN ARCHITECTURE IN ENGLAND: With Essays by Henry Russell Hitchcock and Catherine K. Bauer; The Museum of Modern Art, Publishers; New York. Price: $1.85.

This volume offers to the student of architecture and the architect vitally interested in modern architecture an intensified study of the progress, and an analysis of the achievements of contemporary architects. There are fifty illustrations together with historical and critical material.

MAN IN A CHEMICAL WORLD: By A. Cressy Morrison; Charles Scribner's Sons; New York. Price: $3.00.

One of those fascinating books about which only praise may be written. This volume is a splendid matter-of-fact account of the chemical activities of this modern world and in this modern life. The facts here presented are made clear for the non-scientific reader who wishes to at least understand what has been going on and is happening in the vital life around him. To the professional, business and scientific man alike there is in this book a wealth of information.

LONDON—THE UNIQUE CITY: By Steen Eiler Rasmussen; The Macmillan Company; 350 Mission Street, San Francisco. Price: $4.00.

A native of Copenhagen, Danish author and an architect as well, has written one the best treatises on the City of London that has been presented in many years.

The book is not essentially an architectural volume yet it covers its field concerning London buildings and houses. It is a study of the city, district by district, analyzing the influences and factors that have affected London. There are over two hundred illustrations.

FREEHAND AND PERSPECTIVE DRAWING: By Herbert E. Everett, and William H. Lawrence, S. B.; American Technical Society, Chicago, Ill.

An excellent small book for the student in architecture and freehand drawing. Easy to understand and practical, two major considerations.

TROUBLES OF ELECTRICAL EQUIPMENT (Symptoms, Causes, Remedies): By H. E. Stafford; McGraw-Hill Book Co., Inc., New York. Price: $3.50.

A valuable book for the electrical worker; giving him information required to locate, diagnose and correct breakdowns and faults in electrical equipment. A practical handbook for use in questions concerning construction, operation or maintenance of apparatus.

STRUCTURAL ENGINEERS ASSOCIATION OF NORTHERN CALIFORNIA

FOUNDATION WORK DISCUSSED

The regular monthly meeting of the Structural Engineers' Association of Northern California was held at the Engineers' Club in San Francisco June 1st.

The main feature of the program was an illustrated talk by O. J. Porter, Assistant Physical Testing Engineer of the Division of Highways of the State of California.

Mr. Porter described in detail the equipment and methods used by the Division of Highways in the study of soil and foundations for bridges and buildings. A particular example of the work described by Mr. Porter was the study of the foundation of the east approach to the San Francisco-Oakland Bay Bridge and the method employed by the Division to increase the speed of consolidation. This method consisted in placing vertical piles of sand and gravel from horizontal drains near the top of the fill down through the material which is to be consolidated. These sand piles provide an outlet for water which is under pressure in the material below due to the weight of the fill on top.

Mr. Porter also described studies made for the foundations of the Terminal Building of the San Francisco-Oakland Bay Bridge. The subject of soils and foundations for bridges and buildings is of vital interest to the structural engineer and this interest was evidenced at the end of Mr. Porter's talk by the numerous questions that were asked and answered by both Mr. Porter and T. L. Stanton, Jr., the latter Materials and Research Engineer of the Division of Highways.

Mr. Porter's talk was followed by the regular business meeting when the committee chairmen reported upon the work accomplished by their committees since the last meeting.

S. M. Cotton, Fred C. Davis, Asa Proctor, Clarence Seage and Ray L. Walker were announced as new members, and Leslie W. Graham, Henry J. Degenkolb and A. Reiwitz were announced as new Junior Members of the Structural Engineers' Association of Northern California.

STRUCTURAL ENGINEERS' PICNIC

The fourth annual picnic of the Structural Engineers' Association of Northern California was held Saturday, June 5th, at McNear's Beach in Marin County.

The picnic is an annual get-together affair sponsored by the structural engineers. Architects, contractors, building material men and others identified with the building and structural industries were invited. This year approximately 180 members and guests attended.

Events of the day began early in the morning and included lunch, golfing, a baseball game, archery, marble games for various members, ad-libbing on the loudspeaker system, and horseshoe pitching. One of the feature events was a tug-of-war in which the real winner proved to be a reinforcing bar which was lapped 40 diameters and then welded. Appropriate prizes were awarded winners of each event.

The picnic was in charge of Hyman Rosenthal and Milo S. Farwell.

That the affair was an enjoyable one can be best attested by the query of a prominent architect who asked "How soon are we going to have another picnic like this?"

LETTERS PRAISE SACRAMENTO MEETING

Since the engineers convention in Sacramento March 19th and 20th many complimentary letters have been received, telling of the great benefits of the convention and suggesting that it be made an annual affair.

Of the several letters received those from Lieutenant-Governor Geo. J. Hatfield and Earl Lee Kelly, Director of Public Works, were outstanding in commendation.

A paragraph from Mr. Hatfield's letter reads: "Your Sacramento convention accomplished a fine thing in bringing into recognition organizations composed of men of outstanding merit in their professional capacities and a group of powerful potential public good—a recognition, incidentally, that has been too long delayed."

Earl Lee Kelly thinks "engineers should have more such gatherings, and listen to inspirational talks as given by Dr. Cadman. They are prone to be too technical, and should enter more into the so-called human relation side of life," he writes, concluding with: "In my opinion, the meeting was a success and an inspiration to all who attended, and a step forward in bringing engineers and the importance of their work to the attention of the generally unappreciative public."

HOTEL BUILDING ADDITION

A sixteen-room addition is to be built to the Auburn Hotel at Auburn, Placer County, from plans by Architect Herbert Goodpastor, Mitau Building, Sacramento.

ORIGIN OF NAMES OF CALIFORNIA COUNTIES
(Final Installment)

YOLO COUNTY—Created February 18, 1850. One of the original twenty-seven counties. "Yolo" is a corruption of an Indian tribal name "Yo-loy," meaning "a place thick with rushes." This tribe was a branch of the Suisunes, and inhabited the marshes immediately west of Rio de Jesus Maria (now known as the Sacramento River).

A land of agricultural plenty, Yolo is one of the richest counties in per capita wealth. Agricultural and manufactured products have an annual valuation of approximately $23,000,000. At one State Fair, Yolo entered 181 different exhibits and carried off 150 prizes. All the better known crops of California thrive in this county. The last Department of Commerce census gave Yolo 1641 farms with 84,916 acres under irrigation. The soil richness of the area lying for 76 miles along the Sacramento River has been compared with the Valley of the Nile. River transportation enables shipment of farm products to San Francisco Bay.

Western Yolo, comprising the Winters section and extending north into Capay Valley, pioneered in deciduous fruits. Davis, Capay and the Esparto sections are noted for almond production while the Woodland area specializes in grapes. In the Yolo, Dunnigan and Zamora districts exceptional grain crops are produced. The county has more than 10,000 acres devoted to almonds. The prune crop is valued at $750,000 and the pear yield at $1,000,000. Apricots and peaches and grapes cover thousands of acres.

Rice planting, which began in 1915, has grown to an important industry with approximately 10,000 acres planted and yielding an annual crop valued at $450,000. One of the largest ranches of its kind in the world is the River Farm in the northern section. It contains 32,000 acres, with about 26,000 acres devoted to grain, including barley, wheat and rice. Thoroughbred strains of sheep, horses, cattle and hogs are bred there and dairying is conducted on a large scale.

The branch of the College of Agriculture of the University of California is located at Davis and has attained national renown. In this district is produced the highest grade of purebred live stock in the nation. Woodland, the county seat, has held the rank of the wealthiest agricultural community in the United States and is second in the country in per capita use of the telephone. It is a beautiful residential city. The city of Winters ships every crop known to Yolo county. Clarksburg, Knights Landing, Dunnigan, Madison, Capay and Yolo are thriving communities as are Yolo's other towns. Population: 23,644. Area: 1014 square miles.

YUBA COUNTY—Created February 18, 1850. One of the original twenty-seven counties. "Yuba" is a corruption of the Spanish word signifying "wild grape." A Spanish exploring expedition in 1824 found immense quantities of vines shading the banks of a river, which is the chief tributary of the Feather River. These vines were heavily laden with wild grapes (called Uvas silvestres in Spanish), and the river was therefore called the Uva or Uba, and by a corruption of the word "Uba" the river eventually became known by its present name, "Yuba," from which word the county derived its name.

This county is one of the most productive agriculturally in the State. Ages ago, when the Sacramento Valley was a great inland sea, the silt of the Sierra Nevada mountains and the foothills was washed into this area and these deposits account for the rich and fertile soil of Yuba. In addition to its soil and a desirable climate, the county has an abundance of water for irrigation provided by the Bear, Feather and Yuba rivers, Honcut Creek and the Sierra Nevada watershed. The 1930 census of irrigation of the Department of Commerce showed that Yuba had 30,438 acres irrigated, or an increase of 46.5 per cent over 1919. Acreage enterprises were capable of irrigating 51,386 acres, or an increase of 113.7 per cent over the number in 1920.

STRUCTURAL STEEL MARKET

Although there is an increasing demand for structural steel for buildings and other similar private work, highway construction continues to afford the most important market, according to an analysis of business just completed by the American Institute of Steel Construction.

During 1936 the structural steel fabricating industry produced over 1,600,000 tons of fabricated structural steel. Thirty-seven per cent of the total went into bridges, including railway as well as highway bridges. Twenty-five per cent went into buildings—governmental, institutional and commercial. A little better than twenty-two per cent went into the erection of new industrial plants. The year 1936 was very active in that direction.

The public is inclined to think that public works constituted an important place in our picture, but an analysis of the figures proves that public works, exclusive of bridge building, is small. Only about three per cent of the fabricated structural steel sold in 1936 is known to have gone into engineering projects. The remainder, approximately thirteen per cent, constituted those odd jobs, all under fifty tons each, that are difficult to classify. In that miscellaneous group are grade crossing projects, repairs and extensions to plants, etc.

From the point of view of the industry the past year may be considered very happy. It showed a decided revival of business, insofar as volume is concerned. It also showed that the market for our product is not

dependent upon public work appropriations. Bridge building is primarily a state or local problem. It does not always have Federal aid. And bridge building is indicative of the trend of the traffic problem. It has grown to dominating importance within the past decade. We have reason to expect that it will become even of greater importance in the next few years.

BRIDGE COMPETITION WINNERS

Out of eighty entries submitted by engineering and architectural students at sixteen colleges of the United States, six best designs for a highway bridge have been selected in the ninth annual competition held by the American Institute of Steel Construction.

A. Herbert Mathes of New York University won first prize of $150; Walter G. DeWitt, Jr., of Rennselaer Polytechnic Institute, second prize of $100; J. Boyd Pestotnik of Iowa State College, third prize of $50; Manuel Kersey, University of Oklahoma; Robert Strasmyer, Pennsylvania State College, and H. Max Wiese, Iowa State College, honorable mention.

The problem was to design a highway bridge to carry a roadway in a straight line over a stream 300 feet wide, bank to bank, connecting a parkway on the high land to the south with a boulevard on the plateau to the north.

STATE ASSOCIATIONS MEET IN BOSTON

Action of the State Societies at the preconvention meeting held at Boston May 31, preceding the annual meeting of the Institute, is summarized in the following partial report presented by the chairman, John R. Fugard:

During the year since the convention of 1936, there has been no change in the number of State Association members of the Institute. These remain as follows:

Michigan Society of Architects.
Architects Society of Ohio.
State Association of California Architects.
State Association of Wisconsin Architects.

At the present time there are non-member State organizations as follows:

Florida Association of Architects.
Illinois Society of Architects.
Indiana Society of Architects.
State Association of Kentucky Architects.
New Jersey Society of Architects.
New York Council of Registered Architects.
Oklahoma State Society of Architects.
Pennsylvania Association of Architects.
Washington State Society of Architects.

It is understood that there is in formation Associations of Architects in Maryland and Minnesota.

Thirty-nine states now have legislation which calls for registration of architects, and it is quite likely that the formation of additional State Societies may be expected from time to time.

PASSING OF L. S. LEAVY

Leonard S. Leavy, Controller of San Francisco, died suddenly returning from a boxing match at Dreamland Auditorium, San Francisco, June 11.

A nationally recognized authority on municipal finances, Mr. Leavy had been warned recently that his health was suffering from overwork. He had recently completed the intricate task of laying the ground work for the current city budget.

Mr. Leavy had been city controller during the last seven years, but had held responsible posts watching the city's finances since 1899. For many years he was city purchasing agent.

A native San Franciscan, Mr. Leavy was born in 1876. He attended the public schools and was graduated from the University of California in 1898.

Mr. Leavy gained a reputation as an authority on city governmental affairs and frequently was called to serve on national committees of municipal officials.

PHELAN TRAVELING SCHOLARSHIP AWARDED

President Arthur Brown, Jr., and the Board of Directors of the San Francisco Art Association announce award of the Phelan Traveling Scholarship of $2000 for 1937 to John Wilkinson, painter.

Mr. Wilkinson is 23 years old and a native of Berkeley. He was graduated from the McKinley High School in Honolulu and later attended the University of Oregon at Eugene for three years.

While studying journalism at the University of Oregon, he became interested in being able to illustrate a column in the college paper, and took courses in art with this in mind. He became so interested in art that after the first year, he devoted increasing time to courses in the Art Department, and during his last year took work entirely in the School of Fine Arts.

He entered the California School of Fine Arts in August 1935, taking life drawing and painting under Maurice Sterne, life drawing under Lee Randolph, sculpture with Ralph Stackpole and lithography with Ray Bertrand.

Other awards received by Mr. Wilkinson were Honorable Mention in drawing and painting at the end of his first term at the California School of Fine Arts and first award at the end of the second term.

Phelan Traveling Scholarship Award of $2000 is limited to past and present students of the California School of Fine Arts, San Francisco, who have completed two consecutive years of study, and who are under 30 years of age. Provision was made for this scholarship under the terms of the bequest left the San Francisco Art Association by the late Senator James D. Phelan.

General comments: Mr. Wilkinson has done part-time work to assist in financing his education. In the summer of 1934 he was with the C.C.C. employed as a camp artist making sketches in the Beschutes National Park under a Treasury Art Project.

Maurice Sterne, visiting instructor, will personally supervise the making of his plans for a year or more of study in Europe.

WHEN ARE OLD BUILDINGS UNSAFE?

Substandard buildings in large numbers make the problem of their elimination very difficult. Many are actually unsafe. The public has grown sensitive to charges that municipal authorities tolerate them. Still sound structurally, some are repellent, shabby, harboring undesirable tenants. Others are deficient in strength and fire resistance but not enough so to arouse general protest. Plenty have got well along toward complete physical degeneration, with sagging beams, leaning walls, rain-soaked ceilings, neglect shown on all sides. Not a few are obviously dangerous to tenants and pedestrians. All these old houses are victims of forces operating silently but continuously for change. Rebuilding of wide areas is a remedy, but the tendency of cities to spread homes away from their old centers works against a paying tenantry for new

Estimator's Guide

Giving Cost of Building Materials, Wage Scale, Etc.

Amounts given are figuring prices and are made up from average quotations furnished by material houses to San Francisco contractors. 3% Sales Tax on all materials but not labor.

Note—Building costs are rapidly mounting; many quotations here are subject to daily change.

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

Bond—1½% amount of contract.

Brickwork—

Common, $40 to $45 per 1000 laid, (according to class of work).

Face, $100 to $110 per 1000 laid, (according to class of work).

Brick Steps, using pressed brick, $1.25 lin. ft.

Brick Veneer on frame buildings, $ .75 sq. ft.

Common f.o.b. cars, $14.00 at yard. Cartage extra.

Face, f.o.b. cars, $45.00 to $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f.o.b. job)

3x12x12 in.	$ 84.00 per M
4x12x12 in.	94.50 per M
6x12x12 in.	126.00 per M
8x12x12 in.	225.00 per M

HOLLOW BUILDING TILE (f.o.b. job) carload lots.

8x12x5½	$ 94.50
6x12x5½	73.50

Building Paper—

1 ply per 1000 ft. roll	$3.50
2 ply per 1000 ft. roll	5.00
3 ply per 1000 ft. roll	6.25
Brownskin, 500 ft. roll	4.50
Brownskin, Pro-tect-o-mat, 1000 ft. roll	9.00
Sisalkraft, 500 ft. roll	5.00
Sash cord com. No. 7	$1.20 per 100 ft
Sash cord com. No. 8	1.50 per 100 ft
Sash cord spot No. 7	1.90 per 100 ft
Sash cord spot No. 8	2.25 per 100 ft

Sash weights cast iron, $50.00 ton.
Nails, $3.50 base.
Sash weights, $45 per ton.

Concrete Work (material at San Francisco bunkers)—Quotations below 2000 lbs. to the ton. $2.00 delivered.

No. 3 rock, at bunkers	$1.45 per ton
No. 4 rock, at bunkers	1.45 per ton
Elliott top gravel, at bunkers	2.10 per ton
Washed gravel, at bunkers	1.45 per ton
Elliott top gravel, at bunkers	2.10 per ton
City gravel, at bunkers	1.45 per ton
River sand, at bunkers	1.40 per ton
Delivered bank sand	1.00 cu. yd.

Note—Above prices are subject to discount of 2% per ton on invoices paid on or before the 10th of month, following delivery.

SAND

Del Monte, $1.75 to $3.00 per ton.

Fan Shell Beach (car lots, f.o.b. Lake Majella), $2.75 to $4.00 per ton.

Cement (paper sacks) $3.00 bbl., warehouse or delivery.
Car-load lots delivered $2.70, f.o.b. cars $2.52
(Cloth sacks) $3.00 bbl..
Rebate 10 cents bbl. cash in 15 days.

Atlas White, Calaveras White, Medusa White } 1 to 100 sacks, $1.50 sack, warehouse or delivery; over 100 sacks, $1.25; 2% discount 10th of month.

Forms, Labors average $40.00 per M.
Average cost of concrete in place, exclusive of forms, 35c per cu. ft.; with forms, 60c.
4-inch concrete basement floor . . . . . 12½c to 14c per sq. ft.
Rat-proofing 7½c
Concrete Steps . . . . . $1.25 per lin. ft.

Dampproofing and Waterproofing—

Two-coat work, 20c per yard.
Membrane waterproofing—4 layers of saturated felt, $4.50 per square.
Hot coating work, $1.80 per square.
Medusa Waterproofing, 15c per lb., San Francisco Warehouse.
Tricocel waterproofing.

Electric Wiring—$12.00 to $15.00 per outlet for conduit work (including switches).
Knob and tube average $3.50 per outlet.

Elevators—

Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in four-story building, $2800; direct automatic, about $2700.

Excavation—

Sand, 60 cents; clay or shale $1 per yard.

Teams, $12.00 per day.

Trucks, $22 to $27.50 per day.

Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—

Ten-foot galvanized iron balcony with stairs, $115 installed on new buildings; $140 on old buildings.

Floors—

Composition Floors—18c to 35c per sq. ft. In large quantities, 16c per sq. ft. laid.
Mosaic Floors—80c per sq. ft.
Dureflex Floor—23c to 30c sq. ft.
Rubber Tile—50c to 75c per sq. ft.
Terazzo Floors—45c to 60c per sq. ft.
Terazzo Steps—$1.60 lin. ft.

Hardwood Flooring (delivered to building)—

13-16x3¼" T & G Maple	$120.00 M ft
1 1-16x2¼" T & G Maple	132.00 M ft
⅞x3½ sq. edge Maple	140.00 M ft.

	13-16x2¼" T&G	⅜x2" T&G	5-16x2" Sq.Ed.
Clr. Otd. Oak	$200.00 M	$150.00 M	$180 M
Sel. Otd. Oak	140.00 M	120.00 M	135 M
Clr. Pla. Oak	135.00 M	107.00 M	120 M
Sel. Pla. Oak	120.00 M	88.00 M	107 M
Clear Maple	140.00 M	100.00 M	
Laying & Finishing	13c ft.	11 ft.	10 ft.

Wage—Floor layers, $7.50 per day.

Glass (consult with manufacturers)—

Double strength window glass, 20c per square foot.

Quartz Lite, 50c per square foot. Plate 75c per square foot (unglazed) in place, $1.00.

Art, $1.00 up per square foot.

Wire (for skylights), 40c per sq. foot.

Obscure glass, 30c square foot.

Glass bricks, $2.40 per sq. ft., in place.

Note—If not stipulated add extra for setting.

Heating—

Average, $1.90 per sq. ft. of radiation, according to conditions.

Iron — Cost of ornamental iron, cast iron, etc., depends on designs.

Lumber (prices delivered to bldg. site).

No. 1 common	$38.00 per M
No. 2 common	34.00 per M
Select O. P. common	39.00 per M
2x4 No. 3 form lumber	26.00 per M
1x4 No. 2 flooring VG	65.00 per M
1x4 No. 3 flooring VG	55.00 per M
1x6 No. 2 flooring VG	65.00 per M
1¼x4 and 6, No. 2 flooring	70.00 per M

Slash grain—

1x4 No. 2 flooring	$50.00 per M
1x4 No. 3 flooring	40.00 per M
No. 1 common run T. & G.	35.00 per M
Lath	8.00 per M

Shingles (add cartage to price quoted)—

Redwood, No. 1	$1.10 per bdle.
Redwood, No. 2	.90 per bdle.
Red Cedar	1.00 per bdle.

Millwork—Standard.

O. P. $110.00 per 1000. R. W., $115.00 per 1000 (delivered).

Double hung box window frames, average, with trim, $6.50 and up, each.

Doors, including trim (single panel, 1¾ in. Oregon pine) $8.00 and up, each.

Doors, including trim (five panel, 1¾ in. Oregon pine) $6.50 each.

Screen doors, $4.00 each.

Patent screen windows, 25c a sq. ft.

Cases for kitchen pantries seven ft. high per lineal ft., $8.00 each.

Dining room cases, $8.00 per lineal foot.

Labor—Rough carpentry, warehouse heavy framing (average), $17.50 per M.

For smaller work average, $35.00 to $45.00 per 1000.

Marble—(See Dealers)

Painting—

Two-coat work ..... 35c per yard
Three-coat work ..... 45c per yard
Cold Water Painting ..... 12c per yard
Whitewashing ..... 4c per yard
Turpentine, 75c per gal., in 5 gal. cans, and 65c per gal. in drums.
Raw Linseed Oil—$1.02 gal. in bbls.
Boiled Linseed Oil—$1.05 gal. in bbls.
Medusa Portland Cement Paint, 20c per lb.

Carter or Dutch Boy White Lead in Oil (in steel kegs).

	Per Lb.
1 ton lots, 100 lbs. net weight	11¾c
500 lbs. and less than 1 ton lots	12c
Less than 500 lb. lots	12½c

Dutch Boy Dry Red Lead and Litharge (in steel kegs).

1 ton lots, 100 lb. kegs, net wt.	11¾c
500 lbs. and less than 1 ton lots	12c
Less than 500 lb. lots	12½c

Red Lead in Oil (in steel kegs)

1 ton lots, 100 lb. kegs, net wt.	12¼c
500 lb. and less than 1 ton lots	12½c
Less than 500 lb. lots	13c

Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.00 lineal foot
8-inch	1.50 lineal foot
10-inch	1.75 lineal foot
12-inch	2.00 lineal foot

Plastering—Interior—

	Yard
1 coat, brown mortar only, wood lath	$0.75
2 coats, lime mortar hard finish, wood lath	.80
2 coats, hard wall plaster, wood lath	.85
3 coats, metal lath and plaster	1.30
Keene cement on metal lath	1.30
Ceilings with ¾ hot roll channels metal lath	.75
Ceilings with ¾ hot roll channels metal lath plastered	1.50
Single partition ¾ channel lath 1 side	.85
Single partition ¾ channel lath 2 sides 2 inches thick	1.50
4-inch double partition ¾ channel lath 2 sides	1.30
4-inch double partition ¾ channel lath 2 sides plastered	3.00

Plastering—Exterior—

	Yard
2 coats cement finish, brick or concrete wall	$1.00
2 coats Calaveras cement, brick or concrete wall	1.35
3 coats cement finish, No. 18 gauge wire mesh	1.50
3 coats Calaveras finish, No. 18 gauge wire mesh	2.75

Wood lath, $7.50 to $8.00 per 1000.

2.5-lb. metal lath (dipped)	.17
2.5-lb. metal lath (galvanized)	.20
3.4-lb. metal lath (dipped)	.22
3.4-lb. metal lath (galvanized)	.28

¾-inch hot roll channels, $72 per ton.
Finish plaster, $18.90 ton; in paper sacks.
Dealer's commission, $1.00 off above quotations. $13.85 (rebate 10c sack).
Lime, f.o.b. warehouse, $2.25 bbl.; cars, $2.15
Lime, bulk (ton 2000 lbs.), $16.00 ton.
Wall Board 5 ply, $50.00 per M.
Hydrate Lime, $19.50 ton.

Plasterers Wage Scale	$1.25 per hour
Lathers Wage Scale	1.25 per hour
Hod Carriers Wage Scale	1.10 per hour

Composition Stucco—$1.80 to $2.00 sq. yard (applied).

Plumbing—

From $70.00 per fixture up, according to grade, quantity and runs.

Roofing—

"Standard" tar and gravel, $6.50 per sq. for 30 sqs. or over.
Less than 30 sqs. $7.00 per sq.
Tile, $20.00 to $35.00 per square.
Redwood Shingles, $8.00 per square in place.
Copper, $16.50 to $18.00 per sq. in place.
Cedar Shingles, $9.00 sq. in place.
Recoat, with Gravel, $3.00 per sq.
Asbestos Shingles, $15 to $25 per sq. laid.
Slate, from $25.00 to $60.00 per sq. laid according to color and thickness.

Sheet Metal—

Windows—Metal, $1.75 a sq. foot.
Fire doors (average), including hardware $1.75 per sq. ft.

Skylights—

Copper, 90c sq. ft. (not glazed).
Galvanized iron, 30c sq. ft. (not glazed).

Steel—Structural

$110 ton (erected), this quotation is an average for comparatively small quantities. Light truss work higher. Plain beams and column work in large quantities $80 to $90 per ton cost of steel; average building, $95.00.

Steel Reinforcing—

$80.00 to $120.00 per ton, set.

Stone—

Granite, average, $6.50 cu. foot in place.
Sandstone, average Blue, $4.00, Boise, $3.00 sq. ft. in place.
Indiana Limestone. $2.80 per sq. ft. in place.

Store Fronts—

Copper sash bars for store fronts, corner, center and around sides, will average 75c per lineal foot.
Note—Consult with agents.

Tile—Floor, Wainscot, Etc.—(See Dealers)

Asphalt Tile—18c to 28c per sq. ft. installed.

Venetian Blinds—

40c per square foot and up. Installation extra.

SAN FRANCISCO BUILDING TRADES WAGE SCALE

Recommended by the Impartial Wage Board, June 18, 1936. Effective July 1, 1936

This scale is based on an eight-hour day and is to be considered as a minimum and employees of superior skill and craft knowledge may be paid in excess of the amounts set forth herein. This scale applies only to work on buildings and does not include inside or shop workers.

CRAFT	Journeymen Mechanics
Asbestos Workers	$ 8.00
Bricklayers	12.00
Bricklayers' Hodcarriers	8.00
Cabinet Workers (Outside)	9.00
Carpenters	9.00
Cement Finishers	9.00
Cork Insulation Workers	9.00
Electrical Workers	10.00
Electrical Fixture Hangers	8.00
Elevator Constructors	10.40
Engineers, Portable and Hoisting	9.00
Glass Workers (all classifications)	8.50
Hardwood Floormen	9.00
Housesmiths, Architectural Iron (outside)	9.00
Housesmiths, Reinforced Concrete, or Rodmen	9.00
Iron Workers (Bridge and Structural)	11.00
Iron Workers (Hoisting Engineers)	11.00
Laborers (six-day week)	$ 5.50
Lathers, Channel Iron	10.00
Lathers, all others	9.00
Marble Setters	10.00
Millwrights	9.00
Mosaic and Terrazzo Workers (outside)	9.00
Painters	9.00
Painters, Varnishers and Polishers (outside)	9.00
Pile Drivers and Wharf Builders	9.00
Pile Drivers Engineers	10.00
Plasterers	12.00
Plasterers' Hodcarriers	8.00
Plumbers	10.00
Roofers (all classifications)	8.00
Sheet Metal Workers	9.00
Sprinkler Fitters	10.00
Steam Fitters	10.00
Stair Builders	9.00
Stone Cutters, Soft and Granite	9.00
Stone Setters, Soft and Granite	12.00
Stone Derrickmen	9.00
Tile Setters	10.00
Tile, Cork and Rubber	9.00
Welders, Structural Steel Frame on Buildings	11.00
Welders, All Others on Buildings	9.00
Dump Truck Drivers, 2 yards or less	6.00
Dump Truck Drivers, 3 yards	6.50
Dump Truck Drivers, 4 yards	7.00
Dump Truck Drivers, 5 yards	7.00
Dump Truck Drivers, 6 yards	7.50
Truck Drivers of Concrete Mixer Trucks:	
2 yards or less	6.50
3 yards	7.00
4 yards	7.50
5 yards	7.50
6 yards	8.00

GENERAL WORKING CONDITIONS

1. Eight hours should constitute a day's work for all crafts, except as otherwise noted
2. Where less than eight hours are worked pro rata rates for such shorter period should be paid.
3. Plasterers' Hodcarriers, Bricklayers' Hodcarriers, Roofers' Laborers and Engineers, Portable and Hoisting, shall start 15 minutes before other workmen, both at morning and at noon.
4. Five days, consisting of not more than eight hours a day, on Monday to Friday, inclusive, should constitute a week's work, except for building laborers.
5. The wages set forth herein should be considered as net wages.
6. Except as noted the above rates of pay apply only to work performed at the job site.
7. Transportation costs except for intra-city fares should be paid by contractor.
8. Traveling time in excess of one hour each way should be paid for at straight time rates.
9. Overtime should be paid as follows: For the first four hours after the first eight hours, time and one-half. All time thereafter should be paid double time. Saturdays (except for Laborers), Sundays and Holidays from 12 midnight of the preceding day, should be paid double time. Irrespective of starting time, overtime for Cement Finishers should not commence until after eight hours of work, except that after 12 midnight overtime for cement finishers should be paid at the rate of time and one-half for the first four hours and double time thereafter. Shift work for cement workers should be subject to the provisions of paragraph 11.
10. On Saturday Laborers should be paid straight time up to eight hours. Overtime rates should be paid as specified in paragraph 9.
11. Where two shifts are worked in any twenty-four hours, shift time should be straight time. Where three shifts are worked, eight hours' pay should be paid for seven hours on the second and third shifts.
12. All work, except as noted in paragraph 13, should be performed between the hours of 8 A. M. and 5 P. M.
13. In emergencies, or where premises cannot be vacated until the close of business, men then reporting for work should work at straight time. Any work performed on such jobs after midnight should be paid time and one-half up to four hours of overtime and double time thereafter.
14. Recognized holidays to be: New Year's Day, Decoration Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Christmas Day.
15. Men ordered to report for work, for whom no employment is provided should be entitled to two hours' pay.
16. This award should be effective in the City and County of San Francisco.

buildings on such sites. Owners dislike to put new money into keeping the old buildings fit for good tenants. The logical result is action by municipal agencies to remove substandard houses as soon as possible. This is resisted as long as they return any surplus income.—Industrial Standardization.

STATE MAKES 500,000 PLACEMENTS

More than 500,000 placements have been made by the California State Employment Service and the National Reemployment Service in this state in the last two fiscal years, according to a report made public by Roy S. Stockton, Director. Of these, 196,932 were placements in private industry and 172,654 were in public employment paying prevailing wages, while 166,794 were placements on relief projects.

During the same period of time, the report shows the combined offices of the two services received and occupationally classified 681,820 applications from workers visiting the offices for the first time in search of employment. These figures are available in a report made to Secretary of Labor Frances Perkins, by W. Frank Persons, Director of the United States Employment Service. It shows that approximately 9,000,000 job placements have been made all over the country by the public Employment Services during the two-year period. Of these, 2,250,208 were placements in private industry.

"Private placement work was carried on in large volume, but activities in connection with the public works program provided an even larger portion of the placements made by the offices during the 1934-1935 fiscal year," the report of Persons to Perkins said.

"An aggregate of 1,089,964 placements of all types were made with private employers during the 12-month period ending June 30, 1935, and 1,681,768 placements on prevailing-wage public works were made. Assignments of workers on security-wage relief employment during this time were not of large volume, a total of 402,919 placements of this type being recorded, bringing placements of all types to a total of 3,174,651 for the year.

"During the following year, placement totals, in all types of work increased, but more than any other one factor, the huge volume of assignment of relief workers on security-wage employment in connection with the WPA program dominated activities. A total of 2,867,531 placements on security-wage relief work were made by the offices during 1935-1936 fiscal year. More than 1,850,000 of these placements were made in a single four-month period, October, 1935, through January, 1936.

"Despite handicaps, private placement work was carried on throughout the whole period, and the total for the year (1,160,244) showed a moderate increase above the aggregate for the previous year. Every month after February, 1936, private placements exceeded those of the same month of the preceding year by a steadily widening margin.

"Public placements in this year numbered 1,751,724, also a gain over the level for the year ended June 30, 1935. As in the previous year, these placements were made on work of prevailing-wage projects and in regular governmental employment, Federal, state and local, of all types.

"Among the 204,132 placements in professional and technical jobs, 91 per cent were of regular duration, and only 9 per cent were temporary. This is the highest proportion of regular jobs in any classification. In clerical jobs a relatively high proportion of regular placements were also found. Here, 77.8 per cent of 297,263 placements were reported as regular, and only 22.2 per cent as temporary. Placements of production workers, that is, in jobs which are often referred to as semi-skilled, were 72.5 per cent of regular duration and only 27.5 per cent temporary. The placements of skilled workers were also predominantly of regular duration, 71.4 per cent being so classified, and only 28.6 per cent reported as temporary.

WESTINGHOUSE AT THE 1939 FAIR

Golden Gate International Exposition announces the first contract to be signed for exhibit space in the Exposition buildings, by Westinghouse Electric and Manufacturing Company. The contract was signed April 22nd by N. G. Symonds, Vice President, at Pittsburgh, Pennsylvania, and presented to the Exposition by Vice President W. R. Marshall of San Francisco. Westinghouse Electric also made an early subscription to the Exposition bonds. Mr. Marshall says the bond subscription and the exhibit space contract express his company's confidence in the success of the Exposition and in the development of the Western States.

Westinghouse Electric will occupy nearly 5000 square feet of space in the Electricity Building, and plans a comprehensive display of its products for industry and household, of scientific and educational character; displays will be operating demonstrations. All of the departments of the company will participate, representing machinery equipment, lighting, home appliances, radio, etc., as well as the subsidiaries of Westinghouse Electric Supply Co., Westinghouse X-Ray Co., Westinghouse Electric Elevator Co., The Bryant Electric Co., and Westinghouse Electric International Co.

A staff of fifty trained employees will assure every attention to the inquiring visitors, ready to explain the latest marvels of electrical developments. G. H. Lewis, Exhibit Manager for Westinghouse Electric, is already located in San Francisco to complete their plans, construct and operate the exhibit. Mr. Lewis represented his company at the Dallas Exposition in 1936 and at the Chicago World's Fair in 1933-34.

JOHNSON AIR-CONDITIONING UNIT

Compactness and efficiency are features of a new air-conditioning unit, "Selectair," manufactured by the S. T. Johnson Company, of Oakland.

The entire unit is housed in a handsome enameled jacket with chrome trim and presents a neat appearance that makes it an ornament to any home. Operating on a split (or dual) system, it furnishes conditioned air to the rooms and steam heat to radiators. Bath-room and kitchen may be eliminated from air-conditioning and heated separately.

Hot water for domestic uses is supplied the year-round while forced circulation of air, fresh and cool, is provided for summer needs.

The air is cleansed from all dust, soot, pollen, etc., and then humidified, thus affording greater comfort at lower room temperatures. The oil heating unit is automatic and supplies uniform heat without attention. Blower-driven conditioned air is circulated to every part of the home.

Boiler is insulated with heavy mineral wool and controls are easily accessible for inspection or adjustment.

Occupying but little more space than the ordinary home furnace or boiler, Selectair conserves space in the designing of new homes and makes another room available when installed in older houses.

NEW FACTS ON INSULATION BOARD

Architects who are interested in obtaining new ideas on interior treatments to incorporate in their specifications will discover a host of suggestions in the six-page folder entitled "Here's How," which has been issued by the Insulite Company, Minneapolis, Minnesota. It is full of sketches and information on the design, treat-

ment and application of Insulite interior finish products. The folder also explains with both words and pictures how Insulite plank, tile, building board and hard boards are beveled, stenciled, striped, grooved, burned and treated at joints to make them adaptable for interior finishes.

Concurrent with the release of the folder described above, the company offers a series of three folders being released at 30 day intervals, entitled "Picture Parade of Modern Interiors." The first folder discusses primarily the effective treatment of offices, stores, shops and sales rooms. It is claimed by the manufacturer that offices in noisy, industrial sections will find Insulite to have excellent decorative qualities, high light reflection, and sound-deadening properties, for their walls and ceilings.

Still another piece of interest to architects which is now ready for distribution by the Insulite Company, is entitled "Why It Will Pay You To Build With Insulite Wall of Protection." Six vital questions concerning this method of construction and their answers are set forth and photographs are included to depict the advantages of using their materials in construction.

COUNTY SURVEYOR PASSES

Chris P. Jensen, county surveyor and county engineer of Fresno county since 1919, died of heart disease at his home in Fresno May 6 after an illness of two weeks. Born in Contra Costa county, he was 63 years of age and educated in the schools of Fresno and at an engineering school in San Francisco.

He engaged in general engineering practice from 1901 until 1918 and first took office as county surveyor in 1919. He had served eighteen and one-half years at the time of his death.

From 1901 until 1904 he was chief engineer for the Madera Sugar Pine Company and from 1909 until 1913 served as city engineer of Fresno. He was consulting engineer for Bakersfield, Dinuba, Clovis, Sanger, Reedley, Strathmore and Fowler from 1912 to 1919.

ARCHITRACTORS AND CONTRACTECHTS

By Roger Allen, A. I. A.

"A NEW name might do a great deal to dramatize the present day position of the contractor and builder in the residential field," says a recent editorial in a magazine circulating chiefly among builders. " 'Architractor' captures the imagination. It suggests the complete home building service needed today. . . . It has professional dignity and suggests a centralized service that is highly important."

The editor was right about one thing—"architractor" certainly captures the imagination. As soon as I read that curious and sinister combination of syllables I realized that for some days about all I would get to do would be to repeat "architractor" frequently, followed by "tsk, tsk." And how right I was! For a week I was able to say little else, and my nearest and dearest were on the point of calling in a psychiatrist (they would have, too, only none of them could spell it) when my condition began to improve slowly.

"Architractor," you will observe, is made up of the first syllable of the word "architect" coupled to the last syllable of the word "contractor." Judging from the relative placing of the syllables, an "architractor" is a man who is more of an architect than a contractor. Conversely, I suppose, a man who is more of a contractor than an architect can expect to be saluted as a "contratecht."

There is no reason to stop here. Using the same reasoning, a bricklayer who plays the saxophone of nights could be known either as a brickophonist or a saxolayer, depending upon which art was dearest to him. A druggist who passed part of his time putting up prescriptions for cheese sandwiches—and don't they all?—could sign himself, proudly or otherwise, as an apothochef.

The whole subject has a horrid fascination.

As an architect, I am bound to believe that the coiner of the word "architractor" is laboring under a common delusion. He feels, and with some show of reason, that since an architect designs a house and a contractor builds it, much could be saved by combining the two functions.

Pursuing the same kind of logic, the druggist who puts up a prescription is in just as good a position to write the prescription itself as the physician who actually does so. And yet we all feel, somehow, that he isn't.

There was a time when all the surgeons were barbers. Nowadays, however, you seldom see a man hanging around a barber shop waiting to have his appendix out. Why not? Because as time progressed, the need for specialization became apparent. Being a good barber is a full time job, and so is being a good surgeon.

In the case of the druggist, his prescriptions (if he were not, as is now the case in most states, prohibited by law from prescribing except for minor ailments) would be greeted with some skepticism, for the reason that he has something to sell besides advice. That is,

he gets his profit from the sale of the remedy, not for the advice.

This is true also of the contractor. He is in the position of selling the owner a certain combination of concrete, stone, wood, glass and so on, for profit. His profit would be greater if this combination is one that is easily assembled, and of materials not too costly. Human nature being what it is, his advice will be colored by this knowledge.

An architect, like a physician, sells you professional services. His advice is based on what you can afford to pay for, and his aim is to combine the elements that enter into a building into a harmonious and livable whole.

The prime function of any building is to keep out the elements. A two by four framework covered with tar paper will do this. So will a cave. But few of us, from choice at least, live in tar paper shacks, and fewer still haunt the realtor's office demanding plaintively that he find us a commodious cave with hot and cold running lizards. Why not?

Because the human soul has a craving for beauty, beauty of form in a building is as important to some of us as protection from the elements. Where some of us, including the inventor of the word "architractors," make a mistake is when we believe that this beauty can only be obtained at extra cost.

The architect's job is to produce buildings that offer something besides protection from rain and snow and sleet, or from the heat of summer. His buildings, if he is any good at all, will be superior in appearance, in livableness and in trouble-free life, from buildings erected without his services. And should the architect, in an ill-advised moment, try to combine the functions of the architect with the duties of the contractor, one phase of the Dr. Jekyll and Mr. Hyde combination is likely to suffer.

Today more than ever the practice of the profession of architecture demands a great deal from its practitioner. New materials, new methods, new requirements must be studied. No one can "learn" the profession so that it will stay learned, in the sense that men used to "learn" a trade. The process of learning is a continuous one.

There are some architects ideally fitted by temperament and experience to build the buildings they design. There are a few contractors equally fitted to design the buildings they build. Most of us, however, are jacks of one trade. The man or woman with a building to build will do well to entrust the designing to an architect and the building to a contractor, rather than to thumb through the telephone directory in a futile (I hope) search for either an architractor or a contratecht.

ARCHITECTS MOVE

Architects Masten and Hurd have moved from 233 Post Street to 400 Post Street, San Francisco.

METAL FURNITURE

Metal furniture is here to stay, according to a survey just completed by the Paris office of E. I. du Pont de Nemours & Company. When metal first made its appearance in the furniture field in sufficient quantities to attract attention, a sharp division of opinion arose concerning its possibilities. One group argued that it would never win public approval, while proponents hailed the innovation and predicted the speedy replacement of wood by metal. The controversy has now subsided, with metal finding its own particular place, not as an interloper supplanting wood, but as a graceful companion.

Its role in domestic decoration will be confined for the present largely to side pieces or accessories, leading French dealers believe. They have found that the public gives an indifferent reception to an ensemble in which metal predominates, but reacts favorably to single units which serve as accent pieces for the whole. Paris designers now agree that it will be a long time before metal will take the place of conventional materials, the survey shows, and have concentrated their efforts toward lines which they feel will find a ready acceptance.

The early ensembles of lacquered all-metal furniture were made with such cold efficiency that they lacked the personal touch people like to associate with furniture in their homes, the survey further reveals. The effect has therefore been softened, and the trend pointed along less functional lines.

Small pieces such as dressing tables, chests of drawers, cabinets and tables have been widely approved in metal. Chromium plated metal, combined with wood, plate glass and mirror glass, has proved very popular. Mirror glass is now enjoying a particular vogue, being used in white, tinted and engraved patterns. Tea tables made of metal and plate glass mounted on rubber wheels, and cocktail tables made in similar fashion, with metal pails fitted at the sides, are also being shown.

This type of furniture is now being displayed in all the leading shops in Paris. Many decorators are experi-

menting also with lacquered furniture made of aluminum alloy such as is used in airplane chairs, and predict some interesting results in this extremely light and resistant material.

In a design for a study, Le Corbusier, P. Jeanneret and Ch. Perriand show a long wall cabinet of lacquered steel in an austere pattern, stressing no decoration other than an etched landscape on the center door. The unit is supported on tubular legs, ending in huge metal plates, and stands nearly three feet from the floor. It is fitted with various drawers and filing cases and contains a radio and phonograph, with space for records.

Designs for chairs have been greatly improved, but as yet decorators have had little success in introducing them into private living rooms, the chief objection being that metal chairs are more or less of a standard type. Those made of metal tubing have become more or less familiar in cafes, lounges, clubs and other public places, but the new trend is away from tubing toward a flat framework.

BAY BRIDGE TRAFFIC

The San Francisco - Oakland Bay Bridge ranks third in the United States in amount of traffic for a toll crossing. This was revealed recently by Chief Engineer C. H. Purcell in a report on six months' operation of the giant eight and a quarter mile structure.

According to traffic figures for March, gleaned from the leading toll crossings, the Bay Bridge is exceeded only by the Holland Tunnel of New York and the Delaware River Bridge at Philadelphia.

From November 12, 1936, when the first vehicle to pay toll crossed the San Francisco-Oakland Bay Bridge, to May 11, 1937, six months later, 4,408,692 vehicles had used the bridge.

The report said that during the last full year of ferry operation without bridge competition (1935), approximately 4,000,000 vehicles crossed between San Francisco and East Bay points.

Combined bridge and ferry traffic in 1937 will exceed 9,000,000 vehicles, an increase of 125 per cent over 1935, 25 per cent of which may be

attributed to general business recovery. Thus it is evident that the San Francisco-Oakland Bay Bridge has not only facilitated motor travel between San Francisco and the cities of the East Bay shore and the region beyond, but may be said to have stimulated this motorized communication 100 per cent.

THE CITY OF TOMORROW

Whether the automobile develops into "a malignant growth or a pearl of great price" will depend primarily upon the vision, initiative and boldness of American planners in scrapping the present street and highway system and completely rebuilding it to bear the traffic of the future, Dr. Miller McClintock, head of the Bureau for Street Traffic Research at Harvard, told the American City Planners convention at Detroit, June 1.

Where the industrial revolution of a century ago applied power to the machinery of production, said Dr. McClintock, the automotive revolution has applied power to the machinery of distribution and just as industry had to abandon past methods in order to utilize mass production, so the nation must now discard its present useless street and highway system, designing and rebuilding roadways so that traffic can move swiftly, unimpeded and safely.

"This will cost $57,000,000,000 but will pay for itself in 43 years, according to an estimate made by Frank T. Sheets, a leading highway engineer," Dr. McClintock said.

These new traffic facilities were illustrated by photographs of a model city of 1960 which Norman Bel Geddes, "master of functional shape and form" designed for the Shell oil companies, basing his projection on plans developed from engineering studies of today's stop and go traffic.

The illustrations made public for the first time showed towering 2,000-foot high buildings grouped at the natural focal points of traffic, transportation and terminal facilities with intervening parks and open spaces to meet the objectives of "health, serenity, order and beauty."

A gigantic grid of elevated express

boulevards has been superimposed on the net of streets bearing local traffic. Ramps run from these local thoroughfares to the express lanes, literally enabling traffic to leap at high speed from one section of the city to another. Where these arterial streets meet, one passes over the other and turnoffs are provided to allow change of direction without crossing the traffic stream. This, as Dr. McClintock pointed out, eliminates intersection friction, the major cause of today's traffic congestion.

The city is provided with sidewalks raised above the vehicular level, bridging the streets at intersections and enabling "man, as an urban animal, for the first time for centuries to use his oldest form of transportation—walking—with some degree of security and dignity."

There is no congestion from parking in the city of the future because all automobiles are parked underneath the buildings; buses pull off the street to loading platforms and taxicabs, instead of cruising, are confined to depots.

"The city of tomorrow will be an automotive city," said Dr. McClintock, "and in its provisions for the safe and orderly movement of persons and commodities it will make possible, for the first time, the full benefits of the automotive revolution: physical separations of opposed streams of traffic; roadway margins protected from obstruction and interference; intersections on major streets and trunk routes provided with grade separations and, within the streams of flow, provisions made for a segregation of functionally different types of movement.

"We cannot look with equanimity upon a transportation mechanism which takes an annual toll of 36,000 lives and more than a million injuries nor can we, in this mechanized age, look with tolerance upon shackles which fetter this newest servant of mankind," Dr. McClintock continued.

"It would be difficult to conceive of any mechanism less well adjusted to its function of carrying traffic safely and efficiently than is the standard street system of any American city and much of our highway system"

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ACOUSTICAL AND SOUND CONTROL

WESTERN ASBESTOS Co., 675 Townsend Street, San Francisco.
INSULITE ACOUSTILE—The Insulite Co., 475 Brannan Street, San Francisco.

AIR CONDITIONING

WESTINGHOUSE ELECTRIC & Mfg. Co., 1 Montgomery Street, San Francisco.
*ELECTRIC APPLIANCES, Inc., 2001 Van Ness Avenue, San Francisco.
ALADDIN HEATING Corporation, 5107 Broadway, Oakland.
FRANK EDWARDS Co. (General Electric), 930 Van Ness Avenue, San Francisco.

INSURANCE

*HIKEMAN'S FUND Insurance Company, 401 California Street, San Francisco.

ARCHITECTURAL TERRA COTTA

N. CLARK & SONS, 116 Natoma Street, San Francisco.
GLADDING McBEAN & Co., 660 Market Street, San Francisco; 2901 Los Feliz Boulevard, Los Angeles; 1500 First Avenue South, Seattle; 79 S. E. Taylor Street, Portland; 22nd and Market Streets, Oakland; 1101 N. Monroe Street, Spokane; Vancouver, B.C.

BANKS

CROCKER FIRST NATIONAL Bank, Montgomery and Post Streets, San Francisco.

BATHROOM HEATERS

WESIX ELECTRIC Heater Company, 390 First Street, San Francisco; 631 San Julian Street, Los Angeles; 2008 Third Avenue, Seattle, Wash.

BLINDS—VENETIAN

HIGGINS CO., 1930 Van Ness Ave., San Francisco; 2335 Broadway, Oakland.
GUNN-CARLE & Co., 20 Potrero Avenue, San Francisco.
*H. E. ROOT, 1865 California Street, San Francisco.

BOILERS AND PIPE

*C. C. MOORE & Company, 450 Mission Street, San Francisco.

BRICK—FACE, COMMON, ETC.

N. CLARK & SONS, 116 Natoma Street, San Francisco.
GLADDING McBEAN & Co., 660 Market Street, San Francisco; 2901 Los Feliz Boulevard, Los Angeles; 1500 First Avenue, South, Seattle; 79 S.E. Taylor Street, Portland; 22nd and Market Streets, Oakland; 1102 N. Monroe Street, Spokane; Vancouver, B.C.
REMILLARD-DARDINI Co., 569 Third Street, Oakland; 633 Bryant Street, San Francisco.

BUILDERS HARDWARE

THE STANLEY WORKS, New Britain, Conn.; Monadnock Bldg., San Francisco; Los Angeles and Seattle.
*FARMER'S UNION, 151 W. Santa Clara Street, San Jose.
MAXWELL HARDWARE Company, 1320 Washington Street, Oakland.
*P. and F. CORBIN, New Britain, Conn.

BUILDING MATERIALS

BUILDING MATERIAL EXHIBIT, Architect's Building, Los Angeles.

BUILDING DIRECTORIES

TABLET and TICKET Company, 407 Sansome Street, San Francisco. Exbrook 2878.

BUILDING PAPERS

THE SISALKRAFT Company, 205 W. Wacker Drive, Chicago, Ill., and 55 New Montgomery Street, San Francisco.
"BROWNSKIN" ANGIER Corporation, 370 Second Street, San Francisco.

CABINET WORK

*FINK and SCHINDLER, 552 Brannan Street, San Francisco.
MULLEN MANUFACTURING Co., 64 Rausch Street, San Francisco.

CEMENT

CALAVERAS CEMENT Company, 315 Montgomery Street, San Francisco.
PORTLAND CEMENT Association 564 Market Street, San Francisco; 816 West Fifth Street, Los Angeles; 146 West Fifth Street, Portland; 518 Exchange Building, Seattle.
"GOLDEN GATE" and "OLD MISSION" manufactured by Pacific Portland Cement Co., 111 Sutter Street, San Francisco; Portland, Los Angeles and San Diego.
*HENRY COWELL Lime & Cement Company, 2 Market Street, San Francisco.
*SANTA CRUZ PORTLAND Cement Company, Crocker Building, San Francisco.

CEMENT—COLOR

"GOLDEN GATE TAN CEMENT" manufactured by Pacific Portland Cement Co., 111 Sutter Street, San Francisco; Portland, Los Angeles and San Diego.

CEMENT PAINT

GENERAL PAINT Corporation, San Francisco, Los Angeles, Oakland, Portland and Seattle.
FRANK W. DUNNE Company, 41st and Linden Streets, Oakland.

CONCRETE AGGREGATES

GOLDEN GATE ATLAS Material Company, Sixteenth and Harrison Streets, San Francisco.
JOHN CASSARETTO, Sixth and Channel Streets, San Francisco.

CONCRETE CURING & PROTECTION

THE SISALKRAFT Company, 205 W. Wacker Drive, Chicago, Ill., and 55 New Montgomery Street, San Francisco.

CHEMICAL ENGINEERS

ABBOT A. HANKS, Inc., 624 Sacramento Street, San Francisco.
ROBERT W. HUNT, 251 Kearny Street, San Francisco.

CLAY PRODUCTS

GLADDING McBEAN & Company, San Francisco, Los Angeles, Portland and Seattle.
N. CLARK & SON, San Francisco and Los Angeles.
KRAFTILE Company, Niles, California.
GLADDING BROS. Mfg. Co., San Jose.

CLOCKS—ELECTRIC TIME

*INTERNATIONAL BUSINESS Machines Corp., 25 Battery Street, San Francisco.

CONTRACTORS—GENERAL

LINDGREN & SWINERTON, Inc., Standard Oil Building, San Francisco.
DINWIDDIE CONSTRUCTION Co., Crocker Building, San Francisco.
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*W. C. TAIT, 883 Market Street, San Francisco.
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DOORS—HOLLOW METAL

FORDERER CORNICE Works, Potrero Avenue, San Francisco.
KAWNEER Mfg. Co., Eighth Street and Dwight Way, Berkeley.

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PITCHER'S SLIDING DOOR HANGERS, Sheldon Building, San Francisco.

ACID PROOF DRAIN PIPE

CORROSION—Acid resisting pipe, fittings, exhaust fans, pumps, etc., Pacific Foundry Co., 3100 19th Street, San Francisco; 1400 S. Alameda Street, Los Angeles.

DRINKING FOUNTAINS

HAWS DRINKING FAUCET Co., 1808 Harmon Street, Berkeley; American Seating Co., San Francisco, Los Angeles and Phoenix.

ELECTRIC FIXTURES

*THE FRINK Corporation, 557 Market Street, San Francisco.

ELECTRICAL CONTRACTORS

*ALTA ELECTRIC and Mechanical Company 467 O'Farrell Street, San Francisco.

ELECTRIC ADVICE

PACIFIC COAST ELECTRICAL Bureau, 447 Sutter Street, San Francisco, and 601 W. Fifth Street, Los Angeles.

ELECTRICAL EQUIPMENT—SUPPLIES

*TRUMBULL ELECTRIC Mfg. Co., 260 Van Ness Avenue, San Francisco.
*GENERAL ELECTRIC Supply Corp., 1201 Bryant Street, San Francisco.
*NATIONAL ELECTRIC Products Co., 400 Potrero Avenue, San Francisco.

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WESTINGHOUSE ELECTRIC Elevator Company, 1 Montgomery Street, San Francisco.
*OTIS ELEVATOR Company, Beach Street, San Francisco.

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FERRO ENAMELING Company, 1100 57th Street, Oakland.

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ASPHALT TILE, Western Asbestos Company, 675 Townsend Street, San Francisco
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MAPLE FLOORING MANUFACTURERS ASSOCIATION, McCormick Building, Chicago. Ask your lumber dealer.

FIXTURES—BANK, OFFICE, STORE

MULLEN MANUFACTURING Co., 64 Rausch Street, San Francisco.
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FURNITURE

*PENN. FURNITURE Shops, Inc., 130 Second Avenue, San Mateo.

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LIBBEY-OWENS-FORD GLASS Co., Toledo, Ohio; 633 Rialto Building, San Francisco; 1212 Architect's Building, Los Angeles; Mr. C. W. Holland, P.O. Box 3142, Seattle

PITTSBURGH PLATE GLASS Company, Grant Building, Pittsburgh, Pa. W. P. Fuller & Co., Pacific Coast Distributors.

*L. H. BUTCHER COMPANY, Fifteenth and Vermont Sts., San Francisco.

*EAST BAY GLASS Company, 301 Mission Street, San Francisco; 621 Sixth Street, Oakland.

*COBBLEDICK-KIBBE GLASS Company, San Francisco and Oakland.

HARDWOOD LUMBER

WHITE BROS., Fifth and Brannan Streets San Francisco; 500 High Street, Oakland.

HEATING—ELECTRIC

WESIX ELECTRIC Heater Company, 390 First Street, San Francisco; 631 San Julian Street, Los Angeles; 2008 Third Avenue, Seattle, Wash.

HEATING & VENTILATING EQUIPMENT

*AMERICAN RADIATOR Company, 4th and Townsend Streets, San Francisco.

HEATING—GAS

ELECTROGAS FURNACE & Mfg. Co., 2575 Bayshore Blvd., San Francisco.

PACIFIC GAS RADIATOR Co., 7615 Roseberry Ave., Huntington Park; Sales Office, H. C. Stoeckel, 557 Market Street, San Francisco.

ALADDIN HEATING Corp., 5107 Broadway, Oakland.

TAY-HOLBROOK, Inc., San Francisco, Oakland, Sacramento, Fresno, San Jose.

PACIFIC GAS RADIATOR Co., Huntington Park, California.

HEAT GENERATORS

WATROLA CORPORATION, LTD., 2155 Toward Street, San Francisco.

HEATING-OIL

*AARVAKS HEATING APPLIANCE Co., 1919 5th Street, Berkeley.

INSULITE PRODUCTS, distributed on the Pacific Coast by Paraffine Companies, San Francisco, Seattle, Portland and Los Angeles.

HEAT REGULATION

JOHNSON SERVICE Company, Milwaukee, represented on the Pacific Coast by the following branch offices: 814 Rialto Bldg., San Francisco; 153 West Avenue, 34, Los Angeles; 1312 N.W. Raleigh Street, Portland, and 473 Coleman Bldg., Seattle.

HOLLOW BUILDING TILE (Burned Clay)

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ABBOT A. HANKS, Inc., 624 Sacramento Street, San Francisco.

ROBERT W. HUNT Co., 251 Kearny Street, San Francisco.

INTERIOR DECORATING

*W. H. POLLARD, Jr., 522 Grand Ave., Oakland, California.

LACQUERS

GENERAL PAINT Corp., San Francisco, Los Angeles, Oakland, Portland, Seattle and Tulsa.

W. P. FULLER & Co., 301 Mission Street, San Francisco. Branches and dealers throughout the West.

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*INCANDESCENT SUPPLY Company, 726 Mission Street, San Francisco.

*PHOENIX-DAY Company, 729 Mission Street, San Francisco.

LIMESTONE

*INDIANA LIMESTONE Company, 130 Lunado Way, San Fnacisco.

LINOLEUM, CARPETS, Etc.

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*SHELL OIL Company, Shell Building, San Francisco.

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The ARCHITECT and ENGINEER

JULY
1937

Residence of W. H. Hall, Sausalito.
Frederick L. Confer, Architect.
J. R. Armstrong, Contractor.

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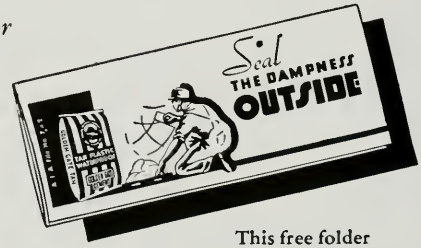

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THE ARCHITECT & ENGINEER

July ·· 1937

THE ARCHITECT AND ENGINEER, INC., 68 Post Street, San Francisco, EXbrook 7182. President, K. P. Kierulff; vice-president, Frederick W. Jones; secretary, L. B. Penhorwood. Los Angeles office, 832 W. Fifth Street. Chicago representative, Harry B. Boardman, 123 West Madison Street, Chicago, Ill. Published on the 12th of each month. Entered as second class matter, November 2, 1905, at the Postoffice at San Francisco, California, under the Act of March 3, 1897. Subscriptions, United States and Pan America, $3.00 a year; Foreign countries, $5.00 a year; single copy, $.50.

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Notes and Comments

PUBLIC indignation against the destruction of historic buildings and the erection of structures foreign to their setting, was referred to by Philip Dana Orcutt of the Boston Chapter of the American Institute of Architects in his talk before the Convention delegates last month.

"Too many local historical societies are sunk in a senile apathy from which nothing seems to arouse them," asserted Mr. Orcutt, who deplored the defacement of the countryside as an economic as well as an aesthetic evil. He urged that our new buildings harmonize with nature.

"There is a growing feeling for the preservation of our architectural antiquities and a resentment against the intrusion of structures which are alien in mass or texture or color to their environment. This is particularly true in sections of the country or districts of cities where there already exists a preponderance of buildings which for a century or more have seemed actually to grow out of the earth on which they rest.

"Historic monuments are few and far between. Even buildings of exceptional architectural merit are rare. The value to the community and to the nation at large lies in preserving—in a private ownership that is awakened to appreciation—the many remaining but fast disappearing buildings that can be encountered in any afternoon's drive in the older sections of the country.

"A step beyond that is to encourage new buildings to emulate the example of the older ones, not necessarily reproducing their form, but rather reproducing the intent and spirit which insured a harmony and unity both with nature and the intended use."

REVIVAL of building and "a saner approach on the part of architects" are working important changes in the trend of contemporary architecture, according to Harvey Wiley Corbett, New York architect.

Mr. Corbett foresees the emergence of new and younger leaders in American architecture, which, he predicts, will be less influenced by foreign precedents. Architects face great and alluring opportunities, according to Mr. Corbett, who points out that an enormous amount of building must be done.

"The extreme modernistic, highly stylized character of the last two or three years is settling down to a more rational basis," he continues. "In the long run, architecture is always an expression of the condition of the people; however, it is never an expression of the moment, such as the daily news columns, because there is the time lag required between the conception of an architect's idea and the final building; however, speed in building construction has diminished this time lag.

"Architecture is closer to an expression of the condition of the people at a given moment than it formerly was. When people are confused in their minds as to their government, as to their finances, as to security, property rights, social relationships, etc., art in all its forms is equally confused. As the national atmosphere begins to clear, the general art expression also begins to clear.

"In my lectures at Columbia, this summer, I will discuss at some length this general idea, pointing out that contemporary architecture—one form of art—never is, and never can be a thing apart. It always is, and always must be an outgrowth of how the people live, what they think, where they work, and what their human relationships happen to be.

"The trend of the times, as I see it in the field of architecture, will be less and less influenced by foreign precedents, and will become more and more the sincere expression of America's own needs and aspirations. The younger men of the present generation will be the leaders in this idea, because they are freer from intimate association with the old-fashioned ideas.

"The opportunity is ripe for a fresh, new and fundamental approach to our own architectural problems. In order to catch up, an enormous amount of building must be done, and I personally believe the opportunities in the field of architecture for the immediate future are very great, very alluring and highly inspiring."

* * *

ACCORDING to Elizabeth Gordon and Dorothy Duces in their book "More House for Your Money," prefabrication is not going to affect the way houses are built in the near future.

"The changes which are about to occur," they say, "have really been happening ever since the Franklin stove was first made, a pioneer, factory-made product for the home. Prefabrication did change the way houses are built. Practically everything in our present day home is prefabricated, except the shell of the house and its foundation, which still are hand-made on the job.

"Very few houses built since 1920 have been erected without benefit of prefabrication. Our doors and windows, our heating plants, our plumbing systems, our sinks and bathtubs, our stoves and ice-boxes, our kitchen cabinets and mill work all are made in standardized sizes, by machines in factories distant from the site. The pre-cut house, whose shell is all ready to be put together when it arrives, has been available in mail-order catalogues for almost as many years as fabricated equipment.

"In short, prefabrication is old stuff. The future will merely see it extending its scope and being more widely accepted. This means that some day, no matter what material you decide to use for your home, or what size and shape you want, may buy its parts prefinished and all the pieces will fit or lock together in short order.

"This millenium is not set for the very near future. It will come slowly and gradually, by the same route and through the same trade channels as have all other improvements in building."

FRANK, BUT MINUS HELPFUL SUGGESTIONS

Editor The Architect & Engineer,
68 Post Street,
San Francisco, California.

Why don't you put out a better magazine? I want to encourage our own industries but ONLY when they are doing good work. You publish any old thing—done by opportunists not by people of conviction. Why don't you go to Ernest Born who was connected with the Forum and ask him about what he thinks of your magazine and why (I haven't even discussed the matter with him). Here is $3.00 for the coming year . . . .

There seems to be a feeling that if costs go much higher there may be a general cessation of building

Yours truly,

WILLIAM WURSTER, Architect.

San Francisco, June 21, 1937.

NEW YORK UNIVERSITY
SCHOOL OF ARCHITECTURE AND ALLIED ARTS
BRYANT PARK CENTER

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COMPETITION IN ARCHITECTURE (1937-1938)

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$1,000 to a graduate of New York University. $330 will be deducted for tuition and other fees.)

REQUIREMENTS

Candidates shall qualify for work leading to the degree of Master of Architecture. They shall be between twenty-two and thirty years of age on July 1, 1937, and citizens of the United States. Winners of scholarships will be required to pursue a full-day program of study for the year.

APPLICATION AND CREDENTIALS

Candidates must submit, on or before July 9, a letter of application including the following:

(1) Record of practical architectural experience

(2) Record of schools attended and degrees received.

(3) Prizes and scholarships received

(4) Photostat of official copy of college record or degree and a letter of recommendation from the dean of the school

(5) Recent photograph of the applicant

(6) The name and address of the supervisor

(7) Letters of reference from two persons who have known the applicant for two or more years and who are responsible persons engaged in the practice of architecture or architectural education.

COMPETITION

Two problems: (1) 1-day design problem.
(2) 4-day design problem.

Program will be mailed to the supervisor to reach contestant on July 19, 1937.

Work to be done under supervision on five consecutive days: July 19-23, inclusive.

Supervisor to be a member of the American Institute of Architects

or a practicing architect satisfactory to this institution

or the dean of the school or a member of the faculty approved by the dean

or New York University at the School of Architecture and Allied Arts

SUBMISSION OF DRAWINGS

Drawings are to be postmarked prior to 10:00 p. m., July 23, 1937.

JURY

The jury will consist of three nationally known architects who are not members of the faculty of New York University.

Letter of application and final drawings are to be sent to Dean E. Raymond Bossange, School of Architecture and Allied Arts, New York University, 1071 Sixth Avenue, New York, N. Y.

DROP IN BUILDING DUE TO HIGH PRICES AND LABOR DISPUTES

WITH threatened labor disputes and a continued upward trend in building material prices, the building industry appears headed for another slump. After having recovered from one of the worst depressions in its history, the industry was thought to have reached a point of normalcy, there to stay for some time. But it seems somebody miscalculated. They evidently failed to reckon with price advancements and labor disputes. The situation has now reached a point where the prospective builder refuses to meet the increased cost of building with the result that residence construction is off approximately 50 per cent with prospects of a still greater slump—unless something is done about it.

To throw further light on the situation The Architect and Engineer prepared a short questionnaire and mailed it to leading architects in Northern and Southern California. The questions were as follows:

From your contacts with the material people and contractors, do you find that the rise in building costs has affected anticipated volume of residential construction in your office?

Can you estimate approximately to what extent? Have you available any comparative figures or percentages which would illustrate the extent?

Approximately when did the effect on volume first become noticeable?

Do you find the effects to be more marked in the small house field (under $5,000), or in the larger house field?

What is the general feeling among architects and contractors in the residential field as to present and future prospects?

Practically 100 per cent of the answers revealed residence work as having dropped off from 50 to 70 per cent since April 1. The small house field, as well as the more expensive homes, would appear to be hit the hardest—except in the speculative market.

Answering the last question in regard to present and future prospects in the residential field, a Berkeley architect writes: "Present prospects very bad . . . something must be done about high prices . . . right now the general public is on a buying strike . . . impossible to finance a project at present high costs . . . there still is a great need for new homes if prices were right."

This same architect adds: "During the past three months we have lost approximately eight $12,000 jobs."

A San Francisco architect says: "We are hoping for at least a stabilization of prices. Can see no prospect for immediate lowering of prices. In the meantime prospective owners will do nothing. Contract prices are up about 30 per cent above what they were nine months ago. This office began to notice a falling off in residence work as early as December, 1936.

"Anything you can do to make known to both manufacturer and labor, as well as contractors, that they are hurting business by a too rapid rise in prices, will be helpful."

From an Oakland firm of architects comes the notations: "We would place the decrease in residence work since April to about 50 per cent, particularly with respect to houses ranging around $20,000 or more.

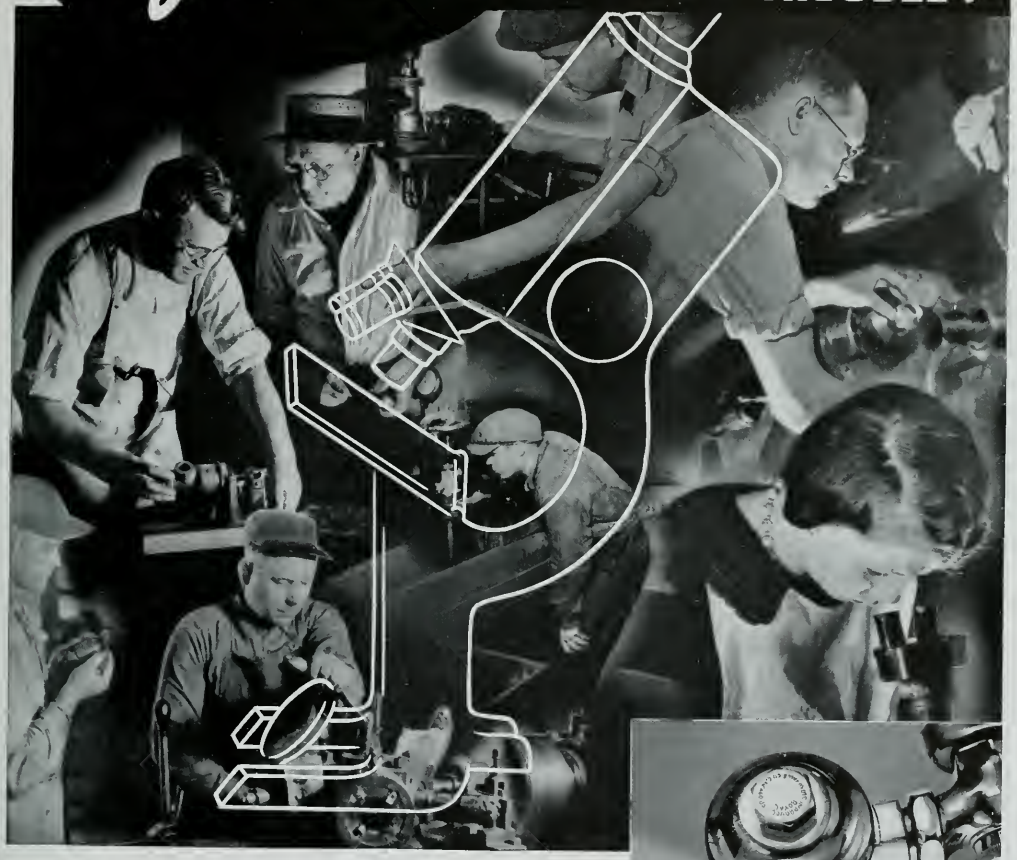
"There is altogether too much talk of high costs, labor troubles, etc. The public will have to get used to present prices and this will probably take a few months so that people cannot compare costs with friends who built when materials were down and labor cheap."

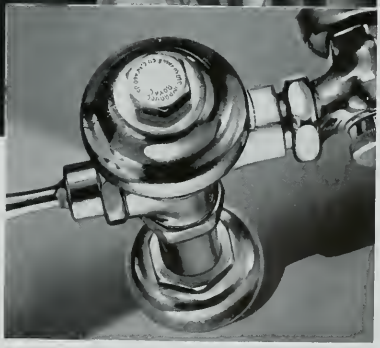
A Los Angeles architect thinks there is a general disorganization which should be corrected. Prices should level out and become more steady.

Immediate stabilization of prices and postponement for the time being of wage increase demands would undoubtedly forstall further building cessation and prevent a real crisis in the building industry in California, in the opinion of many architects and contractors.

Fault finders

LOOKING FOR TROUBLE!





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SLOAN FLUSH VALVES

Open Web Type Steel Framing for Dwelling House Construction

TWO diminutive models of houses respectively demonstrating two types of Bethlehem light-load framing were a feature of the North American Homes Exposition held recently at Madison Square Garden in New York. Facings of stucco, brick, tile and stone are purposely left incompleted to show the manner in which the steel frame work is fabricated and combined with other materials.

One of the models which is a peaked roof design demonstrates the application of open-web type framing and the other model which is of modern flat roof design shows how Bethlehem wide flange solid members can be utilized in dwelling house construction in combination with the open-web members for the intermediate studding.

These framing members are delivered to the lot just like so much framing lumber and the members are also erected much as wood framing would be. The open-web framing is erected by aid of the field electric welder; substituted for hammer and nails. Whatever cutting of the members is necessary is accomplished by means of the acetylene torch. The wide flange members, on the other hand, are bolted together.

An advantage claimed for either type of framing is that it is readily adaptable to any style of architecture. It represents but a slight increase in cost over wood framing, amounting in fact to only 5 or 10 per cent including the added cost of fire-proof subflooring and plastering applied on metal lathe. Offsetting this slight additional cost it brings the important advantages inherent in the steel of added permanence, elimination of troubles that often result from the shrinkage of wood framing, such as cracking of the plastering, and it provides a dwelling that is fire safe and vermine proof. It is the final answer to any present or potential threat of termites.

Ballrooms, Too, KNOW HARD MAPLE as The Longest-Wearing *Comfortable* Floor

. . . *Like*
FACTORIES
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MILLS
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WAREHOUSES
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SCHOOLS
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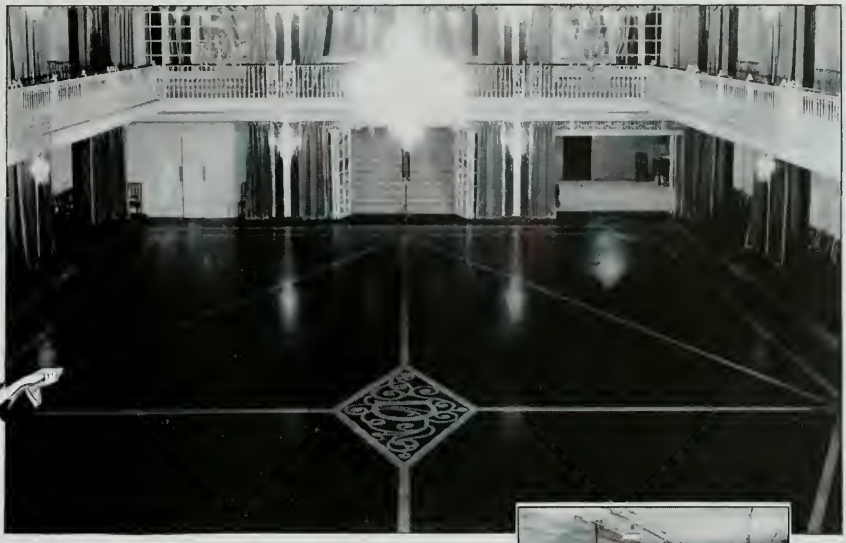
STORES
•
and HOMES



To visit the Main Ballroom at Chicago's Drake Hotel is to be struck by the beauty of the ebony-black floor, striped and scrolled in silver. To dance, is to be impressed by its velvety "feel" underfoot, so smooth that dancing seems effortless.

Like most ballroom floors, this floor is Northern Hard Maple, selected for three reasons: its beauty, its resilient smoothness, its remarkably long life.

The same three characteristics, combined so perfectly in no other flooring, explain Hard Maple's widespread use in factories, stores, schools and homes.

No other flooring equals Hard Maple's versatility. In the Drake Ballroom, it offers a perfect floor for dancing; matches its surroundings in beauty. For the Cracker Jack plant, it provides foot comfort, remarkable resistance to the wear of heavy truck traffic.

On a cost-per-year basis, Hard Maple offers unequalled economy. Outwears any other comfortable floor. So tough-fibred, tight-grained, its resistance to indentation and abrasion is remarkable. Does not splinter, sliver, or develop ridges. Speeds up traffic. Simplifies alterations, lowers maintenance costs.

Moreover, Hard Maple offers unsurpassed comfort in use. Warm, dry, resilient, sanitary, it reduces fatigue, aids efficiency. And always, its light cheery color presents pleasing appearance. With the heavy-duty finishes available, Hard Maple's beauty is maintained under most severe traffic. These penetrating finishes seal its surface, keep out dirt, eliminate scrubbing. In "natural" or colors, to match any decorative scheme.

In buildings of *many* different types, **MFMA*** Northern Hard Maple is your insurance that your clients' flooring will give lasting satisfaction year after year. Write for A.I.A. File Size Grading Rules and complete specifications for laying and finishing.

For display rooms and stores, Hard Maple flooring is an ideal choice. It offers resilience, good appearance, cleanliness, sanitation, easy maintenance, durability, economy. This unique combination of qualities makes versatile Hard Maple equally suitable for factories, bakeries, mills, warehouses, schools, and homes.

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See our catalog data in Sweet's, Sec. 17/66.
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Floor *with* Maple

MFMA Approved

***MFMA**—This trade-mark on Maple Flooring guarantees that it conforms to the exacting grade standards of the Maple Flooring Manufacturers Association. It protects you against species substitution and inferior grade. It assures you of *genuine* Northern Hard Maple. Look for it on the flooring you buy.

Charm of old Monterey

"ALL GAS" COMFORT OF TODAY

Inherent in the Monterey Spanish design is a room arrangement that creates a difficult heating problem. A happy solution was found in this Berkeley, California home. ☆ A gas warm air central heating plant with automatic control, properly located to serve all the rooms grouped around the patio, assures uniform, healthful comfort throughout. Gas cooking and water heating too, of course—this new home is *completely* modern! ☆ ☆ Your Gas Company will gladly assist you in planning for gas in *your* new home.

Gas
THE MODERN FUEL

NIGHT IS BRIGHTER THAN DAY

WHEN WALLS ARE BUILT WITH VITROLUX

The Biltmore Tap Room, Chicago, designed and erected by Palmer Personal Service. This night photograph illustrates the highly luminous effect of colorful translucent Vitrolux.

"Welcome ever Smiles, and Farewell goes out Sighing."
– SHAKESPEARE

Vitrolux, the New Color Fused Tempered Plate Glass, offers a definite means of adding high visibility at night in addition to maintaining an attractive, colorful front by day. When walls of translucent Vitrolux are lighted from behind at night, they offer a brilliant welcome to all who pass—spotlighting your place of business and marking it as modern and ultraprogressive.

Vitrolux is available in almost any color or combination of colors, in varying degrees of translucency. It is also available in opaque colors. The colors are fire-fused on the inner surface and become an integral part of the glass itself. Translucent Vitrolux gives remarkable light diffusion.

Vitrolux has unusual physical characteristics—it is from 3 to 7 times as strong as ordinary plate glass and, because of the tempering process, is highly resistant to physical and thermal shock.*

The use of Vitrolux for exterior walls or for ceilings opens up unusual opportunities to make your place of business more attractive after dark and to add to its luster during the day. Complete data is available to architects on request.

LIBBEY·OWENS·FORD GLASS COMPANY, TOLEDO, O.

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* *The special treatment given Vitrolux greatly increases its strength but prevents its being cut or ground like ordinary glass. Care must be taken to avoid striking exposed edges or puncturing its surface with pointed objects. Cutting the surface or chipping the edges causes this glass to disintegrate and fly into relatively small crystals.*

VITROLUX

Color Fused Tempered Plate Glass

A LIBBEY · OWENS · FORD PRODUCT

ARTIST'S CONCEPTION OF GREAT CENTRAL COURT AT NIGHT, GOLDEN GATE INTERNATIONAL EXPOSITION, 1939

WILLIAM G. MERCHANT, ARCHITECT; CHESLEY BONESTELL, DEL.

FULLERTON COLLEGE

A School Plant Designed For Maximum Safety And Efficiency

By Harry K. Vaughn, *Architect*

THE group of buildings which will house the Junior College of the Fullerton Union School District at Fullerton, California, are set on a level campus, about sixteen acres in area. This spacious site affords each building a generous portion of air and light and pleasant setting. When finished the development will provide a junior college plant complete in every detail. At present the commerce building is in service; the administration and the technical trades buildings are under construction. As needs require and funds permit other units will be added. The full plan contemplates four additional classroom buildings, a library and students' union building.

All structures are being planned and erected in Class A construction of reinforced concrete, designed against earthquakes in full conformity with the state's requirements.

The historic background of Fullerton as of all Southern California is that of the romantic, colorful period of Mexican control and administration. It therefore seemed fitting and logical to design the buildings with treatments and decorative features characteristic of those early California days. Today, even as a century ago, the sun shines joyously on light-toned walls and roofs of deeper colored tile. The contrast of strong light and dark shadow has not changed, the charm of color has not lessened. So it has been planned to give to these new buildings the gift bestowed by former times.

The completed commerce building shown in accompanying views, is representative of the treatment which will prevail throughout the entire group. It is a fully-appointed, efficient modern school. Its polychromed tile cupola, its entrances, its exterior stairways, its iron grilles, its colors, shadows, are all reminiscent of the times when electricity and mechanical ventilation were not in Fullerton.

The building covers an area 70 by 150 feet, of reinforced concrete throughout. In its foundations, in its use of two rather than the customary three transverse spans in floor and roof framing, and application of light weight aggregate for the concrete, the building has features of unusual, novel interest.

When test pits were sunk to determine the character of the soil, it was found that to a depth of 20 feet or more the ground consisted of layers of silt, sand and loam of probably fluvial origin and of very low bearing value. The State Division of Architecture recommended 950 pounds per square foot as the maximum load to be placed upon it. Under this limitation, ordinary spread footings were obviously not to be considered.

This led to the consideration and final adoption of poured piles for the foundation work. A hole one foot in diameter and 20 feet deep drilled with an auger, was subjected to a test load. Captain R. V. La Barre, of Los Angeles, conducted the test. From it it was determined that a loading of 500 pounds per square foot

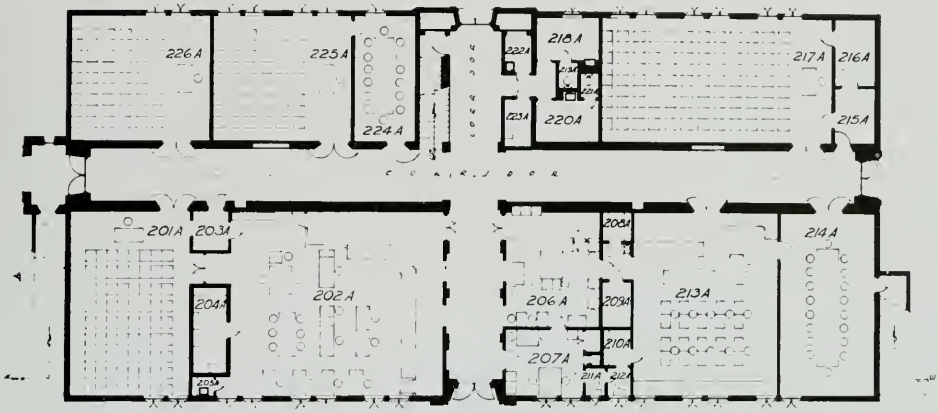
NORTHEAST CORNER, FULLERTON JUNIOR COLLEGE
Harry K. Vaughn, Architect

SOUTHWEST FACADE, FULLERTON JUNIOR COLLEGE
Harry K. Vaughn, Architect

201A BUSINESS MANAGEMENT, INVESTMENTS, ECONOMICS
202A BANK
203A OFFICE
204A BANK VAULT
205A CLOSET
206A HEAD OF DEPT. OFFICE
207A PRIVATE OFFICE
208A STORE ROOM
209A STORE ROOM

210A STORE ROOM
211A TELEPHONE INSTRUC. BOOTH
212A TELEPHONE INSTRUC. BOOTH
213A DIRECTED SECRETARIAL TRAINING OFFICE & WORK ROOM
214A MACHINE CALCULATION, TELEPHONE, DICTAPHONE, FILING
215A OFFICE
216A OFFICE
217A LECTURE ROOM

218A REST ROOM
219A REST ROOM
220A REST ROOM
221A REST ROOM
222A SUPPLY CLOSET
223A SUPPLY CLOSET
224A GEOGRAPHY LABORATORY & SEMINAR ROOM
225A GEOGRAPHY
226A UNASSIGNED

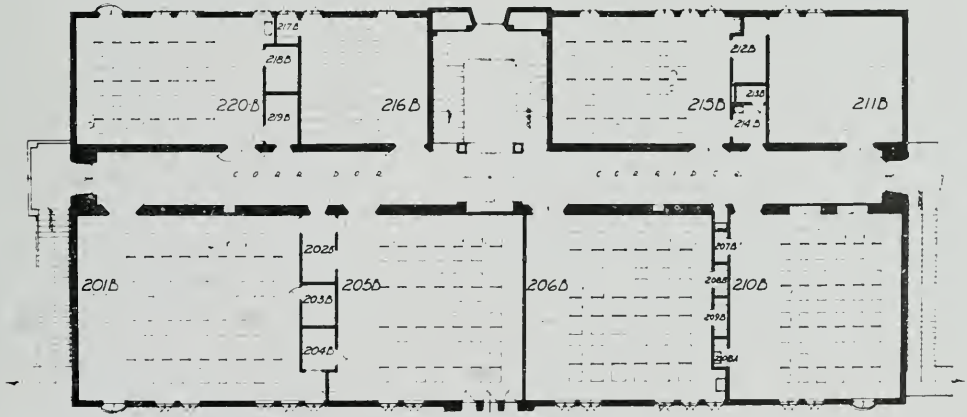


FIRST · FLOOR · PLAN

201B TYPING & STENOGRAPHY
202B OFFICE & STORE ROOM
203B OFFICE & STORE ROOM
204B OFFICE & STORE ROOM
205B TYPING
206B BOOKKEEPING & ACCOUNTING
207B SUPPLY ROOMS
208B SUPPLY ROOM

209B SUPPLY ROOM
210BA SUPPLY ROOM
2,0B BOOKKEEPING & ACCOUNTING
2,1B BUSINESS LAW
2,2B OFFICE
2,3B LADIES REST ROOM
214B LADIES REST ROOM

215B ADVERTISING, SALESMANSHIP & MERCHANDISING
2,6B BUSINESS ENGLISH
217B SUPPLY CLOSET
218B OFFICE
2,9B OFFICE
220B STENOGRAPHY



SECOND FLOOR PLAN

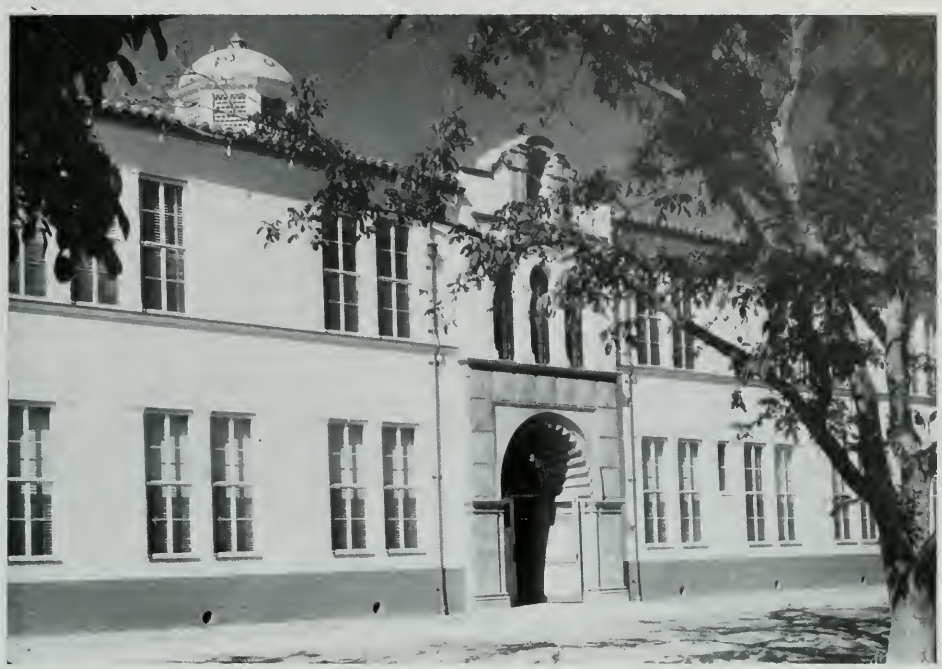
SOUTH ENTRANCE, COMMERCE BUILDING, FULLERTON JUNIOR COLLEGE
Harry K. Vaughn, Architect

of frictional area could safely be employed. This amounts to 1,570 pounds per lineal foot of 12-inch pile.

Piles of this type were used for the entire project. Under the heavy column loads along the center line of the building lengths up to 32 feet were employed. Along the exterior walls the piles averaged 16 feet in length at an average spacing of 3 feet 8 inches. Holes for these piles were drilled, by hand, with a post-hole auger bit and an ordinary pipe shaft. With the deeper holes a light portable tower frame was used to steady and control the top of the shaft when the auger was being raised or lowered. The soil possessed coherence sufficient to make lining the holes unnecessary. A cage of reinforcement made up of 4⅝-inch round bars held with binders 12 inches o. c. was placed in each hole and the concrete was then filled in. The concrete was poured through a 5-inch metal pipe and the free fall at the lower end of the pipe at no time exceeded 4 feet. To thus confine concrete while it is being dropped through reinforcement, is to assure its arrival at the bottom of the wall in the same condition it was in at the top; otherwise, the coarse aggregate is pretty well sieved out of the mixture and arrives at its destination belatedly and all by itself. In this particular case the 5-inch pipe also protected the falling concrete from striking against the sides of the hole and knocking earth into the concrete.

The framing of the floors and roofs with a single row of interior columns located on the central axis of the building required 35-foot spans but conformed with room sizes desired. Classrooms for such subjects as banking, typewriting, etc., require more space per student than others do and if the customary 23 feet breadth of classroom had been maintained,

LIGHT WEIGHT AGGREGATE USED FOR CONCRETE WALLS



MAIN FACADE OF COMMERCE BUILDING, FULLERTON JUNIOR COLLEGE
Harry K. Vaughn, Architect

the rooms for these subjects would have been of awkward length. With the full lighting system provided the deep rooms 33 feet wide have proven very satisfactory. The 9-foot 6-inch corridor which runs lengthwise through the building is set to one side of the columns and there remains a classroom of standard 23 feet breadth between corridor and wall. The floors and roof are framed with beams or joists of 10½ inches average breadth, spaced 3 feet 3½ inches o. c., formed with steel "pans" 30 inches wide and 14½ inches deep above which the slab has a thickness of 3 inches.

The foundation conditions and the long pans made it particularly desirable to hold the dead loads to low values. Therefore light weight aggregate was used, which gave a concrete whose weight wet ranged from 109 to 113 pounds per cubic foot, and dry slightly over 100 pounds per cubic foot.

INTERIOR STAIRWAY OF COMMERCE BUILDING

The aggregate used is manufactured from a diatomaceous earth which is compacted into particles of varying sizes and then burned at a temperature of approximately 2,000 degrees Fahrenheit.

In the average batch of concrete there was used, to the sack of cement and to 6 gallons of water, total:

Asphalt sand	37 pounds
Natural sand	84 pounds
Light weight sand	49 pounds
Light weight coarse agg.	128 pounds

This concrete had an average slump of 4 inches and a 28-day standard cylinder strength of 3,117 pounds per square inch (28 cylinders). It was plastic and workable and produced a very satisfactory material in the building.

The wall forms were made of 1x6 T and G lumber, the rough side of which was placed to be in contact with the concrete. These boards became slightly warped and gave corresponding surfaces and textures to the concrete which are very pleasing.

The roofing tile, which was hand-made by Mexicans, is of the early California type. In burning it developed colors ranging from a light salmon to very nearly dull black. The butts are an inch or more in thickness. They have nicely rounded edges and lay up with a soft texture. Decorated polychrome tile, made by a Mexican girl, were used about the south entrance doorway, the archway at the east entrance and on the central domed cupola. Red padre tile were used on all window sills, inside and out, and in the belt course at the second story window sill level which is continuous around the building. Cast stone of light creamy gray color, having typical wet cast surfaces, was used at the south stairway, east and west entrances.

Steel sash of the outswinging casement type were used at all windows. These are equipped with Venetian blinds painted to harmonize with the colors of both the exterior and interior.

To produce a quiet, restful building, acoustical plaster was used on the ceilings of all rooms, down their walls to the level of the picture screed. It was used in the corridors also, in the ceilings and walls from the heads of the doors up. The floors are covered with 1/4-inch thick cork carpets cemented to the smooth ground concrete.

There are three stairways: an interior one at the middle of the building, two exterior stairways at the ends. The stairway at the south end has a concrete wall capped by a cast stone hand-rail. At the north end the railing is wrought iron. Tile risers and treads are used on the outside stairways while the inside one has tile risers and nosing with cork carpet treads stained to match the tile.

Walls of the building are given a cream color with a base dado of cobalt blue. This dark base not only serves as decoration but obscures stains and mud splashings from watering plants and shrubbery with which the building will presently be surrounded. The recessed door openings in the first story are decorated with colors which take their note from the polychrome Mexican tile and range in tone from a bronzy apricot through the yellows. The iron grilles and railings are painted blue. Color plays a leading part in the completed architectural design.

Interior lighting is obtained from numerous fixtures set in and above the ceiling. These are located on about 10-foot centers and are equipped with 300 watt lamps. They are provided with spun aluminum reflectors, diffusing lenses and furnish very excellent and well distributed illumination. Tests show they give an average desk lighting of 33-foot candles.

The heating and ventilating system is such as to furnish all rooms with from five to ten complete air changes per hour, the rate being changed with the occupancy. All rooms have constant temperature assured by thermostatic control.

The building was constructed as a PWA project.

TWO CALIFORNIA SCHOOL BUILDINGS
REBUILT TO CONFORM WITH STATE SAFETY REQUIREMENTS

FRONT ELEVATION, CONLEY GRAMMAR SCHOOL, TAFT, CALIFORNIA
Charles H. Biggar, Architect
L. H. Nichkian, Structural Engineer

THE two school buildings here illustrated are good examples of competent design both architecturally and structurally. The reconstruction program was made necessary by compulsory state requirements adopted by the California Legislature following the 1933 earthquake in the Southern part of the state. Buildings partially demolished have been restored and besides being structurally stronger than before, their outward appearance has been improved to a considerable extent.

Thus it is that scores of California schools are entirely new in structure and architecture, while others, in which a large portion of the

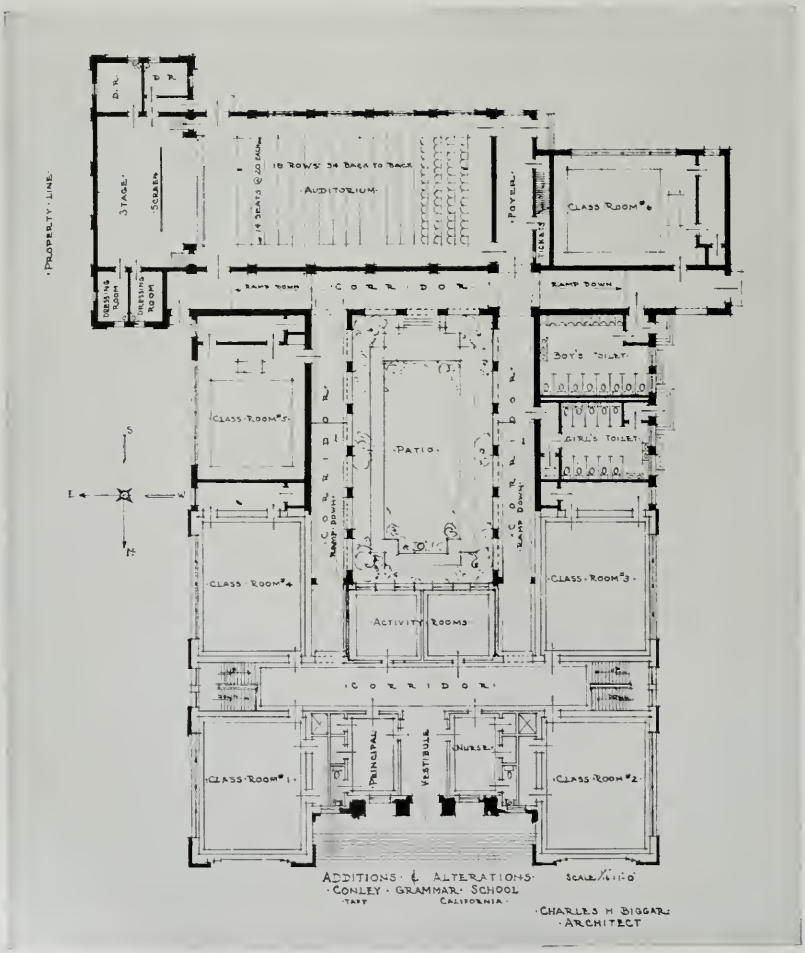
THE OLD CONLEY SCHOOL BEFORE MODERNIZED WITH CONCRETE AND STUCCO

SIDE ELEVATION, CONLEY GRAMMAR SCHOOL, TAFT
Charles H. Biggar, Architect

old buildings were salvaged, have strengthened walls and entirely new faces.

The elementary classes of the Conley School District of Taft, California, occupied a two-story brick building which was declared unsafe because of earthquake and fire hazard. It was necessary that new facilities be provided, but since funds were limited, it was decided that as much of the existing building should be salvaged as possible.

Plans for the new structure were started in January, 1934. The building contract was



PLAN, CONLEY GRAMMAR SCHOOL, TAFT, CALIFORNIA
Charles H. Biggar, Architect

awarded June 29 of that year at $56,628 and with a PWA grant of $16,500, work proceeded.

The remodeling program called for removal of the second floor, which was an auditorium, strengthening of brick walls and modernizing the remaining one-story structure so that its architecture would be consistent with a new one-story auditorium and class room building to be erected on adjoining space.

In strengthening the old building, the brick work was removed down to a line along the top of the windows. Concrete columns 8 inches thick and 6 feet wide were placed at corners and at intervals along the sides of the brick walls. These columns were reinforced horizontally with 3/8-inch rods on 12-inch centers, and vertically with 5/8-inch rods. The new columns were anchored to the brick with 3/8-inch round bars, flattened on the end to 5/8-inch and grouted into 1-inch holes drilled into the brick walls.

A reinforced concrete bond beam was placed around the entire wall and carried above the roof line to form a parapet.

Since the new auditorium and class room addition was built of reinforced concrete used in a modest design of fluted pilasters and plain spandrel walls, it was considered highly important that the old structure conform in appearance. This was achieved by placing an overcoating of white Portland cement stucco over the brick walls between the columns and below the bond beams. The stucco surfaces were so treated that they conform in color, texture and detail with the concrete of the new portion of the building. Since both structures are tied together with anchor rods, and their exterior finishes are so similar, the entire layout now stands out as a unit — in effect a completely new school building.

Hermosa Beach School

Following the earthquake in 1933, the Hermosa Beach City School District found itself with a group of school buildings partially demolished and completely obsolete.

The main administration building, with its auditorium and its flourish of Corinthian columns across the front, still stood, columns and all—but apparently this was only in the spirit of bravado, for the structure was hopelessly wrecked. The adjoining class room building, although older and less imposing, withstood the shocks with the help of a few tie rods and could be used, with caution, pending the development of a reconstruction program.

First step was to transform the erstwhile auditorium into a pile of old lumber full of rusty nails, and a neat pile of bricks. This community, in common with many others, was embarrassed for funds and plans had to be formulated to make the most of the derelicts.

The main body of the administration building, shorn of its impediments, pediment and all, was found to contain a few sound partitions. The exterior brick walls were replaced in toto with concrete, and the first floor replanned to provide eight class rooms where four grew before.

DETAIL OF ENTRANCE, HERMOSA BEACH SCHOOL AUDITORIUM
Samuel E. Lunden, Architect

HERMOSA BEACH SCHOOL, SHOWING CLASSROOM WING; WINDOWLESS AUDITORIUM ON THE LEFT, HIGH STAGE LOFT NEAR THE CENTER
Samuel E. Lunden, Architect

HERMOSA BEACH SCHOOL, HERMOSA BEACH, LOS ANGELES COUNTY, CALIFORNIA
Samuel E. Lunden, Architect

The basement part of the original structure, left unexcavated for the most part and hidden behind a tremendous flight of steps, was found to lack only 18 inches of being a full story-height. The steps were carted off, dirt dug away and behold — there was comfortable space for the administrative offices, nurses, quarters, clinic, library and teachers' room. The original floor and roof were reinforced with light horizontal steel trusses.

The lumber pile which was once an auditorium, gave up enough lumber to build the floor, roof and forms for two more class rooms at the east of the rehabilitated portion, the concrete exterior walls being continuous with the rebuilt part. This much completed and occupied, the old class room building with its faithful tie rods was at last razed and its site leveled for the new auditorium.

Hermosa Beach community is actively interested in drama, music and general adult education along cultural lines. It was felt that the auditorium should be suitable for these needs as well as for the school itself. Consequently, the structure was placed at the east end of the school with its lobby connecting directly to the main corridor as well as directly to the street.

The program called for an auditorium to seat 750 people, provision for full stage and movie equipment, fireproof and earthquake-resisting construction and architectural merit —all for less than $55 per seat.

After considerable head-scratching, an idea was evolved which would fit the program even down to the $55 per seat requirement.

Its specifications ran like this:

Floor—concrete slab on the ground, asphalt tile finish.

Walls—8-inch reinforced concrete walls between buttresses.

Roof—steel trusses, Junior I-beam purlins and 3-inch concrete slab.

Windows—steel sash.

Stage—normal proscenium and full stage loft, 52 feet to grid.

Movies—projection booth suspended between last truss and end wall, thus saving floor space.

Acoustical treatment—hung hard plaster ceiling broken into an irregular surface to avoid undesirable reflections of sound. Side walls, acoustical plaster thin at the front and thick at the back; rear wall, acoustical tile.

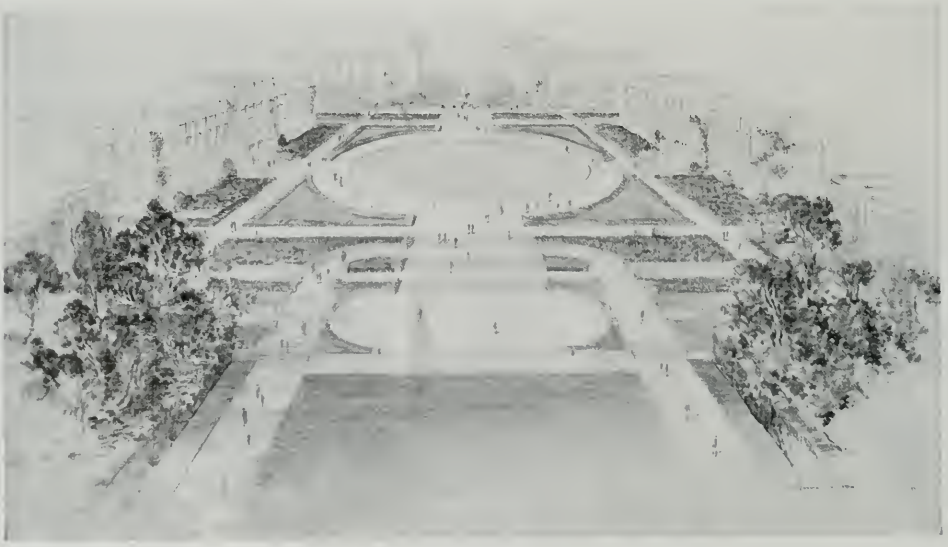
Heating and ventilating—gas furnace with forced ventilation.

Lighting—indirect from fixtures.

Exterior walls of the school are architectural concrete as left by the forms, except for a brush coat of white Portland cement paint with color. The forms were of 5/8-inch plywood with a horizontal V-joint occurring approximately 3 feet on centers. A buttress treatment on the side walls express the truss supports. The buttress caps are decorated in sgraffito. Since the entrance lobby is at the side of the auditorium, the front wall is left free of all openings and is treated in the simplest manner with an incised inscription cast in concrete and flanked by buttresses. The projecting entrance feature carries ornamental bands cast in place. Above the entrance is the title, "Hermosa Auditorium"—done in aluminum letters 10 inches high and set out 2 inches from the wall.

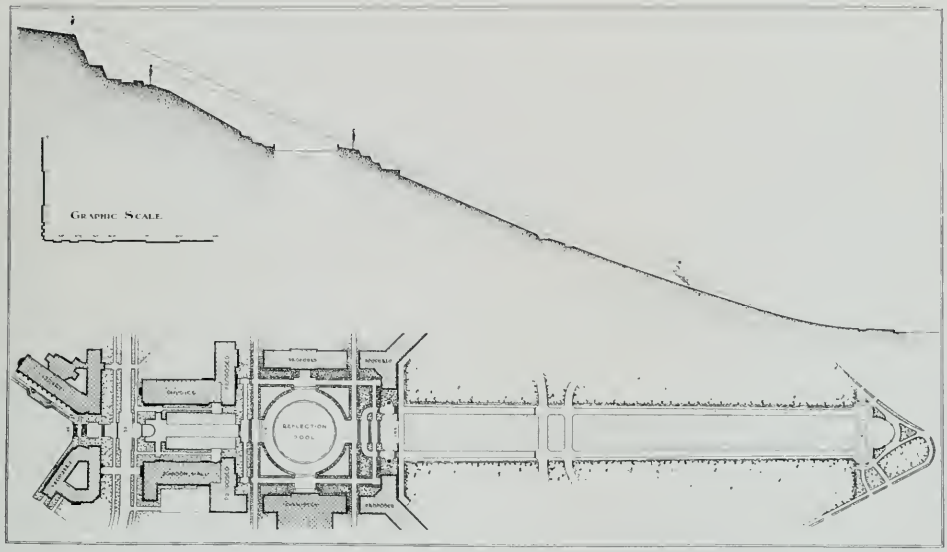
The lobby, serving also as a passage to the court between the buildings, is of exposed concrete—walls and ceiling. Here the warm cream color of the concrete surfaces is in harmony with the deeper tones of the sgraffito. The entire group is designed as a unit, the horizontal bands serving to tie all parts together.

The accompanying sketch shows the Rainier Vista in Seattle, Washington, as it was first designed by John Galen Howard for the Alaska Yukon Exposition held in Seattle in 1909. While other parts of the campus have been changed greatly during the last several years, the Vista established at that time has weathered many changes and still is the strongest element in the present plan.



In this sketch is shown the same basin or reflecting pool which terminates the turf panel and is in the center of the Science group. The new Chemistry Building, designed by Floyd Narramore and Granger and Thomas, Architects, is to the left, facing the pool. For the past five years, through the W.P.A., the P.W.A. and other Federal and State assistance, extensive work has been done in the development of this as a part of the main feature of the campus.

DEVELOPMENT OF RAINIER VISTA, UNIVERSITY OF WASHINGTON



THE RAINIER VISTA, UNIVERSITY OF WASHINGTON, SEATTLE

Butler Sturtevant, Member of the American Society of Landscape Architects, San Francisco and Seattle, Landscape Architect for the University of Washington

Bebb and Gould, Supervising Architects, Seattle

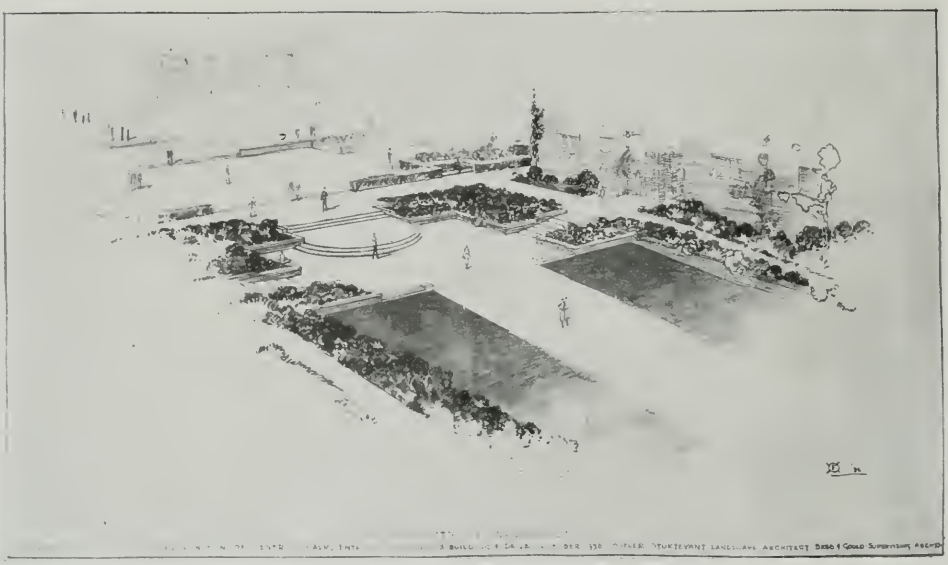
Since 1930, plans for the development of the Vista have been done by Butler Sturtevant, landscape architect for the University of Washington and for the Principia College at Elsh, Illinois.

Johnson and Physics Halls were designed by John Graham, and the new Library was done by Bebb and Gould, who are also the Supervising Architects of the University.

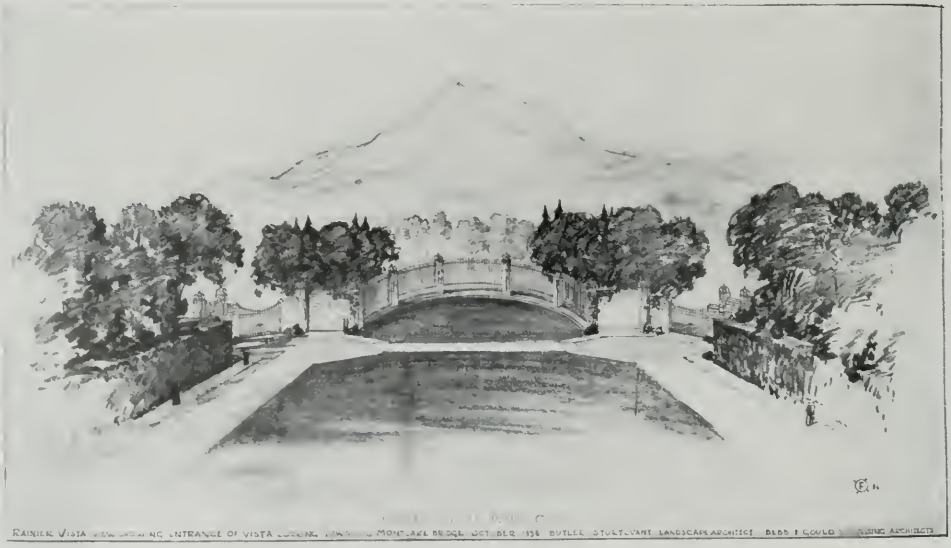
The exaggerated section, with the plan shown above, is of particular interest in emphasizing the extreme importance of grades, assuring clear vision from various points along the Vista.

At the present time hundreds of laurels and trees are being aged in the University Nurseries to be used as hedges on either side of the long turf panel. In the characteristic French manner, the dense planting of tall trees in back of these hedges will contrast in their informal growth to the trimmed hedges, and will enframe the distant Mt. Rainier. Note the turf panel has been designed narrower at the lower end to force the perspective from the higher levels.

Vision of Pioneers Soon to be Realized in Completion of Rainier Vista



Just below the University Quadrangle and Library, a wide walk leads to the pool. The building to the right is the Physics Building. This shows the intersection of the main campus drive with the wide vista walk. The spacious scale is functional in taking care of the thousands of students using this walk when the final building program is completed.



Sketches by Norman Fox

The Rainier Vista, over a mile in length, is terminated by this entrance with Mt. Rainier in the distance. While Le Note in his design of French Chateaus created many vistas, such a focal point as Mt. Rainier was not to be found in France. Few developments in the world have such magnificent materials with which to work. The vision of the pioneers in large scale planning is now being carried on.

SOUND PICTURES

Architect Describes Draftsman's Part in Production of Movie Films

By Elmer Grey

VERY little is generally known about the making of moving pictures with sound effects, for one reason because it would never do to let the public into the places where they are made. A cough, a sneeze, or a spoken word might ruin a thousand dollar shot. Of course there are exceptions.

One day, at a time when I was not employed in pictures, I was showing an out-of-town friend the sights, and through influence we had secured admission to one of the Hollywood lots; but all the entrance doors to the sound stages where the interesting work was going on had large signs posted before them reading "absolutely no admittance." While wondering whether this difficulty could in any way be surmounted an employee came out and we asked him.

"They are not shooting yet," he said, "go in and ask the director whether he will let you stay." So we walked in, and were immediately transported from the blaze of a California sun outside to what appeared to be a poorly lighted cellar in an old house in France. Tough looking characters of both sexes were seated around a long table, at one end of which a man with a sinister expression on his face was toying with a small model of a guillotine.

In the dim light we were apparently unnoticed, and the director was so busy giving instructions that for the moment we did not dare interrupt him. Suddenly he got things as he wanted and called out "Camera!" whereupon absolute silence was enjoined, the entrance door was locked, and we stayed to witness the filming of a scene in "The Tale of Two Cities."

At the producing company I learned how sound pictures are made—and so I am telling you.

First, good scenic backgrounds are necessary—sets they are called. Everybody knows what good photography does for a picture; and without a good set to photograph what can a poor camera do! The waste in connection with the building of these sets is enormous, because it is never known just how much of them will be used until the picture is directed. Only when many scenes have been photographed and assembled is it possible to determine which portions will best lend themselves to dramatic effect. Very often whole scenes that have been shot have to be discarded and the time of high-salaried stars, camera-men, technicians and other employees, and many costly portions of scenery become a total loss. I recall one set composed of two sides, much of the roof and part of the interior of an attractive English cottage. The rest of the house just wasn't. But that part that was had been carried toward completion to an amazing extent. The roof was covered with tiles, and even gutters and downspouts had been installed. The trunk of a real sycamore tree stood out in front, but its leaves and branches had been artificially supplied. Real tiles paved the court, but the grass growing between its joints was of dyed excelsior. On the interior, the drapes, rugs and hardware were all genuine and of the best material. In spite of all this, when the picture was shown on the screen, so much had been deleted that one who had seen the set in the studio scarcely recognized it.

You may have seen an under-water picture which depicted the anchor of a vessel that had become fouled in the propeller of a sunken ship, and a diver being sent down to disengage it. You may have thought it was filmed somewhere in the channel between Los Angeles harbor and Catalina Island. As a matter of fact it was made in a galvanized iron tank designed by the art department of the company for which I worked. There were holes in the tank fitted with heavy plate glass through which the camera was pointed, and a portion of the stern of a wrecked ship with its rudder and propeller and with the anchor of a vessel caught in it was built in the tank before the water was let in.

Many difficulties were encountered in shooting this film, some of which were most amusing. First there was trouble with the propeller. It was made of wood, and apparently the combined specific gravity of it and its metal shaft had not been accurately figured; for when the diver cut the shaft from the wreck with an acetylene torch and the propeller was supposed to fall upon and injure him, instead, it rose to the surface! So it had to be taken out, weighted down with lead, and another shot made of that scene.

Then fish were at first put in the tank to enhance the deep-sea effect; but they were bad actors. They didn't like Hollywood's movie atmosphere. They refused to swim where they were wanted and also got in front of the lense just at the wrong time. An effort was made to overcome this difficulty by putting them in a smaller tank within the big one, but that proved unsatisfactory too, so finally they were taken out altogether. It was probably the first time in the history of Hollywood that one batch of actors ate and relished another batch!

But perhaps being eaten is not so bad as being worked nearly to death, as some movie employees are at times. It comes about in this way: Stars draw enormous salaries. Consequently when one set in which a star is engaged has been shot and they wish to transfer her or him to another, the latter must be ready to the minute or part of an enormous salary is wasted. The result is that the designing departments of the studios are often called upon to work practically all night in addition to all day in order to have the set they are working on built and finished in time to meet the release of stars from other sets. Occasionally orders will come in for drawings for a set which must be designed, turned out in the mill (they have their own mills) and built on the stage within twenty-four hours after work on it is started; and this may be not a simple affair, but an elaborate structure requiring unusual talent and ready fertility in design. Then in contrast to this there will be weeks at a time when the drafting force has practically nothing to do. The head of the department will not dare to let the men off because he must be prepared for another onslaught from the producers at any moment. I have seen an entire room full of daughtsmen do not much more than play games for days at a time. The inactivity at such times is almost worse than the overwork. I am told that this high and low pressure business could be largely remedied if the higher-ups in these organizations were more familiar with the way good sets are produced and the amount of time and study which should be allowed for designing them. I am also told that in a few studios the trouble has been largely remedied—but it certainly prevails in many. So, if you see a poor looking set on the screen some time you will know what may have happened. It may have been designed about three o'clock in the morning, very hurriedly, when everybody was feeling pretty low.

A few years ago, when sound pictures first came in, the stages for their production consisted of large, inflammable, barn-like structures, anything but impressive to look at. But all that is now being changed. Recently several of the leading producing companies in Hollywood have erected substantial, fireproof stage buildings, and a glance at one of these will give a better understanding of the work carried on within them.

One with which I became familiar had in it two very large rooms which were called respectively, "Scoring Stage" and "Dubbing Stage."

Just why they were called that I was not at first able to make out, but with further investigation I came to see that the uses to which these two rooms were put epitomized the whole science of modern sound pictures.

A stage in a theater is elevated, so that many people can see the picture or play presented. But in a producing studio the play is without an audience other than the director and his staff of assistants, so the stage is not elevated but the large hall or studio is itself called the stage and the director elevates himself if necessary.

Contrary to general supposition also, the sound features of pictures are frequently not recorded at the same time as the action. In the case of a musical play such as "One Night of Love," for example, a procedure somewhat like the following is carried out. A record of the music alone, or "score" as it is called, is first obtained. This is done by getting several records of the star's songs on a film called a "sound track." These tracks are then tried out and the one deemed best is adopted for use. All this transpires on the "Scoring Stage." This musical record or score then supplies the rhythm for the picture, and for that purpose is run off or played in what is called a "playback."

But perhaps several other sound tracks are made to obtain other sounds occurring in the picture at exactly the same time. For example, one track may be made for the noise of dishes rattling, another for the clamors of a crowd, and still another for incidental sounds. As many as six sound tracks are sometimes made in order to record all the different kinds of sounds occurring in one picture at the same time. And all of these, of course, have to be finally combined on one track or film.

And that is not all. The sound effects of a picture are not always pleasant when first recorded. The noise of a fire-engine coming down the street, for example, may be too loud for the rest of the picture and may have to be modified. Other sounds also may have to be changed to properly fit into the scheme. All of this requires considerable synchronizing of the sound effects with the rest of the action, and is called "dubbing"—and takes place on the "Dubbing Stage."

In consequence of these delicate sound uses to which they are put, the walls of the Scoring and Dubbing Stages are lined with acoustical material and every possible precaution is taken to head off noises that might be carried into them from adjoining rooms. Located close to them are smaller rooms where sections of film not to be used are cut out and the remaining portions patched together; and the partitions separating these rooms from the stages are packed with wool, doors are made of several thicknesses of acoustical material with air spaces between, and have rubber cushions for stops. Added to all this complexity of construction in the buildings are matters of scenery, lighting and camera technique to be taken care of, each of which has evolved into a highly specialized department. It will be obvious that, with operations of such delicacy going on, it is impossible to admit visitors indiscriminately.

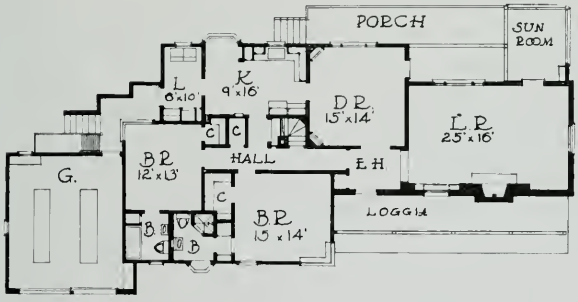
They are frequently allowed in the outer lots, however—if you have a pull!—and without one you are not likely to get in. At M. G. M. there are three men in the outer office whose sole business it is to see that no one enters who has not legitimate business there. It is interesting to watch many of the applicants: young girls all dolled up in their best paint and feathers (and with fluttering hearts inside you are sure!), would-be male matinee idols and also character actors. To sit there and watch it is a show in itself. The buildings in these lots have grown like Topsy in most cases, without much attention to place or design; and on some lots they form such a labyrinth that one almost has to have a guide to get around. The people you meet, in all sorts of strange costumes and with make-up on their faces, lend an air of unreality to the place. The spirit of glamour and romance with which the public and the fan magazines have invested the movies also has its effect. It makes you feel at first somewhat as though you had entered the sanctum of the near-great, but that feeling soon wears off with familiarity!

The same influence of the fan magazines does another thing—it causes an unusual number of people to seek employment there. Work in any of their departments is consequently rather difficult to secure—at least until you have once gotten in. Especially is this true of the acting end, where so many hope they have talent. Even in the art department it is said that the employment heads do not take your application for a position seriously unless you sit on their door-step for a week or two! Of course that is a metaphore, but I know from my own experience in trying to get work there during the depression that success for the first time is plenty difficult. Even if you do get in your work in that department may not be very satisfactory. Your job is likely to be held by a slender thread which may at any moment be cut when a particular batch of work is finished; the hours are long and often, as I have said, extend into the night; while at other times there will be stark inactivity. I have known only one architect who liked that kind of work and he soon afterward was discharged; so probably he changed his mind!

There is another side to it, however. You realize when there that you are engaged in a new and very distinctive kind of work. It is a great and wonderful industry, and in spite of anything that may be said against it, it is constantly making the world happier. What if we had sound pictures of the time of Oliver Cromwell or of Napoleon!—what a record that would be! That is what the movies are doing for the future. Their films are stored in fireproof vaults (I know because I planned one) and constitute an imperishable record in sight and sound of the interesting people and events of our day.

MAIN ENTRANCE GATES AND WESTERN FACADE, GOLDEN GATE INTERNATIONAL EXPOSITION, SAN FRANCISCO

Ernest E. Weihe, Architect; Chesley Bonestell, Designer



FLOOR PLAN

THIS CALIFORNIA RANCH HOUSE DESIGNED BY MILLER & WARNECKE OCCUPIES A PERFECTLY LEVEL LOT ON A THREE ACRE ESTATE NEAR LOS GATOS

The plan shows all rooms, loggia, porch and two car garage conveniently arranged on the ground floor. There is a small concrete basement containing a hot air oil burning furnace. Approximate cost of improvements, $7,000.00.

Photo by Emerson N. Shaw

GARDEN VIEW, HOUSE OF NEIL I. ROSS, LOS GATOS, CALIFORNIA

Miller & Warnecke, Architects

LOGGIA, HOUSE OF NEIL I. ROSS, LOS GATOS

Photo by Waters and Hainlin

PORCH AND SUN ROOM, HOUSE OF NEIL I. ROSS, LOS GATOS

Photo by Gabriel Moulin

CENTRAL TOWER, GOLDEN GATE INTERNATIONAL EXPOSITION, SAN FRANCISCO

ARTHUR BROWN, JR., ARCHITECT

APARTMENTS TODAY

Their Modernization Essential If Owner Expects Profitable Returns on His Investment

By H. Robert Mandel*

ONE of the most complete problems that confront an agent is the constant and never-ending need for anticipating major changes in properties under his management. He cannot afford to wait until it is too late to regain lost tenancies. While the various factors that influence such changes are often beyond the control of the agent, anticipation of their effect is not.

A change in the character of the neighborhood is probably the most common influence known to real estate men, as well as to the general public. Residential property is generally more sensitive to such changes than business property. It is a well established fact that the growth of racial communities with foreign nationalistic traits will tend to drive other residents of the district to seek new quarters with neighbors with whom they have more in common. This condition is not brought about suddenly and the agent who is constantly in touch with activities in his locality will easily be able to anticipate an impending change and act accordingly. If the change is of a type that will depress property values and rents, the agent may have resort to organizing local property owners to control the invasion. Such methods in normal times may be effective, but in times of depression the weaker owners, who cannot hold on to their properties, become the target for the invaders.

Changes due to shifting of industries or tenants are caused by the erection of more modern buildings, over-production of buildings with consequent rental inducement to entice tenants and fill up the newly completed vacant ones, need for larger quarters, business failures or reorganizations, development of newer processes or products, etc. The problem is usually more acute in the smaller localities where the entire district may be dependent on a single industry. The agent needs all his resources to work out a solution for this problem, and if possible, in the smaller localities, should enlist the assistance of local civic officials in granting tax exemptions for a limited period to attract new industries or manufacturers to replace those who have left. In the larger cities, the shifting of an industry to another section will necessitate the bringing into the area of new industries which have been located in lower priced areas.

Residential properties are usually more sensitive to changes in demand for certain types of space than commercial properties. Economic reasons are mainly responsible for this sensitivity. In prosperous times, large apartments with spacious rooms and servants' quarters are popular. In times of depression, however, smaller suites that can be lived in economically and efficiently without domestic help are in demand. A house might be designed that could easily fit either need with little change. In such a house, if such change does come about, the agent will be ready for it without much of a problem.

Changes in type of equipment can readily be controlled by the agent simply through keeping up with the times. Such changes are not due only to improvement in operation, but are frequently style changes which are just as important. A good example is the old type of grilled elevator enclosure in contrast with the modern enclosed type. The modern bath tub as against the one with legs is another example.

*Buildings and Building Management.

Refrigerators, stoves, air conditioning, new light fixtures, Venetian blinds and electric water coolers are some of the other items that agents have to contend with. Failure to supply them when competing properties do, will inevitably prove disastrous.

Prohibitive operating costs are not always the result of a poor design or inferior equipment. A well designed building may become obsolete in a district enjoying an intensive growth. In such a district the continual rise of assessments and taxes may eventually bring the building to the point where only intensive maximum use of the ground area will prove profitable. An industrial building with a specialized tenancy may be stranded in such a district and the structure may have to be razed or cut up for more intensive use. The old Pictorial Review Building in New York City is a classical example. Comparatively a new structure, its massive construction and heavy floor loads, high ceilings, and valuable plottage in the heart of the intensely developed "Garment Center" made it ideal for the wrecker and the improvement that followed. In this case, however, the change was beneficial to every one concerned with the transaction. There are numerous records of buildings being razed to the first story and left with only stores as taxpayers.

The modern store front illustrates the introduction of more efficient or modern equipment and materials. Modern store fronts are not merely an item of appearance. The modern design is for the purpose of attracting passers-by and enticing them to enter the store where lay-outs, materials and designs have been planned so that the customer is exposed to the maximum possible "silent selling." The department stores originally pioneered in this field, but the smaller stores are now right up to the minute in this selling psychology. Modern materials, while not as durable in some instances, are much more decorative and attractive and are easier to keep clean. There is hardly any material, previously in use, which has not been improved on and which does not make for more efficient selling. One example is the treatment and handling of the "open window" market in balmy climates. Contrast the clumsy and unattractive handling and display of the old front window with the new improved devices now in use. Another is the old "gas station" with its lack of facilities as compared with the spotless and efficient glass, or tile structure one is now accustomed to expect.

Mechanical refrigerators, which not so long ago were considered a luxury, are now part of the standard equipment expected by the incoming tenant. Window shades in many buildings are giving way to Venetian blinds, and so it is with scores of other items. No agent can hope to obtain the maximum income unless his property is properly equipped to compete with comparable properties.

The introduction, substitution, withdrawal, improvement or curtailment of any form of local transportation, will have some influence on the property within the area of such influence. We might, for instance, find a private home situated in a formerly inaccessible district, suddenly served by busses. The owner finds that increasing taxes and assessments make it impossible to keep up the old homestead. The house may lend itself for conversion into apartments with a great number of prospects to draw on because of the transportation which has become so popular. There are residential corners which, because they are adjacent to incoming transportation, prove to be excellent sites for stores or offices. All of these factors require the agent to give thought to utilizing best the property under his care.

During the years following the "stock market break" with the consequent dropping of prices in all commodities, rents followed the trend. Unfortunately, reductions of taxes did not follow at the same rate and the spectacle of owners demolishing or cutting down structures became common. There are other situations where the tax burden will compel an owner, either to build, demolish, alter or abandon a property and here again the agent has his problems.

Until height restriction ordinances were in-

(Please turn to Page 48)

TEXAS ARCHITECTURE

Snap Shots by Designer Show Building Trend In Lone Star State

L. S. SANDERSON, architect of Laredo, Texas, is responsible for the accompanying views of three houses which he has designed and built in his home town. Describing briefly the home of one Mr. Heins as the answer to "prefabricated modernism," Mr. Sanderson says the house was built at a cost of nineteen cents per cubic foot. He summarizes the specifications as follows:

"Concrete foundation to resist possible lateral forces; rubble sandstone walls 18 inches thick; eight-inch brick partitions; lime plaster inside and out; ceramic tile set in lime mortar over entire roof; soil poisoned; pressure treated lumber; copper pipe; colored cement mosaic floor tile over lime concrete slabs in all rooms, including patio; ceramic base in all rooms; 6-foot glazed ceramic wainscot; two baths; handmade doors, hardware, window grilles and light fixtures; painting and decorations in fresco; some hand carving and some hand decorated ceramic tile. All designs by architect. Cost includes architect's fee and a five-foot stone wall enclosing one-fourth of a block."

Mr. Sanderson describes the Heins house regular, adds that if absolute minimum costs were made compulsory there would be no building, for only bachelors would dare build. As his client was not a bachelor, cost of 19 cents per cubic foot cannot be held against prefabrication or rational modernism.

Quoting further from Mr. Sanderson:

"In throwing Vitrivous in the ash can and denouncing tradition, the aim in enclosing the space was on the revolutionary basis of the modernist that form follows function. Starting in the kitchen it was confirmed that stoves, pans, platters, even knives and forks, are rectangular, so the kitchen becomes a fresh vibrant rectangle. The piano, being a grand, gave no end of living room grief; but as beds, dressers, chests, tables, benches, fireplaces, book cases and what not are also rectangular, the rectangles won and the plan developed into right angle (in the little understood vocabulary of us moderns, a right angle is an L). Most convenient in a hot climate where comfort depends upon all natural advantages possible.

HOUSE FOR F. HEINS, LAREDO, TEXAS

HOUSE FOR H. P. HENDERSON, LAREDO, TEXAS

CORNER OF LOGGIA,
Residence of H. P. HENDERSON,
LAREDO, TEXAS

L. S. SANDERSON, ARCHITECT

DINING ROOM,
Residence of H. P. HENDERSON,
LAREDO, TEXAS

L. S. SANDERSON, ARCHITECT

LIVING ROOM, RESIDENCE OF H. P. HENDERSON, LAREDO, TEXAS

PATIO, HOUSE FOR GORDON GIBSON, LAREDO, TEXAS

"As exterior elevations show the plan to be a residence, I need not elaborate upon my originality in the authorship of facades that exist on no other building on the face of the earth, including Los Angeles. And as a further precaution against being accused of fabricating a falsehood or 'cribbing' some other modern, I omitted corner windows, upon finding no serious reason for their use.

"The Henderson residence is the winter home of the president of the Texas Mining & Smelting Company. These New England folk of international affairs, after ample observation, concluded that a big rambling cave-like home would serve their needs here in big hot Texas better than an iron trellis covered with glass.

"Besides antimony mines in Mexico, the Hendersons are also aware of enormous treasure in native arts and crafts and felt a harmonious setting for collecting would not be amiss. Function again produced form within limits of a new prefabricated unit—a block cast of molten waste slag from the smelter furnaces.

"The Gibson residence, also built of prefabricated units (common brick), had an altogether different function to perform. Its highly sensitive lawyer-owner required as complete an escape as possible from the contemporary scene—a nook where some reminant of civilization could be enjoyed between fights in court. Modern Spain therefore was obliged to furnish prefabricated units fashioned by its ancient craftsmen. It is possibly one of the least understood residences in the state of Texas."

TWO VIEWS OF SANTA MARIA INN ON THE COAST HIGHWAY BETWEEN SAN FRANCISCO AND LOS ANGELES

The owner, F. J. McCoy, is an ardent lover of flowers as evidenced by the beautiful gardens which surround the hotel and the profusion of blooms which greet the guests in the home-like dining room.

'QUAKE RESISTANT SCHOOLS

Discussion of Probable Action During an Earthquake of a Predominating Type of School Structure

by Julian T. Stafford

ON March 10, 1933, at 5.55 in the afternoon, an initial earthquake shock occurred of sufficient intensity to shatter poorly constructed buildings for a densely populated district in the southern part of California and to seriously impair the stability of all but the better built building structures. An all too great a proportion of the public school buildings were seriously damaged where not completely shattered. This initial earthquake was followed by a series of shocks which did still further damage. If the time of the initial shock had been but a few hours earlier the loss of life among the school children would have been appalling.

In order that our school children be safeguarded against the possibility of injury from other possible shocks the 1933 Legislature unanimously passed the Field Act which was promptly signed by the Governor investing the Division of Architecture of the State Department of Public Works with the power and making it its duty to pass upon and approve or reject all plans and specifications and to supervise the construction of any school building or, if the estimated cost exceed $4,000, the reconstruction or alteration of or addition to any school building in so far as such plans and specifications, construction or reconstruction relate to the safety of design and construction for the protection of life and property.

The following information furnished by Clarence H. Kromer, principal structural engineer, Division of Architecture, State Department of Public Works, covers briefly the work being done by the Division of Architecture in connection with the Field Act as referred to above:

Number of school plants examined to determine degree of safety of design and construction since enactment of the Safety of Construction of School Building Act on April 10, 1933—994.

Number of plans submitted for approval —2,010.

Cost of construction of school projects approved—approximately $85,000,000. (It should be noted that most of this construction work has been carried on during the past three years.)

Number of projects under course of construction at the present time—701.

THE stability of buildings when subjected to shaking by earthquakes is a subject which has received a great deal of attention during the past four years. Articles on various phases of earthquake resistant structural design have been published at frequent intervals; however, little has been written concerning the vulnerability to earthquake damage of those existing buildings which were not specifically designed to resist horizontal forces. This discussion is limited to a detailed description of the probable action during an earthquake of a generally predominant type of school structure while only general comments on other forms of school construction are offered.

As this discussion is concerned only with the action of certain buildings when shaken by an earthquake such matters as, the probable frequency of occurrence of destructive earthquakes, the variation in earthquake hazard for different localities, and the relative risk to the general public will not be considered. It is, however, necessary that consideration be given to the ground movement during a seismic disturbance as the concept of the forces set up in objects resting on the ground must be predicated upon an understanding of this phenomena. The vibrations in the earth's crust do not follow any mechanical law but instead are of a chaotic nature which might aptly be described as a violent shaking in all directions at once. However, it is possible to classify this exceedingly irregular dynamic movement into three distinct types of vibration, each of which results from a distinct and different group of waves moving through the earth's crust. These vibrating movements are: an oscillation causing vertical displacements; longitudinal or compression waves that produce horizontal translations parallel to the direction of the point of propagation; and, a secondary transverse motion at right angles to the principal longitudinal waves. The greatest damage to buildings is probably caused by the initial longitudinal wave, the effect of which may be conceived as a violent thrust being imparted to the building foundation by the surrounding soil. This sudden displacement of the foundations induces large forces into the structural system as

the inertia of the building and its contents offer resistance to the translation of the foundation. It is then obvious that low height rigid structures designed to resist earthquakes must be so proportioned that the inertia of the various parts is overcome through the strength of a series of structural elements interconnecting all portions of the building with the foundations. These structural elements must be capable of so attaching the super-structure to the foundation that the building as a whole will move in unison with the ground. As these various inertia forces are created by the individual masses of the wall, floor, and roof elements, as well as by the contents of the building, and as these forces are directly proportional to both the individual mass and to the acceleration produced by the earth movement, an analogous condition would exist if extraneous horizontal forces are applied to all parts of the structure; each force bearing a definite relation to the weight of that portion of the construction by which it is induced.

Hypothetical Example

For purposes of analysis and discussion consider a two story administrative and classroom building of the widely used masonry bearing wall type. (See Figures 1, 2 and 3.) The illustration is hypothetical as the building shown does not exist; the representation is in fact a composite structure containing certain of the more vulnerable features found in this type of construction. Many school buildings, constructed prior to 1933, are quite similar to the illustration while there are others which differ in many details and therefore bear general similarity only. In detail this building consists of:

1. Concrete foundations that extend from a firm soil bearing to the underside of the first floor joists, or the base of the posts supporting the floor.
2. Unreinforced masonry exterior walls constructed with a poor to fair mortar containing a very small amount of cement.
3. Corridor partitions which are wood stud, lath and plaster bearing walls that sustain a portion of the weight of the floor and roof.
4. Floors framed with wood joists upon which a diagonal subfloor and a hardwood finish floor have been applied.
5. A tile roof that is carried upon a framing of trussed rafters overlaid with sheathing.
6. Interior partition and ceiling surfaces finished with lath and plaster.

The details of the various parts of buildings of this type have in a large measure been developed by arbitrary "rule of thumb" methods rather than by the application of scientific analysis. Such forces as those induced by earthquakes have not been specifically provided for, therefore an investigation of the action of the building when it is shaken by an earth tremor requires an examination of the various elements with a view to determining what group of these might develop adequate stabilizing resistance.

Should an earthquake cause a violent push of the earth in a direction perpendicular to the longitudinal walls of the building, a combination of forces such as are shown in Figure 3 would be set up. Under this system of forces the four walls, floors and roof alone would appear to form a stable frame, however, an examination of the connections between these elements will alter this conclusion. The floor joists are connected to the masonry walls by inserting their ends into rough pockets left in the masonry and anchoring every third or fourth joist by means of a T head anchor formed from a round steel rod. (See Figure 8.) This type of so called "self releasing anchor" was originally devised to permit a hinge action between the floor and the wall. In the event a fire burned through the wood floor the segment of the floor adjacent to the wall rotated on the anchor to a vertical position thus reducing the probability of collapse of the wall due to the floor weight being cantilevered out from the wall face. Though this form of connection often permits the salvage of the masonry walls after a conflagration, it also obviates the possibility of the floor joists restraining the masonry walls from rotating upon their foundations during an earthquake. The looseness of the floor joist connection to the

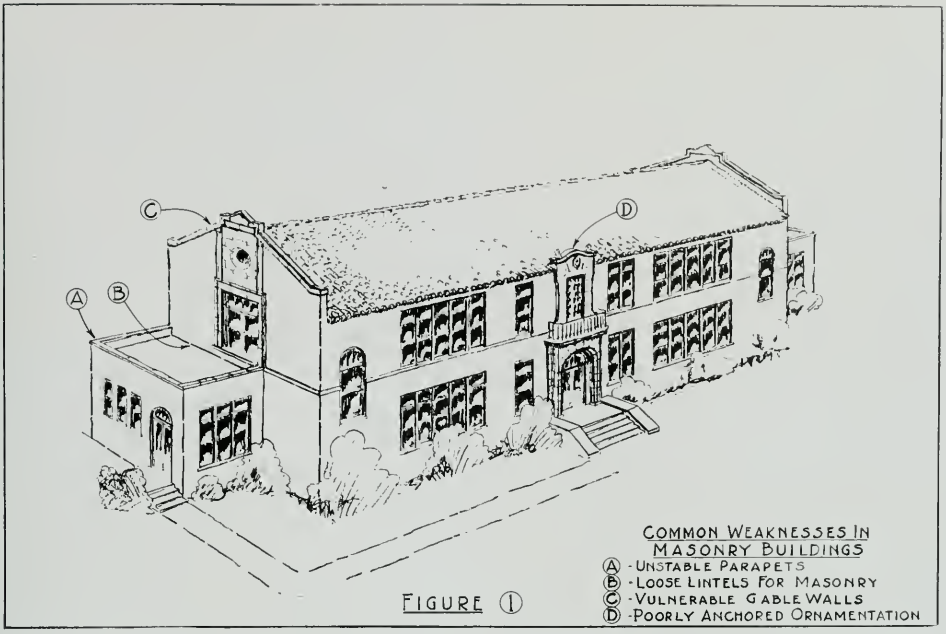


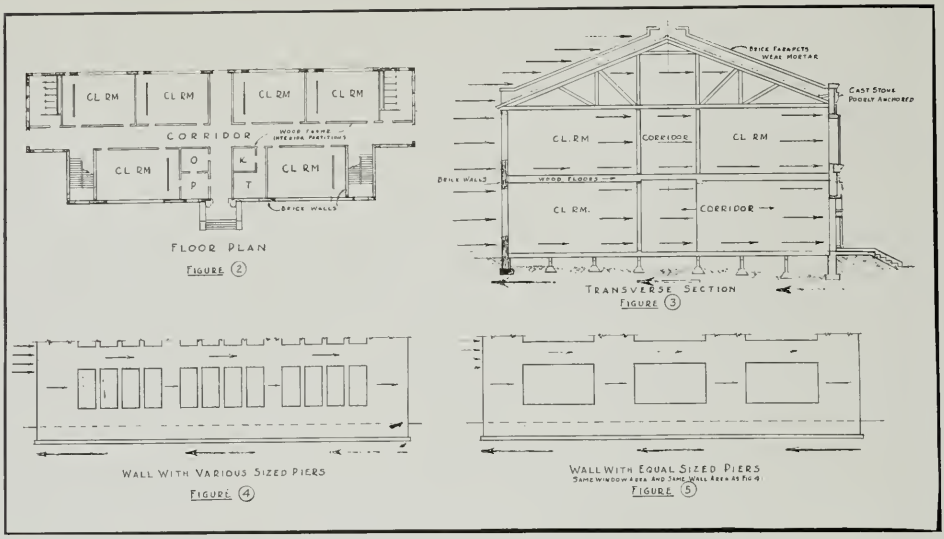
FIGURE ①

exterior walls and the similarly flexible connection formed by seating the roof rafters and second story ceiling joists upon the top of the wall (Figure 6) provide little or no increase in the resistance that would otherwise be obtained from the tall slender exterior walls acting as cantilevers above their relatively narrow footings. The wood stud walls flanking the corridor are similarly lacking in rigid connections to the floors as the studs are discontinuous at the plates above and below the floor joists. Some slight joint rigidity might be obtained from the toe nailing in this framing, however, the corridor assembly together with the exterior walls, provide little more than four independent walls, each acting as a cantilever above the foundations but constrained to equal deflections at the floor and roof levels. Obviously, this system would not be stable if acted upon by horizontal forces of any appreciable magnitude.

Stability of Wall

Further examination of the building discloses another potential system which might stabilize the structure when it is acted upon by such transverse earthquake forces as are indicated in Figure 3. If the stability of the wall in the direction of its length is contrasted with its ability to resist transverse forces (Figure 7) it is obvious that the longitudinal strength is not only many times greater, but likewise the rigidity, or resistance to deformation is much larger in this plane. In the illustration (Figure 7) the force denoted "A" is acting longitudinally whereas "B" is applied transversely. There ar in addition to the longitudinal walls already considered a number of interior and exterior walls, the length of which parallels the direction of the transverse earthquake forces considered. These walls may be indentified as the masonry end and stair walls and the various wood stud partitions between classrooms.

If it is temporarily assumed that the floors and second story ceiling are rigid plates or diaphragms of great strength and rigidity, it is reasonable to expect these diaphragms to support the various longitudinal walls and partitions and to convey the induced loads to the several transverse walls. If the floor and ceiling diaphragms are very stiff, then the amount of



FLOOR PLAN
FIGURE (2)

TRANSVERSE SECTION
FIGURE (3)

WALL WITH VARIOUS SIZED PIERS
FIGURE (4)

WALL WITH EQUAL SIZED PIERS
SAME WINDOW AREA AND SAME WALL AREA AS FIG 4
FIGURE (5)

the total horizontal force induced by the translation of the building would be distributed among the several transverse walls in proportion to their relative rigidities.

As previously stated the rigidity of an element is measured by its ability to resist deformation when acted upon by extraneous forces. For instance, if in Figure 7 the load indicated "A" produced a deformation of one quarter inch at the top of the wall while the same load acting upon another wall of the same proportions but different materials produced a deflection of two and one half inches, the rigidity of the latter wall would be but one tenth of that of the former. Conversely if these walls were deflected an equal amount which is essentially the case when the movement of their upper extremities is restricted by a very rigid diaphragm, the more rigid wall would react with ten times the force of the less rigid element.

In this building the end masonry walls would be many times more rigid than the interior stud partitions not only because of the difference in the character of the constituent materials but also because the wood stud partitions are not founded upon relatively unyielding foundations as are the masonry walls mentioned.

The net result of this condition of variable rigidity would be that initially the major portion of the horizontal loads would be conducted by the rigid diaphragms to the end walls. Should these walls be unable to sustain the load imposed and failure occur, the differential movements between the diaphragms and the foundation would continue until the load were absorbed by the several transverse partitions or until failure had occurred in these latter elements. The horizontal resisting strength developed during this action was not the collective strength of all the transverse units but was on the contrary essentially limited to the greatest resistance afforded by a single group of elements having similar rigidities.

A rational design of an earthquake resistant structural system is accomplished by designing each individual reaction element to resist that portion of the total horizontal force consistent with the relation of the rigidity of the element to the rigidity of all elements offering resistance.

Diaphragms of Rigidity

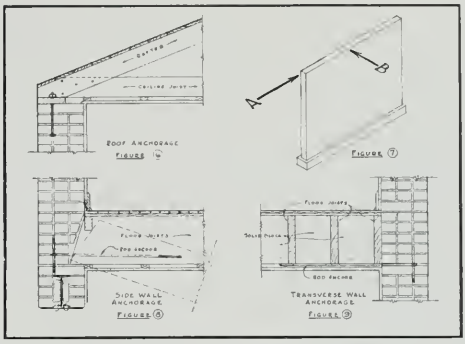
Returning to the assumption that the floors and the second story ceiling or roof construction constitute diaphragms of great strength

and rigidity; was such assumption justified? The plaster ceilings of the first and second stories are composed of fairly rigid but weak and brittle materials, furthermore the effectiveness of the plaster ceilings is impaired by their being discontinuous at each partition. It might logically be assumed that the plaster surface would increase the rigidity of the floor diaphragm, though it probably would not contribute appreciably toward increasing the strength.

The floors which are sheathed with a diagonal sub flooring, overlaid with the usual hardwood flooring have been demonstrated by tests to possess both strength and moderate rigidity if properly nailed and interconnected with the various wall elements. In this hypothetical building the connection of the diaphragm elements to the end walls is formed by several T head metal rod anchors (Figure 9) similar to those used between the floor joists and the longitudinal walls. This form of anchorage is entirely inadequate to transmit the relatively large horizontal forces from the diaphragms into the walls; consequently such potential diaphragm strength as the floor sheathing does possess cannot be fully utilized.

The flexibility of the typical connection to the end walls would permit the floor to react against that segment of the longitudinal wall immediately adjacent to the intersection with the end wall. The side wall at this location, being somewhat stiffened by the intersecting wall, will support the diaphragm until sufficient load is induced to cause failure in the masonry at the wall intersection. Frequently the attachment of the floors is sufficiently loose that a battering or impact effect results from the sliding or shifting of the floor along the wall supports.

In the roof construction the single layer of sheathing laid in a normal direction to the rafters does not provide either strength or rigidity comparable to that of the floors. A further very important weakness arises from the serious inadequacy of the connection of the gable and parapet walls to the roof framing.



These connections are not only inadequate for transmitting diaphragm reactions into the walls but are likewise unsatisfactory for staying the walls against transverse displacement. This latter defect will be discussed in some detail later.

If the principal ground displacement should occur in a direction parallel to the length of the building a system of similar forces, but at right angles to those previously considered, would be induced. The potential floor diaphragms, due to their relatively greater depth, develop a greater rigidity in distributing longitudinal forces; however, their ability to function satisfactorily is again impaired by the flexibility of the wall connections particularly that formed at the side walls by inserting the joists into loose pockets in the masonry. The tendency for the roof and floors to hammer upon the end walls is probably more acute than in the case previously noted; failure or collapse of end walls in such buildings is a characteristic earthquake result.

Longitudinal Wall Capacity

The capacity of the longitudinal walls to sustain forces when the diaphragm connections are adequate to transmit the loads into the walls is of interest. Consider the lower story of a two story building of three classroom length (Figure 4). This wall is pierced by three groups of windows with the result that there are two relatively wide piers at the ends of the wall, two piers between window groups and nine slender mullions dividing the windows of

the groups. When a longitudinal load is applied to this wall the distortion in each of these piers will be equal providing no portion of the wall has been stressed beyond its capacity. Therefore the load borne by the respective piers and mullions would be proportionate to their relative rigidities, or, in this instance, 80.6% by the end piers, 19.2% by the two intermediate piers; and 0.2% by the mullions. The masonry is thus so inefficiently distributed that though the slender mullions constitute about one one quarter of the net volume of the masonry they provide only about 1/500th of the effective strength of the wall. If the architectural designer had for any reason eliminated the mullions (Figure 5) and utilizied the masonry omitted to widen the intermediate piers, the rigidities of these piers would have been increased to approximately the same as those at the extremities of the wall. The resistance of the wall would thereby have been increased about 55%; a strength increase that might prevent an earthquake failure. In describing this improvement in another way it may be said that all of the masonry piers in the wall of Figure 5 would be working essentially to their capacity before failure in any part occurred, whereas in the wall depicted by Figure 4 only the two end piers could be so efficiently utilized. In structures that have not been definitely designed to resist earthquakes, ineffective distribution of masonry is characteristic as an ideal arrangement for resisting horizontal forces will very frequently conflict will esthetic or other requirements.

The two possible combinations of structural elements in the hypothetical building which might develop resistance to earthquake forces are insufficient: the first combination, that of the side and corridor walls acting as cantilevers would be of little aid in a seismic disturbance of even moderate intensity; the second system of diaphragms and shear walls though potentially capable of some resistance is rendered very unreliable by the lack of proper proportioning and interconnection of elements. Such resistance as might be developed would probably be less than that necessary to prevent extensive damage with possible collapse in some local areas if the building were subjected to the violent shaking of a destructive earthquake.

The precise extent of such damage as would occur is difficult to estimate as the duration of the period of severe shaking will greatly influence the extent of collapse and dislodgment of masonry. However, there are certain focal points at which dangerous failures would almost certainly occur. In great numbers of school buildings the principal entrance to the structure is impressively embellished with massive cast stone or other ornament that is most generally insecurely anchored to the structural system. In many instances this ornamentation has been dislodged by a seismic shock and fallen into a principal avenue of egress from the building. The gable walls of the hypothetical building are likewise unstable as the commonly used T head anchors do not effectively connect them to the abutting ceiling and roof construction nor do they prevent the pounding action previously mentioned. The collapse of such masonry wall segments commonly occurs during earthquakes Parapet walls such as those projecting above the roofs of the one story sections are equally unstable as both the anchorage and strength of the masonry is insufficient to prevent their being thrown down by a violent temblor. A less common local hazard is found in a masonry wall that does not continue down through the lower story of the building but is terminated upon structural steel or concrete beams at approximately the level of the second floor. Such walls are generally inadequately attached to the supporting beams as well as ineffectively stayed at their upper extremities; consequently their dislodgment by quake and subsequent fall through the lower roof into the one story rooms below may be contemplated as a possible result of an earthquake. Masonry walls are sometimes constructed with the outer withe or thickness of face brick unbonded to the remainder of the wall except by the insertion of ineffective corrugated strips in the mortar joints. Not infrequently an earthquake may cause dislodgment of considerable areas of such brick veneer.

Continuous Concrete Beams

A destructive earthquake of the intensity of those which occurred in the San Francisco Bay Region in 1906 and in the Long Beach-Compton-Los Angeles area in 1933 would doubtless cause great damage to a building of the type here used for hypothesis. Fortunately, all of the school buildings which were built without definite provision for earthquakes are not as seriously deficient in stability as the structure heretofore used as an illustration. It is therefore pertinent that consideration be given to those variations in construction that would tend to increase the stability of the structure.

Continuous reinforced concrete beams, sometimes known as bond stones or bond beams, have often been installed in all of the masonry walls at points near the floor and roof levels. These bond beams often add to the inherent resistance of a building in that they provide a longitudinal tie in each wall that would materially aid in the distribution of horizontal loads to various resisting piers. The shear connections between the wood floor diaphragms and the walls are sometimes slightly improved if the floor joists are embedded in such a bond beam though this connection weakness is often aggravated by a loose seating of the joists on corbels or steel seat angles.

In some classroom structures the fire safety has been enhanced by the use of masonry corridor walls; as these walls generally have a considerable number of wide, stiff piers the longitudinal horizontal force resistance is often improved though the weight added by the masonry construction will also increase the total force to be resisted.

Frequently reinforced concrete corridor floors were used in conjunction with masonry corridor walls. These slabs are potentially more adequate diaphragms for resisting transverse forces than those formed by the wooden floor construction. In most cases the resistance to transverse forces is improved by such corridor construction though its effectiveness is often limited by: first, a lack of marginal or flexural reinforcement; second, inadequate connections to reaction walls; third, the presence of poorly bonded construction joints or large shrinkage cracks; and fourth, by the insufficiency of the tension or compression ties to the exterior walls. In rather rare instances such longitudinal slabs have been provided at the upper story ceiling levels of the corridors; a further improvement in the transverse resistance of such buildings is thereby obtained as many typical buildings do not contain diaphragms of even limited effectiveness at this level.

The foregoing concerns buildings with unreinforced masonry exterior walls. Now let us consider a structure with reinforced brick or reinforced concrete walls. The addition of steel reinforcement increases the capacity of the masonry to sustain lateral forces, but what is more important to the safety of those using the buildings, the embedment of ductile metal bars within the more brittle materials greatly reduces the possibility of large portions of the wall construction suffering dislogment and collapse. The use of such reinforced wall construction does not eliminate the various deficiencies described heretofore though it does materially reduce the possibility of general or local collapse.

A further improved construction consisting of a complete structural system of walls, floors and roofs of reinforced concrete has been used in a few important buildngs of the larger school system. Such buildings frequently are constructed with complete frames of structural steel or reinforced concrete while in addition the concrete floor construction is a more satisfactory diaphragm due to its rigidity and generally secure connection to the various wall elements. Though buildings of this type have been seriously damaged in past earthquakes, the horizontal force resistance of their structural systems is definitely superior to that of the hypothetical building previously considered.

Wood Frame Construction

The earthquake resistance of the widely used wood frame school building merits attention. As school structures of this type are generally but a single story in height, taller structures are not herein considered. The superstructure walls,

floor and roof construction of these buildings being relatively light, those forces which would be induced by an earthquake are similarly much smaller. As the wood floors and roof diaphragms are generally of similar character to those previously described, their potential value is materially greater due to the smaller loads induced by the lighter wall construction. A further favorable factor is realized in the similarity of the rigidities of the exterior wall and partition construction as the frequency of spacing of effective horizontal force resisting elements is materially increased.

In general, a one story wood frame building with bolted anchorage to the foundation, diagonal wall sheathing extending from the foundation sill to the roof, and diagonally sheathed floor and roof may be expected to develop a material amount of inherent resistance to earthquake forces. Those wood frame buildings which lack either anchorage to the foundations, or adequate bracing for the cripple stud underpinning beneath the floors may suffer serious earthquake damage. In certain instances flimsily constructed roofs on wood frame buildings are definitely vulnerable to damage. Likewise masonry chimneys, brick veneer or heavy ornament are frequently so unstable that they may be collapsed by a temblor.

The type of construction used in classroom buildings is also commonly employed in the construction of shops, gymnasiums and auditoriums. In buildings designed for such occupancies the height of stories and the sizes of the subdivided areas are considerably greater than in classroom structures, consequently the vulnerability to earthquake damage is accordingly increased as the fundamental weaknesses are accentuated by a relative increase in induced loads as contrasted with potential resistance. In many structures of this classification specially designed systems have been employed in the vertical load sustaining system; these special structural elements may be arbitrarily evaluated as favorable to reducing the extent of the earthquake damage though they could not be regarded as adequate horizontal force resisting elements unless such resistance were specifically provided for in their construction.

In summarizing the foregoing, the following conclusions concerning buildings not definitely designed to resist earthquakes may be drawn:

1. **Masonry bearing wall buildings unless specifically designed and constructed to resist earthquake forces are vulnerable to extensive damage.**

2. **In those masonry bearing wall buildings having the least number of favorable characteristics, a strong earthquake may cause extensive destruction which may reach partial or entire collapse.**

3. **Structures with reinforced masonry or concrete walls and other favorable characteristics such as concrete corridor slabs have considerable inherent strength though probably not sufficient to prevent damage in a violent earthquake.**

4. **Wood frame buildings generally are less vulnerable to earthquake damage provided they are of low height and free from inadequate cripple stud wall bracing and deficient anchorage to the foundations.**

5. **Auditorium, gymnasium and shop buildings, when constructed with unreinforced masonry walls, are less horizontal force resistant than classroom buildings of the same general size and construction.**

It should be understood that this discussion has been of a general nature applying only to structures of characteristics similar to those of the buildings described. Many other school buildings having been constructed from different materials and varying in general plan and details may possess either greater or less resistance to earthquakes.

APARTMENTS TODAY

(Concluded from Page 36)

troduced, one of the hazards that an owner faced was the introduction of tall buildings adjacent to or across the street from his property. This resulted in shutting off a certain amount of light with a resultant effect on his rent roll. A recent development, however, enables property owners to simulate sunshine by artificial lighting methods. This has been adapted to interior courts, but has not been used on exteriors to the writer's knowledge. Incidentally, dark spaces or interior courts can increase income by this method even if their light has not been shut off by neighboring buildings.

SAN FRANCISCO'S TRAFFIC

Since This Was Written the Board of Supervisors Have Reported in Favor of Rapid Transit

THAT the City of San Francisco is threatened with serious traffic congestion within another year, when trans-bay train service will start, is indicated in a timely report recently made by E. G. Cahill, manager of Utilities, and addressed to the Public Utilities Commission of San Francisco.

Styled a supplemental rapid transit report, it has received the endorsement of the commission and has been transmitted to the Board of Supervisors for action.

The report in full follows:

Under date of May 25, 1936, I submitted a report with recommendations for the construction of rapid transit lines on four important streets of the city. This report has been the subject of several hearings before the Public Utilities Committee of the Board of Supervisors and before the Board of Supervisors sitting as a Committee of the Whole.

Much general interest has been aroused in the subject of improving local transportation. A number of alternate proposals and modifications have been suggested. Every one of these has been carefully analyzed with the result that I am now more firmly convinced than ever that my plan of May 1936 is the only practical way in which the present intolerable conditions can be bettered permanently.

The vehicular traffic over the San Francisco-Oakland Bay Bridge has so far exceeded the expectations of even the bridge authorities, that there can be no question that the possibilities which I mention in the paragraph headed "The Necessity for Rapid Transit," on page 10 of my May 1936 report, will be borne out when a year from now fast and comfortable trains will be available to those not now able to drive private automobiles over the bridge. The original toll over the bridge was 65 cents but because of the vlume of business has been reduced to 50 cents. A commutation fare is also in effect and already groups of four or five people are making joint use of a single automobile in traveling to and from the east side of the Bay. The saving in time over the present ferry service is sufficiently great to justify the increased cost to many people.

The East Bay communities are fully alive to the advantage to be gained by the use of the bridge and have published in the local daily papers and national periodicals, costly and attractive advertisements with the object of encouraging San Francisco residents to move across the Bay, and insuring that newcomers to the Bay area will settle in their communities. This action indicates the solidarity of the business interests on the east side of the Bay. They have already perfected an organization known as Metropolitan Oakland which desires to make Oakland the metropolis of the Bay area and to this end has already raised $60,000.

San Francisco Must Act

In contrast to this concerted action of the several cities on the east side of the Bay, San Francisco has failed, after several years of discussion, to reach even the conclusion that it wants any sort of rapid transit system to offset the advantages of the bridge and the advertising of other communities which will profit at San Francisco's expense. It is essential that San Franciscans unite at once on a definite and workable program to relieve downtown traffic congestion and to speed up transportation between the business and residence sections of the city.

During the past year the normal increase in traffic, both vehicular and street car, together with the larger number of automobiles operating in the city because of the Bridge, has materially interfered with the flow of street railway traffic during the evening rush hours. Both the Municipal and Market Street Railway lines have experienced a marked increase in time lost by cars at the time the maximum load is carried. Comparing March 1936 with March 1937, the average amount of time above schedule lost by the Market Street lines of the Municipal Railway at Van Ness Avenue, has incerased from 9.3 minutes to 15.8 minutes. This has required that more cars be turned back before reaching the ends of their routes in order to secure a more uniform service and make it possible for the cars to get back on schedule after the rush hour is past. The number of turnbacks in March 1936 was

17, and in March 1937 was 379. If we calculate that each car carried an average of 100 passengers at the time it was switched back, this means that during March 1937 approximately 38,000 persons were inconvenienced and delayed in reaching their homes or places of business by being forced to leave their cars and required to wait on the street for a second or third crowded car. Similar conditions have caused the Market Street Railway management to put slower schedules in effect.

The Public Utilities Commission's rapid transit report shows clearly that it will take street car riders in San Francisco a longer time to reach their homes within San Francisco, unless we have rapid transit, than it will take persons working in San Francisco and living in the east bay and other suburban areas. But that report was based on the scheduled running time of our local lines, whereas today we find that cars are unable to keep even relatively close to their scheduled time.

For example, schedules call for the "J" cars to reach the outer terminus 28 minutes after leaving the Ferry Building. Actually "J" cars in the evening rush hour require 40 minutes to reach the end of this short line. Cars of the "K" and "L" lines are scheduled to complete their trip in 38½ minutes, but they actually require 55 minutes to make the run. Cars of the "N" line are supposed to reach the beach in 39½ minutes running time from the Ferry Building; after stemming the heavy traffic encountered throughout the length of Market Street, they average 50½ minutes running time.

Street Cars Move Too Slowly

Now to examine the problem from a different viewpoint. Schedules call for an average street car speed from the Ferry Building to Kearny Street of 7.10 miles per hour. Even in March 1936 prior to the opening of automobile traffic on the bay bridge, Municipal cars fell far behind this speed, and averaged only 3.55 miles per hour on lower Market Street. By the time they arrived at Kearny Street they were on an average of 6 minutes behind schedule, but in March 1937, these same cars had achieved an all-time record of slowness in transportation. Traveling literally at less than pedestrian walking speed, they averaged only 2.37 miles per hour and were already 12 minutes behind schedule on reaching Kearny Street.

Complaints as to lack of car service have been increasing in number and under present conditions it is impossible to add more cars to Market Street during the heavy hours. On lower Market Street, cars are operating today with only a 14 second headway. This means that they are moving practically end to end, and also that if we placed additional cars in service in an effort to carry more passengers, all the cars, including those now in service and the additional cars, would be further delayed and only more congestion and slower speed would result.

A transportation system can be no better than its weakest link. The cars operating on all of the Municipal lines on Market Street must be governed as to their frequency and schedules by the speed they are able to maintain at the most congested point. The Market Street situation is therefore the key to the transportation problem of the entire city.

It is true that some measure of relief can be afforded by the abolition of automobile parking on Market Street and some changes in traffic regulation, but this at best could be but a temporary and partial solution.

In brief, we not only have no capacity for carrying additional patrons, but find ourselves in the position of being unable to handle satisfactorily the people now dependent upon public transportation. The service which we are rendering is not improving but is getting worse and will continue to do so as vehicular traffic increases. The Golden Gate bridge will be in service shortly pouring additional automobile traffic into the city. This traffic will further congest our streets; how serious this additional congestion will be I do not know. Obviously the only solution is the separation of passenger transportation from the surface in those portions of the city where conditions prohibit the addition of more cars and the attainment of reasonable speed.

Other Schemes Proposed

While many ingenious methods of furnishing faster service have been submitted, it is to be regretted that their authors have failed to grasp the fundamentals of the local transportation problem.

A concerted and persistent effort has been put forth to place the City's purchase of the privately-owned street car systems ahead of the construction of rapid transit lines. Unified ownership will in no way increase track capacity, lessen traffic interference, or lower the demand for space on cars. Any suggestion that through unification re-routing could be accomplished which would defer the necessity for subway construction, is unfounded.

No form of mass transportation so far perfected has more than a small fraction of the passenger carrying capacity of the subway system. It is therefore idle to consider any form of bus whether it be operated by gasoline or electricity. Any means of removing surface traffic by constructing elevated roadways for motor vehicles is open to all the objections cited for elevated rapid transit, plus others which seem insurmountable connected with entering and leaving the elevated roadway. The load on our downtown streets precludes the construction of ramps in any section of the congested district.

The use of buses or any other vehicle in place of street cars on the surface, is out of the question because it has been proven that the street car carries more passengers in an hour than any other form of surface vehicle. Briefly, three lanes of automobiles will carry 4,100 passengers per hour; one lane of buses 8,000 passengers per hour; one street car track 13,500 passengers per hour; one subway track 60,000 to 90,000

passengers per hour. In addition the subway takes mass transportation off the surface and adds to the space available for ordinary vehicular traffic.

If for the present we eliminate, as we must, municipal ownership of the Market Street Railway Company and unified operation of the street car lines; if we permanently eliminate the installation of elevated driveways, the substitution of a rubber tired vehicle for the street cars, and crosstown underpasses, there remains only rapid transit. There is no question that of the two present forms of rapid transit, the subway is the only type which can be considered for San Francisco.

Subway Lines Needed

In the report of May 1936, I stated that the three subway lines proposed would greatly improve the service between the downtown section, the North Beach, Marina, Western Addition, Richmond, Sunset, West of Twin Peaks and Mission districts, and by relatively short bus feeders serve other districts and accelerate transportation as far south as the County Line. A number of citizens have asked what bus lines could be expected to be operated in connection with the establishment of rapid transit. This question is a logical one and should at this time be given as complete an answer as is consistent with the best interests of everyone concerned. These best interests do not I believe include definitely outlining actual bus routes. Past experience proves that no one can prophesy what changes will take place in a few years. A route which would be the best today may by the time the rapid transit lines are completed, be considerably less desirable than some other route made possible by the improvement of street widths and grades and because of the development of areas now either not occupied or not occupied to best advantage. Another thing to be avoided is the disappointment to property owners by tentatively holding out possibility of a service which changes in the future may not justify. To specify definite routes would unquestionably lead to speculation in real estate and again possible disappointment of property owners and taxpayers. It is therefore my intention to indicate not routes, but service which may be given in extending the rapid transit benefits. I have selected no definite routes and have made only such studies as were necessary to permit making estimates of the cost to provide vehicles, storage and repair facilities.

Included in the cost of extensions is an addition to the originally recommended Mission Street rapid transit route, over the old right-of-way of the Southern Pacific Company from the formerly proposed terminus at Bernal Cut and Monterey Boulevard to a new terminus at a point near Ocean Avenue. This terminus will serve the San Francisco Junior College and will be sufficiently far south to materially shorten bus feeders for the territory within a mile to the north of the County Line.

All the other extensions proposed will be by rubber tired vehicles of the type best suited to the location and the service.

I propose to extend the present No. 1 bus route which operates from the Richmond and Park-Presidio districts across Golden Gate Park and through the west of Twin Peaks and outer Mission districts, from its present terminus at Edna Street and Monterey Boulevard through the Sunnyside district to Bernal and Monterey Boulevards, thus making a direct connection with the Mission rapid transit line, as well as the Market Street rapid transit line, the Geary and Sunset tunnel lines, providing a complete cross-town service. This will materially improve the service on this route by splitting the traffic on the southerly end. At present the loading on this southerly end of the route is much heavier than on any other portion. When patrons bound for the downtown district can go either to the Forest Hill station of Twin Peaks tunnel or to Monterey and Bernal Boulevards, the traffic will be divided in such a way as to greatly improve the service.

I also think it advisable to install another line from the Park-Presidio district to cross Golden Gate Park and the Sunset and Parkside districts and connect with the "B," "C," "K," "L," "M" and "N" lines, giving direct rapid transit connections. This line will lie to the west of the present No. 1 bus route and give a service to the Park-Presidio, Sunset, Parkside and Merced Manor districts not now offered.

Where Rapid Service is Needed

Additional service will be required in both the northern and southern parts of the Sunset, Parkside, Pinelake and Great Highway districts. These lines will connect with the "L" or "N" lines as may be most convenient, giving patrons the advantage of the Twin or Duboce tunnel and the subway on Market Street. They will give the entire area south of Golden Gate Park fast, convenient transportation.

There is a large population between Ocean Avenue and Alemany Boulevard which is now served on the north by cars on Ocean Avenue and on the south by the Municipal Railway "M" line. These people, living in the Ingleside, Ingleside Terrace, Junipero Serra, Merced Manor and Lakeview districts, will be given bus service to both the Market Street and Mission Street rapid transit lines.

People living on the easterly and southerly slopes of Twin Peaks, Mount Davidson and Miraloma Park have no easily accessible public transportation. It is probable that many more families would settle on these relatively close-in scenic heights if some form of reliable service were provided. Many homes now in this area have no transportation. The cost of such a service is included in my estimate. The line will be connected directly with Market Street rapid transit.

I also propose to serve the area adjacent to Roosevelt Way between Buena Vista Park and Eureka Valley, now totally devoid of transportation.

The Haight-Ashbury district and Pope Tract will be given a direct connection with the rapid transit lines via Sunset tunnel.

In order to get maximum usage out of the Church Street and Mission rapid transit lines two east and west lines must be operated in such a way as to tie the Potrero Avenue, Mission and Church Street lines together. These lines will serve the very large population in the Mission and south of Market areas. Extensions from these routes will be made into the territory to the west of Church and Castro Streets and in Noe and Eureka valleys, now inadequately served. One of these lines will be extended to reach the industrial district adjacent to Third Street.

The Bayview district has for many years asked for direct municipal Railway service. This will be supplied by extending one of the Mission district crosstown lines, or by a separate route operated from the end of the Potrero Avenue car line.

The Excelsior and Crocker-Amazon districts will have a direct connection to the rapid transit service of the Mission street route.

A large area of the Marina district closely built up with many thousands of homes is now inadequately served by street car lines along the edge of the district. I propose that direct service be given this district by a line running east and west from the vicinity of Fort Mason to a point adjacent to the Presidio, with appropriate connection to rapid transit service.

The Telegraph Hill section in North Beach, one of San Francisco's greatest scenic attractions, is totally devoid of transportation service. One of the lines proposed would provide service for residents and visitors on Telegraph Hill.

Existing Municipal Railway surface lines, these proposed feeder lines and the rapid transit lines recommended will completely blanket San Francisco. They will provide fast, comfortable transportation throughout the city. These lines will extend the benefits of rapid transit to all our citizens. Although these proposed routes have been worked out with a view to serving districts already built up and insufficiently served by present facilities, the routes will also tap and make available for development great areas of San Farncisco now unavailable for home and business construction because of lack of transportation. Thus new areas will be opened for the construction of homes and business districts and many millions of dollars will be added to the city's assessment roll and tax revenue. This property improvement and population growth will in turn reduce the per capita cost of rapid transit.

The flexible nature of the feeder lines proposed will make it possible for them to be readily adjusted to the growth of new districts as well as service to areas already developed.

Estimated Cost of Extension

On page 30 of the May 1936 report is shown the estimated cost of the rapid transit system. In conformity with the usual policy of the city there was included in the total of $52,700,000 an item of $6,000,000 for interest during construction. I think that it would be much better to carry this interest on the tax rate through the yearly budgets. This will eliminate the necessity of paying interest on interest, and for that reason I recommend that the estimate of $52,700,000 be reduced by $6,000,000 to $46,700,000. The estimated cost of the extensions to the rapid transit system which I have described above, is $2,550,000. This sum added to the $46,700,000 produces a total cost for the rapid transit system, including fourteen cross system bus lines, of $49,250,000. I recommend that there be issued for the construction of rapid transit lines $49,250,000 of general mortgage bonds. This is $3,450,000 less than the amount shown in the May 1936 report.

A careful study has been made in the light of current construction costs to determine whether or not the estimates which I submitted in May 1936 are still sufficient under present price conditions. In this study we have examined construction costs for similar work in other cities, with particular reference to contracts awarded in New York City for units of the Sixth Avenue subway. We have also consulted reliable indices of construction, material and labor costs throughout the United States. Comparisons have been made of material and labor costs in San Francisco with those in New York City and at other points where construction of this type is in progress.

These studies definitely indicate that construction costs have risen in comparison with the costs current in May of 1936. It is, however, indicated that present material and labor costs are still safely within the leeway allowed in preparing the original estimates.

Conclusion

I have already stressed the fact that traffic delays and congestion are mounting at a rapid rate which will be accelerated by the completion of the Golden Gate bridge; that we have already reached the peak capacity of Market Street and that with the present facilities nothing can be done to materially and permanently improve conditions.

It is therefore my recommendation that steps be taken at once to unite official and public opinion on a definite program of procedure which will permanently provide greater capacity and higher speed for local transportation by constructing the subway routes which I have proposed. To end the present intolerable conditions as soon as possible, I recommend that this program be placed before the voters in the form of a bond issue on the election ballot of November 2, 1937.

Respectfully submitted,

E. G. CAHILL,

Manager of Utilities.

ARCHITECTS' BULLETIN

Issued For

THE STATE ASSOCIATION OF CALIFORNIA ARCHITECTS

Northern Section

VACATION TIME

MIDSUMMER is normally the time for vacations. This is not so essential in California for climatic reasons, since it is possible in this fortunate state to work the year round without physical discomfort; but for purposes of recreation in all its senses, the summer is the best period of the year, here as elsewhere. Moreover, there is then a general lull in business, and although active building operations may be at their height, there is always a decrease in planning activities for future building—so, for architects' offices as well as in other lines, there is need for fewer workers at this time.

All true, but trite, you will say. But it explains, to a large extent, the paucity of material for the Bulletin's columns.

OFFICE ROUTINE

Let it not be thought, however, that the office work of the State Association of California Architects is suspended, or even much reduced. For information and interest, it may be well to outline briefly the more or less routine work of the office (which your subscriptions support) going on day after day.

The registration of draftsmen, recording their training and experience and addresses, is practically continuous, together with their reference to offices needing assistance. More architects should avail themselves of this valuable "clearing house" service.

Executive Board activities go on regularly, entailing the recording of minutes, considerable mimeographing, and much correspondence, typing, sending and answering. Book-keeping is handled by the Treasurer personally, a yearly audit being made in the office by an expert accountant.

There is frequent general correspondence, both in and out of the profession.

Districts and Advisors may and often do avail themselves of the office for sending notices of meetings, letters, minutes and ballots—and this is also true of all committees, although some committee chairmen handle their own internal correspondence.

Legislative matters require intermittent but often voluminous attention—notices, messages by mail or wire, reports and much mimeographing.

A BUSY OFFICE

Special work is always imminent—such as required for the committee working on Standard Office Forms, or for accommodation to the Federal Housing Administration, or for other outside allied organizations. The Producers' Council Club is now authorized to use our office address and telephone for appropriate needs.

The office is headquarters for contacts with the San Francisco and State Chambers of Commerce, the San Francisco Federation of Arts, the State Board of Architectural Examiners, the State Department of Architecture, the Joint Conference Board, the American Institute of Architects, the Federal Housing Administration, such partly public committees as work for the preservation of

Highways, the campaign against certain billboards, the preservation of historic buildings, the safeguarding of zoning, and similar consistent endeavors, and, of course, with THE ARCHITECT & ENGINEER for various kinds of information and publicity.

Yearly come the State Convention activities, which require preparation for months ahead (already started for 1937) and secretarial and executive work for months afterward. This one feature piles up an amount of work for the office that would seem incredible to anyone not familiar with the need for systematized planning, so essential to produce a successful convention.

It will be seen that our efficient office secretary, Miss Kragen, representing the current administration, has nothing much to do besides answering phone calls and powdering her nose. Incidentally, she has returned from a week's vacation, rarin' to go.

ADVISORIAL ELECTIONS

We reiterate that our Constitution and Bylaws (don't ask us which) call for the election of new Advisors in all Districts, and a meeting of all new Advisors at least a month before the annual convention. This meeting—the District Council—will presumably be held in San Francisco late in August or early in September. Districts (which means incumbent Advisors) kindly take notice and call elections **before August 15th.**

SUBSCRIPTIONS

We hate to mention it, but if you have somehow acquired a notion that the office activities outlined above are desirable, not to say essential—will you back it up with the small usual check ($5.00) and send to the Treasurer?

STATES WITH REGISTRATION LAWS

The following states have laws regulating the practice of architecture. The date in parenthesis indicates year in which law was originally passed:

STATES

1. Alabama (1931). Board for Registration of Architects. Harry H. Jones, Secretary-Treasurer, 318 Shepherd Building, Montgomery.

2. Arizona (1921). State Board of Technical Registration for Architects, Engineers, Land Surveyors and Assayers. Lewis S. Neeb, Secretary, P. O. Box 1029, Phoenix.

3. California (1901). State Board of Architectural Examiners. G. Stanley Wilson, Secretary-Treasurer, 907-C State Building, Los Angeles; Northern District—Harry J. Devine, Secretary-Treasurer, Room 503, 450 McAllister Street, San Francisco; Southern District—G. Stanley Wilson, Secretary-Treasurer, 907-C State Building, Los Angeles.

4. Colorado (1909). State Board of Examiners of Architects. W. Gordon Jamieson, Secretary-Treasurer, 816 Twelfth Street, Denver.

5. Connecticut (1933). Architectural Examining Board. Edward B. Caldwell, Secretary, 1029 Fairfield Avenue, Bridgeport.

6. Delaware (1933). State Board of Examiners and Registration of Architects. Roscoe Cook Tindall, Secretary, 914 Orange Street, Wilmington.

7. Florida (1915). State Board of Architects. Mellen C. Greeley, Secretary-Treasurer, Suite 925 Barnett National Bank Building, Jacksonville.

8. Georgia (1919). State Board for the Examination and Registration of Architects. R. C. Coleman, Joint Secretary, State Examining Boards, Department of State, Atlanta.

9. Idaho (1917). Department of Law Enforcement. J. L. Balderston, Commissioner of Law Enforcement, State Capitol, Boise.

10. Illinois (1897). Department of Registration and Education, Architects' Division. Homer J. Byrd, Superintendent of Registration, Springfield. Professor L. H. Provine, University of Illinois, Urbana, Secretary, Illinois Architectural Examining Committee.

11. Indiana (1929). State Board of Registration for Architects. Leighton Bowers, Secretary, State Capitol, Indianapolis.

12. Iowa (1927). Board of Architectural Examiners. William L. Perkins, Secretary-Treasurer, Ensley Building, Chariton.

13. Kentucky (1930). State Board of Examiners & Registration of Architects. C. Julian Oberwarth, Secretary, Frankfort.

14. Louisiana (1910). State Board of Architectural Examiners. Walter Cook Keenan, Secretary, 4239 St. Charles Ave, New Orleans.

15. Maryland (1935). Board of Examiners for the Registration and Licensing of Architects. Charles Dana Loomis, Executive Secretary, Room 300, 14 E. Lexington Street, Baltimore.

16. Michigan (1915). State Board of Examiners for Registration of Architects, Engineers, Surveyors. C. T. Olmsted, Corresponding Secretary, 306 Transportation Building, Detroit.

17. Minnesota (1921). Board of Registration for Architects, Engineers and Land Surveyors. I. M. Clemetson, Executive Secretary, 620 New York Building, St. Paul.

18. Mississippi (1928). State Board of Architecture. Frank P. Gates, Secretary, 601 Millsaps, Jackson.

19. Montana (1917). State Board of Architectural Examiners. W. R. Plew, Secretary-Treasurer, Bozeman.

20. New Jersey (1902). State Board of Architects. Gilbert C. Higby, Secretary-Treasurer, 32 Walnut Street, Newark.

21. New Mexico (1932). Board of Examiners for Architects. John Windsor, Secretary, 213 Don Gaspar, Santa Fe.

22. New York (1915). State Board of Examiners of Architects. William P. Bannister, Secretary, 339 Lexington Avenue, New York City.

23. North Carolina (1913). State Board of Architectural Examination and Registration. Harry Barton, Secretary, Box 179, Greensboro.

24. North Dakota (1913). State Board of Architecture. Robert Ritterbush, Secretary-Treasurer, 209 N. Seventh Street, Bismarck.

25. Ohio (1931). State Board of Examiners of Architects. R. C. Kempton, Executive Secretary, 2830 A. I. U. Building, Columbus.

26. Oklahoma (1925). State Board of Examiners of Architects. Leonard H. Bailey, Secretary-Treasurer, 1217 Colcord Building, Oklahoma City.

27. Oregon (1919). State Board of Architect Examiners. Mrs. Margaret Goodin Fritsch, Secretary, 1601 Public Service Building, Portland.

28. Pennsylvania (1919). State Board of Examiners of Architects. M. I. Kast, Secretary, 375 Education Building, Harrisburg.

29. Rhode Island (1936). Board of Examination and Registration of Architects. Albert Harkness, Secretary, State House, Providence.

30. South Carolina (1917). State Board of Architectural Examiners. Walter E. Rowe, Secretary-Treasurer, 210 Sloan College, University of South Carolina, Columbia.

31. South Dakota (1925). State Board of Engineering and Architectural Engineers. George C. Hugill, Secretary, 367 Boyce-Greeley Building, Sioux Falls.

32. Tennessee (1921). State Board of Architectural and Engineering Examiners. Joseph W. Holman, Secretary-Treasurer, 702 Stahlman Building, Nashville.

33. Utah (1911). Department of Registration. S. W. Golding, Director, State Capitol, Salt Lake City.

34. Virginia (1920). State Board for the Examination and Certification of Professional Engineers, Architects and Land Surveyors. C. G. Massie, Secretary, 4030 Fort Avenue, Lynchburg.

35. Washington (1919). Department of Licenses. Harry C. Huse, Director, Olympia.

36. West Virginia (1921). Board of Architects. Theo. T. Sansbury, Secretary, P. O. Box 788, Parkersburg.

37. Wisconsin (1917). Registration Board of Architects and Professional Engineers. Arthur Peabody, Secretary, State Capitol, Madison.

DISTRICTS

1. District of Columbia (1924). Board of Examiners and Registrars of Architects. Robert F. Beresford, Secretary, 810 Eighteenth Street, N. W., Washington.

TERRITORIES

1. Hawaii (1923). Territorial Board of Registration for Professional Engineers, Architects and Surveyors. William C. Furer, Secretary, 506 Hawaiian Trust Building, Honolulu.

2. Philippines (1924). Board of Examiners for Architects, Bureau of Civil Service. Jose Gil, Director, Manila.

3. Puerto Rico. Board of Examiners of Engineers, Architects and Surveyors. Pedro A. De Castro, Secretary-Treasurer, San Juan.

The above information was supplied by the National Council of Architectural Registration Boards.

Architects Chapters

NORTHERN CALIFORNIA CHAPTER

Members of Northern California Chapter, A. I. A., met at the University of California at Berkeley on the evening of May 11, for the Chapter's annual "University Night."

Those present were: Messrs. Harris C. Allen, Abe Appleton, E. Geoffrey Bangs, Morris M. Bruce, Will G. Corlett, Albert J. Evers, William I. Garren, Raymond W. Jeans, Thomas J. Kent, Chester H. Miller, James H. Mitchell, Howard Moise, Irving F. Morrow, Gwynn Officer, Warren C. Perry, Ernest E. Weihe and William Wilson Wurster.

Dinner was enjoyed at the Faculty Club, with President Will G. Corlett presiding. There being no business that required attention, the meeting adjourned to the School of Architecture Building to view the annual exhibit of students' work and enjoy the program that had been arranged by Mr. Perry, director of the school.

The high standard of work that was displayed aroused enthusiastic praise and brought commendation to students and faculty alike for their attainment.

After the exhibit had been thus enjoyed, the members were further entertained by Richard Dyer, the lute-singer, who played his own accompaniment to a group of Swedish and German folk-songs and ballads, sung in the native tongue. His account of the development of the lute, and dramatic interpretation of the pieces, disclosed a field with this instrument that vividly echoes the medieval bard.

A joint meeting of Northern California Chapter, A. I. A., the State Association, Northern Section and the Producers' Council Club, was held at the St. Francis Yacht Club, May 25.

Following a cocktail hour and dinner, a program was presented featuring the Golden Gate Bridge in celebration of its completion.

Irving F. Morrow, architect of the bridge, spoke on its architectural aspect.

Commander James Reed, general manager of the Golden Gate Bridge, told "The Story of the Bridge," during which the construction from start to finish was shown in moving pictures.

An interesting sidelight was furnished by Frank Gentles. Through his arrangement a complete test of the bridge lights were made which was viewed across the water from the club windows as a feature of the program.—J. H. M.

SEATTLE—TACOMA ARCHITECTS MEET

Washington State Chapter members were guests of the Tacoma architects Saturday, June 19, the gathering place being the Tacoma Hotel at A and Tenth Streets in mid-afternoon. After visits to points of

architectural interest, the monthly dinner meeting was held at the recently opened Tacoma Club in the Washington Building.

W. R. B. Willcox, F. A. I. A., professor of architecture at the University of Oregon, recently gave a series of lectures on appreciation of art and architecture in the Inland Empire.

CONVENTION REPORTS

At the June meeting of Southern California Chapter, Ralph Flewelling, president, stated that the recent Institute Convention in Boston, was the best he had ever attended, that the local delegation worked hard and that the Chapter accomplished every objective it had. He said that the highlight of the final gathering, the annual banquet, was the award of Institute Fellowships, one of which was awarded to Roland Coate. The formal presentation of Mr. Coate's certificate will take place at the annual Chapter meeting in October. Mr. Flewelling's main report will be made following the return to the city of S. B. Marston and Herbert Powell, two of the delegates, who are still in the east.

A report was made by Earl T. Heitschmidt on legislative matters and state registration. He also reported on a talk made by Louis Simons of the United States Treasury Department, in which Mr. Simons asked for more complete co-operation between the architects and the Procurement Division.

Samuel E. Lunden reported on Institute and Chapter by-laws and on the recommendation made by the convention that a thorough study be made of the State Associations problem. His observations included statements that there was a definite improvement in this year's convention over the one held last year; also that the strength of the local Chapter, with a representation of seven, was recognized by the appointment of members to important committees.

Interesting reports were made by Carleton M. Winslow on social activities and visits made to historic points in the vicinity of Boston; also by A. C. Zimmerman on papers covering the possibility of a new era in architecture and a solution of the small house problem.

Clyde Makutchan, superintendent of the Los Angeles city building department, was the speaker of the evening.

Los Angeles building ordinances have increased 100 per cent during the last 12 years, according to Mr. Makutchan. We have had ordinances for 70 years, he said, but not until 1900 did they go into any detail. About 1921 they began to take on the appearance of specifications and there is no telling how far they will go, but certainly as far as is necessary to protect the public against improper construction.

A type of ordinance may be developed, Mr. Makutchan said, to fit all conditions in this district and possibly the entire country.

A progress report on honor awards was made by George Adams, secretary of the Chapter. He stated that programs had been mailed to all licensed architects in this region and that the closing date was July 1. It is the hope of the committee to publish a large number of the exhibits in some form.

In the absence of William Schuchardt, Mr. Adams read parts of a report prepared by the committee on education. Publication of a pocket-sized booklet has been suggested, setting forth examples of good architecture found in various types of buildings. Other methods of informing the public on this subject were also suggested.

Eugene Weston, Jr., vice-president of the Chapter, stated that four housing bills supported by the Chapter were now before Governor Merriam for signature. He also spoke about housing legislation now pending in Washington, D. C.

Louis N. Crawford and Russel Ray, members of the Santa Barbara Chapter, were introduced. Other guests were Lloyd Wright and Chester Smith.

COURSE IN ARCHITECTURAL CONCRETE

The Portland Cement Association will conduct a series of three evening meetings, August 2, 3 and 4, comprising a short course in Architectural Concrete, at the Pacific Gas & Electric Company's auditorium, 245 Market Street, San Francisco. The meetings will start at 7 p. m.

R. S. Phillips, of the Association's Chicago headquarters, will conduct the sessions on concrete. W. L. Davis, also of Chicago, but formerly a construction superintendent in California, will discuss form building and construction methods. Both men have had long experience in this work and are eminently qualified to pass on to building men the new methods and uses of architectural concrete.

Modern methods of producing inspiring and beautiful design effects in architectural concrete will be explained in detail. The courses will cover the proper selection of aggregates, design and control of concrete mixtures insofar as they relate to a good architectural concrete job, economical form construction, with particular emphasis on use of ornamental moulds, architectural treatment, and all other phases of architectural concrete in building construction.

The meetings are open to architects and engineers, and their assistants, and to concrete contractors and others interested in this type of building construction.

SCHOOL BUILDINGS

Architect Charles S. Dean of Sacramento has completed plans for a one-story frame grammar school building at Pollock Pines, El Dorado County, for the Cedar Grove Grammar School District. Mr. Dean is also preparing plans for a $15,000 school building at Sylvan Corner, Sacramento County, and two hangars for the Sacramento Airport.

With the Architects

FACTORY AND OFFICE BUILDING

Construction has started on a two-story reinforced concrete factory and office at Fifth and Tehama Streets, San Francisco, from plans by Architect W. P. Day, Financial Center Building, San Francisco. The Field-Ernst Envelope Company are the owners of the $125,000 structure.

FRANCISCO HEIGHTS RESIDENCE

Conrad T. Kett, 519 California Street, San Francisco, has prepared plans for a seven-room residence to be erected in Francisco Heights, San Francisco, for an unnamed client and for which a contract has been let to Herman Hogrefe, 359 Twenty-fourth Avenue, San Francisco, for $7,500.

COLONIAL RESIDENCE

From plans by F. E. Lloyd, 369 Pine Street, San Francisco, E. L. Harris of St. Helena, will build a Colonial style 10-room house costing $13,000 near Rutherford, Napa County. An oil-burning hot air system will be installed.

HILLSBOROUGH RESIDENCE

An eight-room residence in Hillsborough is being designed by W. L. Higgins and Chester Root, 19 North Second Street, San Jose, for John Willis. The same architects have sublet a number of contracts for a $20,000 frame apartment building in San Mateo for George Ames.

BRENTWOOD SCHOOL

Plans have been completed and work will start shortly for earthquake strengthening of the Brentwood-Deer Valley School in Contra Costa County, estimated to cost $25,000. Frederick H. Reimers is the architect.

DRIVE-IN MARKET

James Roach of Modesto will spend $10,000 constructing a one-story reinforced concrete and hollow tile market on Eighth Street, Modesto, from plans by G. N. Hilburn of that city.

$15,000 RESIDENCE

Contracts have been awarded for the construction of a $15,000 Early California dwelling in Burlingame Hills for Mrs. E. P. Olmo from plans by Leo J. Sharps, 1477 Burlingame Avenue, Burlingame.

EUREKA AIRPORT BUILDING

The Humboldt County Airport will have a new hangar building from plans now in the hands of Franklyn T. Georgeson, Eureka architect. The building will be frame and corrugated iron, 60 by 85 feet.

OFFICE BUILDING ADDITION

A $70,000 steel frame addition of one-story and penthouse is being built to the 11-story office building of the Newhall Estate at 260 California Street, San Francisco. The drawings were made by Warren C. Perry and the contractor is the Dinwiddie Construction Company of San Francisco.

VALLEJO STORES

Charles E. J. Rogers, Phelan Building, San Francisco, has completed plans for a one-story steel and concrete store building to be erected on the southeast corner of Georgia and Sonoma Streets, Vallejo, for A. J. Higgins, estimated to cost $40,000.

BANK BUILDING

The American Trust Company will erect a one-story Class B reinforced concrete bank building at Seventh Avenue and Clement Street, San Francisco, from drawings by W. W. Harper, 251 Kearny Street, San Francisco.

NEWSPAPER PLANT

The Sacramento News will have a new plant at 1213 Eighth Street, that city, from plans by Architect Charles F. Dean, California State Life Insurance Building, Sacramento.

CARMEL RESIDENCE

At Carmel, Monterey County, Mrs. Greenlee, a client of Clarence W. Mayhew, architect of Oakland, will build a $9,000 dwelling as soon as present building prices have stabilized.

ORINDA MARKET BUILDING

A store building for the Orinda Market will be started shortly at Orinda, Contra Costa County, from plans by Architect W. R. Yelland, Financial Center Building, Oakland.

SAN FRANCISCO APARTMENTS

R. R. Irvine, 2048 Market Street, San Francisco, is preparing working drawings for a three-story frame and stucco apartment building for the Richmond District, San Francisco, estimated to cost $60,000.

JUNIOR HIGH SCHOOL

Charles H. Biggar has been commissioned to prepare plans for a new Junior High School building in East Bakersfield for the Kern County Union High School District. The improvements will cost $270,000.

SAN RAFAEL RESIDENCE

Architect William Clement Ambrose has completed plans for a five-room house in San Rafael for the Misses S. Senning and M. P. Sangille.

PERSONAL

Architects Tourtellotte and Phillips, Postal Building, Portland, are now located in new and commodious quarters in the Pearson Fourth Avenue Building. The firm is composed of J. E. Tourtellotte and John Phillips. Mr. Tourtellotte is also senior member of the firm of Tourtellotte and Hummel, Eastman Building, Boise, Idaho.

Wallace Landreth, architect, who has been practicing his profession at Baker, Oregon, for the past several years, recently moved to Wenatchee, Washington, where he has opened an office.

Albert Harvey Funk opened an office for practice of architecture at 218 Columbia Building, Spokane.

Architect E. J. Bresemann, Tacoma architect who has devoted most of his energies to public buildings, particularly schools, has enlarged his offices in the Perkins Building.

Herbert A. Blogg, architect attached to the field service staff of the Public Buildings Branch, Procurement Division, U. S. Treasury, passed the major portion of a 32-day leave visiting his former associates in Seattle.

Architects A. H. Albertson, Joseph W. Wilson and **Paul Richardson** are now occupying their new studio quarters, 1100 Northern Life Tower, Seattle.

Architect N. Torbitt has opened an office at 401 Lloyd Building, Seattle.

Silas E. Nelsen, Tacoma architect, has fitted up an attractive studio in a cottage at 407 Sheridan Avenue South, Tacoma.

Percy G. Ball, associate to Architect Silas E. Nelsen, 405 Sheridan Avenue South, Tacoma, recently enjoyed a two weeks' motor trip to California. He put his stamp of approval on the Golden Gate Bridge, being one of the first to cross the structure.

George W. Miller, structural engineer, announces that he has moved from his former quarters at 311 Architects' Building and has taken an office at 1316 Commercial Exchange Building, Los Angeles.

Architect Joseph Kaiser has moved from the Bank of Inglewood Building, Inglewood, to 5849 S. Van Ness Avenue, Los Angeles.

ARCHITECTS LICENSED

Four candidates for architects' licenses passed the examination conducted in May by the Oregon State Board of Architectural Examiners. The successful candidates are Morgan Hartford, Arthur M. Ulvestad and Albert Hilgers, all of Portland, and Day W. Hilborn of Vancouver, Washington.

SANTA RITA SCHOOL BUILDING

A five-classroom addition to cost $30,000 is planned by the Santa Rita Grammar School District. Preliminary drawings have been made by C. J. Ryland of Salinas.

ARCHITECTS NEED INFORMATION

H. I. Feldman, architect, told the Apartment House Group, at its last meeting in New York, that architects must obtain wide technical information before designing today's multi-family structures.

Passing far beyond the old pictorial and constructional solution of the problem, the architect cannot render intelligent service without expert knowledge of land values, sources of financing, building costs, market trends, neighborhood characteristics, sociological forces and comprehension of the economic cycle. He must achieve building efficiency and rentability. Wasteful planning cannot be tolerated, as it was when builders could get rid of their houses even before the walls were dry.

"A poorly located room, with bad exposure, may drag down the entire suite," Mr. Feldman explained. "Income must be assured, within reasonable limits. The unit must be fitted to the type of tenantry. Room rates must provide a sinking fund against the time when the building grows too old to maintain highest rentals, and also to take care of unforeseen lean years. Units in unfavorable localities should be kept small, for single persons or families with no children. Living quarters should get the best outlook, with less favorable exposures for bathroom, kitchens, dining or galleries. After all is done, kind and quality of management will do much toward fixing the degree of success, for careful nursing is almost as important as clever architecture, sound construction and conservative financial set-up."

BRIDGE RAIL TERMINAL

With bids for the San Francisco-Oakland Bay Bridge railway terminal opened, work on the final stage of demolition of property for the terminal site is now under way.

Work will start at once on the wrecking of the Coffin-Redington Building at Mission and Fremont Streets, San Francisco. All wrecking on the block is expected to be completed by midsummer when construction will start on the terminal building according to plans.

In the East Bay area work on the foundations for the Port of Oakland Overhead highway crossing and the catenary bridges for the electric trains is being pushed ahead. Six thousand cubic yards of fill is being delivered, spread and compacted every twenty-four hours for the storage yards at the Key Route mole.

In the meantime, steel mills are again busy filling orders for the Bay Bridge—this for the fabrication of bridge railway steel at plants of the American Bridge Company and the Judson Pacific Company.

OFFICE BUILDING REMODEL

Work is under way for modernizing the elevator equipment in the Royal Insurance Building, 201 Sansome Street, San Francisco. Bliss & Fairweather, Balboa Building, San Francisco, are the architects.

STRUCTURAL ENGINEERS ASSOCIATION OF NORTHERN CALIFORNIA

THE TRUE ENGINEER

ABOUT thirty or thirty-five years ago, the average man's idea of an engineer was the fellow who climbed into the cab of a steam locomotive and ran the train. And then, just a few years later, he had to readjust this conception when movie heroes began to be engineers. These fellows never seemed to do an awful lot, but they were usually mighty good looking. They stood around in khaki short pants and flannel shirts, puffed pipes, looked strong and silent, and attracted heroines. Not a bad occupation, judging from those old movies. Engineering is still a pretty wonderful occupation; but it's not very much as it was pictured in those old movies. The true engineer is actually more romantic in his activities. He has all communication under his wing; roads, railways and canals; tunnels and bridges; airplane, auto and ocean liners; telephone and radio and television. He pours water into barren lands; he keeps the sea out of Holland; he puts Niagara Falls into harness, and holds back rushing rivers with dams. He speeds up traffic in town with his viaducts, and underpasses and bridges; and he empties the city water that collects in a storm—a service few people think of. In snort, engineering is a pretty broad activity; it's the art of directing men and controlling the forces and materials of nature for the benefit of the human race.

There's nothing new about it. In some respects the Ancient Romans surpassed even us. The modern stone bridge, for instance, has its blocks cemented together. The stone bridges of Rome were constructed of such carefully selected stones that cement was not necessary. With this exception, however, and with the exception of a superb volcanic material, they lacked the marvelous equipment in the way of metals and cements that now serve the modern engineer. But this fact makes those ancient bridges and aqueducts still in use today, all the more wonderful. Rome still gets part of its water supply over aqueducts built two thousand years ago. And of course the fame of old Roman roads is world-wide. Even more ancient are some of the wonders of old Egypt with her storage reservoirs in the Upper Nile Basin, the control works in her canal navigation, and, of course, her pyramids. Greece was no also-ran, either, when it came to engineering; but Rome was more consecutive. Greece planned; Rome built.

It is an interesting fact, that although many of the arts and sciences of those ancient days were lost during the Dark Ages, those bridges and aqueducts, those canals and pyramids and Grecian temples remained. And with the revival of constructive activities during the great Renaissance, engineering woke up and met new demands—and met them in the old Mediterranean traditions. Engineers of the Renaissance were usually French or Italian. England being more remote geographically, depended for many years upon foreigners. A Frenchman built the London Bridge; and when one of England's earliest native engineers wanted to study the science, he had first to learn French, for there were no books on the subject in English. That was only two hundred years ago.

The first engineering school in the United States is only a hundred and twelve years old. Today there are a hundred and fifty-five colleges granting degrees to students of engineering. One tenth of all the college students in America are studying engineering in one form or another. The profession of engineering has split up into so many specialized groups that out of a group of ten and a half thousand representative engineers in this country, there were found to be over two thousand five hundred different titles! Imagine the complications! There are those who feel the subdivisions have been too finely drawn; and it is known that many of them overlap. In a single mining project, the attention of not only out-and-out mining engineers may be required, but that of civil, electrical, mechanical and even chemical engineers as well!

Of the fifty titles which appeared most frequently in a "Who's Who" of the engineering world, civil and structural engineers were far and away the most common. They have to do with buildings, bridges, dams, piers and docks, harbor improvements and waterways. Electrical engineers were next in order. Power houses, lighting systems, street railways, radio and so forth are their babies. The mechanical engineer is next in number. He is not to be confused with mechanic. The mechanical engineer concentrates on the design and construction of machinery. This branch of engineering is only about fifty years old. But there are younger branches, which include the chemical engineer, the engineer in metallurgy, and the agricultural engineer. Every phase of life seems to have its own problem in engineering.

One of the requirements of the modern engineer which is especially interesting to the layman, is his ability to plan ahead. A classic example of this was the Culebra Cut in the Panama Canal. Here was the greatest excavation ever attempted — one hundred million cubic yards—of rock! In deciding just how it should be done, engineers figured that if done a cer-

tain way, the cost would be, per cubic yard, eighty cents. It was done that way—a job that took fifteen years; and at the end of that time, it was found to have cost just over seventy-eight cents per cubic yard. The engineer had been less than a cent and a half off!

Many people wonder what is meant by the term civil engineer, whether it has something to do with the government. Well, the early engineers were usually connected with warfare and the army; they were military engineers. It was not until the Eighteenth Century that engineers engaged in peace-time construction became designated as civil.

It should be a source of unending pride to Americans that several of the greatest feats of engineering in the world are the results of American engineering. These include Boulder Dam, the Golden Gate Bridge, the Empire State Building, the Panama Canal, and the Hudson Tunnel — every one of them, internationally outstanding.

Every young man and woman in the world will find his or her life richer and more beneficial to others besides, if he or she practices the philosophy of the engineer by basing behavior upon facts, not dreams; by using knowledge to achieve results; by depending upon law, not hunch; by building a substantial and true foundation before erecting superstructures; by letting experience discipline imagination; and by thinking through to the end, before starting in the beginning. —Bulletin, Michigan Society of Architects.

"DIAGRID" CONSTRUCTION

Editor, The Architect and Engineer:

Sir: A sentence of an article describing the John Keble Church (Journal of the Royal Institute of British Architects, issue of February 6, 1937) reads: "The central portion is square on plan and roofed with a reinforced 'Diagrid' flat." The name "Diagrid" was new to the writer and prompted a search as to what it meant. A summary of the results of this search will be presented without comment.

The Canadian periodical, "Engineering and Contract Record," issue of November 18, 1936, in a staff article, "A New Type of Steel Construction," states that a new form known as "Diagrid" is being actively promoted in Great Britain. The description given is taken from "Engineering." The present writer is also indebted to this well-known British periodical for information.

A staff article, "Diagrid Structural Work," in Engineering, issue of July 24, 1936, describes and illustrates the system in detail. It was originally developed by Dr. Stephen Szergo of Hungary and is being handled in Britain by Messrs. Diagrid Structures, Limited. "The system comprises essentially a diagonal grid of beams or ribs arranged in two parallel sets equally spaced and intersecting at right angles, the beams being rigidly connected at the junction."

Some of the advantages claimed for this system of construction are:

It greatly facilitates the use of large spans.

The shortest grid beams are at the corners and these short beams reduce bending moments at the center.

As the panels formed by the beam intersections are all of equal size a high degree of standardization can be achieved as well as an attractive appearance given to the soffit.

A reduction of structural depth for any given condition is obtained as compared with a conventional floor or roof.

The construction can be carried out in reinforced concrete, structural steel or timber. It can be applied to either circular or rectangular work. It can be flat or curved in one or both directions. "In the case of inclined or curved surfaces wind bracing is quite unnecessary."

The interlacing pattern of the design gives such rigidity that except in the cases of the rigid corners, almost any member can be removed without appreciably weakening the structure itself.

As with all forms of construction when first presented a reduction of cost is claimed. "For equal conditions it is stated that the cost is reduced about 30 per cent."

* * *

In "The Builder" (London) issue of May 22, 1936, is a staff article, "A New System of Construction." Points that are characteristic of a steel "Diagrid" are listed in the paragraph, "Application to Structural Steelwork," as follows: (1) All grid beams are of uniform length and section, ordinary rolled steel joists being adequate in most cases. (2) All connections between grid beams are equal; no web connections are required but only fish plates to the top and bottom flanges. (3) The main beams need, if desired, be no deeper than the grid beams, so that there are no projections below the soffit. (4) The floor slabs span both ways and are, therefore, lighter and cheaper than usual.

Robins Fleming.

New York, N. Y.
June 23, 1937.

AM. S. C. ENGINEERS ADDRESSED BY EDITOR

San Francisco Section, American Society of Civil Engineers, enjoyed hearing Dr. N. A. Bowers, Pacific Coast editor of Engineering News-Record, on the evening of June 15. Dr. Bowers' subject was "The Why and How of Writing on Technical Subjects." The talk embraced many practical suggestions about writing.

* * *

J. B. Leonard, chairman of the Uniform Building Code Committee, states that the code is finished and the final draft is in the hands of the California State Chamber of Commerce. It will be mimeographed and submitted to the eight committees who will review and comment upon the work. The final action of the

executive committee will be called thirty days after the last section has been sent to the committees. After the allowed ten days deliberation this text will then be adopted and advocated by the California State Chamber of Commerce as a Uniform Building Code for the State of California.

* * *

A. J. Cleary, chairman of the National Convention 1939, reports that he has written to G. T. Seabury, Sec., Am. Soc. C. E., and has requested W. G. Swanson, vice-president of the San Francisco Tourist and Convention Bureau, presonally to contact Mr. Seabury in New York and supplement the Society's invitation.

* * *

W. B. Boggs, chairman of the Convention Committee, asks that all members reserve September 18 for the annual convention which will be held at the Castlewood Country Club. Besides the dinner dance in the evening there will be an afternoon of golf, swimming, tennis and other sports.

* * *

The legislative committee under the chairmanship of F. H. Tibbetts, assisted in the formation of a State Engineering Legislative Committee, with the four sections of the American Society of Civil Engineers, the Los Angeles, San Diego, Sacramento and San Francisco Sections, the Structural Engineers Associations of Southern and Northern California, and the Los Angeles Engineering Council. F. H. Tibbetts was chairman of the committee and G. W. Pracy secretary-treasurer. A. J. Kennedy represented them before the Legislature. Forty-one bills affecting engineers were watched and discussed by the State Committee. Mr. Pracy in his report says, "This Section and the engineering profession as a whole owes Mr. Tibbetts, who carried almost the entire burden of the work, a great debt for the work he has done and for his sincere efforts on their behalf."

* * *

The sanitary committee has two very interesting activities in store for the Section, according to its chairman, A. C. Beyer. These are a field trip to the Great Western Electric-Chemical Company's plant in Pittsburg and an exceptional program for the October meeting. A. M. Rawn will give the technical address.

FINED FOR PRACTICING ARCHITECTURE

In Judge Thomas Prendergast's Court, San Francisco, S. Rosen of S. Rosen and Son, a building firm at No. 6 Fountain Avenue, San Francisco, was found guilty of practicing architecture in violation of an Act to Regulate the Practice of Architecture, in connection with plans for a duplex building on Grove Street, and sentenced to pay $100 fine or serve 60 days in the county jail.

The complaint was filed at the instance of the State Board of Architectural Examiners, Northern District, and was presented by Jas. Wall, Deputy Prosecuting Attorney.

ARCHITECTURE AND VALUES

By Elmer C. Roberts, A.I.A.

Probably there never was a time when the relationship between architecture and real estate was more interesting or more important.

The changes wrought by development are so manifold that they challenge the imagination and most certainly offer lucrative returns to those who strike with a bold stroke in a direction that will gain popular approval. New materials and methods in building operation of today are an exciting romance.

Therefore, with requirements considerably changed and with new materials available, we have a most attractive situation. Architectural efforts are necessarily a reflection of the demand of the times. Architects may be a little ahead of the general public—but only a little. The depression has been a great humanizer and has stimulated genius so that today we have the hard rules of economy handled by the proficient architect in a manner to produce a new and permanent charm in the solving of building problems of all kinds.

I feel that I speak the average opinion of the profession when I say that the responsibility of architects and the part they necessarily play in character and growth of a district or community has been definitely realized. We see many excellent locations with values greatly diminished by inferior building operations and we have seen localities not particularly desirable enhanced tremendously in value by the establishment of a high character in new building operations.

Recently a definite example of this came to my attention. Residential property was priced to sell at $20 a foot where miscellaneous homes of no design character existed. Within a few blocks, incidentally in the direction away from transportation and in what would ordinarily be a less valuable section, a few homes with design character had established an atmosphere so distinctly different from the others that the property was selling at $40 a foot.

Home design is in the center of the building stage at the present moment and putting on quite an interesting show. Isolated sections have blossomed forth with neatly designed homesites, some with a few acres of property on something of the subsistence homestead idea, others purely a contraction of the country estate for the lower income brackets. We have found a renaissance of appreciation in setting and in design. Where the architect used to hopefully prod his client towards decisions which would permit charm in architectural expressions, now the prospective owner, either for the ready-built house, or for the built to order variety, immediately tells about some lovely thing he has seen expressing indirectly his desire to have real charm in the architectural considerations of his home.

The passing show of home building has some interesting overtones in modern design efforts. Undoubtedly in the small home building field the unit assembly idea is constantly going forward. This is but logical and a continuation of the development in American building

for the last two hundred years. The unit development has been given a tremendous impetus by the "ready-to-wear" manufacturers and I believe it is now generally recognized that assembled units, which permit of flexibility, where a certain module may be used in the design of the home, utilizing stock sizes ready for assembly, is of real value, particularly in the lower cost homes. This movement has been viewed by some as a battle between commercialism and artistry. Obviously the marriage of the two is necessary to satisfy the American public. The unit idea, leaving opportunities for design and expression which may give each home its individual character, is the logical off-spring of such a combination.

There are many fine bits of advice available from many sources but I feel that the following suggestions might be of value to the home builder in the part he is going to play in the development of mid-Twentieth Century home design:

1. Approach the problem in the broadest possible fashion with an open mind.

2. Lose prejudices by a pleasant contact with what is being done and by perusing the architectural magazines to see what in general is being done throughout the country.

3. Analyze your own problem from the point of view of space requirements.

4. Coordinate or develop these into the property question involved in your particular situation.

5. In arriving at your selection, bear in mind the more obvious, but nevertheless important points of location, neighborhood, schools, churches.

ARCHITECTURE OF TOMORROW

By Bertrand Russell

English Philosopher and Author in the Rotarian

EVERY social system that has existed has had its appropriate type of architecture. Medieval castles make visible the pride of feudal barons; Venetian palaces display the splendors derived from commerce with the East; French chateaux and Queen Anne country seats represent the secure power of a courtly and civilized aristocracy.

With the French Revolution and the Industrial Revolution there goes a revolution in architecture. Old styles linger where the older forms of power linger: Napoleon adds to the Louvre, but his additions have a florid vulgarity which shows his insecurity. But the typical styles of the Nineteenth Century are two: the factory with its chimneys, and the rows of tiny houses for working-class families.

As one approaches London by rail, one passes endless streets of such dwellings, each inhabited by one family of small means. Each of these is a center of individual life; the communal life is represented by the office, the factory, or the mine, according to the locality. If an age is to be judged by the esthetic quality of its architec-

Estimator's Guide

Giving Cost of Building Materials, Wage Scale, Etc.

Amounts given are figuring prices and are made up from average quotations furnished by material houses to San Francisco contractors. 3% Sales Tax on all materials but not labor.

Note—Building costs are becoming more stable but the trades are threatening increased wage demands.

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

Bond—1½% amount of contract.

Brickwork—

Common, $40 to $45 per 1000 laid, (according to class of work).

Face, $100 to $110 per 1000 laid, (according to class of work).

Brick Steps, using pressed brick, $1.25 lin. ft.

Brick Veneer on frame buildings, $ .75 sq. ft.

Common f.o.b. cars, $14.00 at yard. Cartage extra.

Face, f.o.b. cars, $45.00 to $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f.o.b. job)

3x12x12 in.	$ 84.00 per M
4x12x12 in.	94.50 per M
6x12x12 in.	126.00 per M
8x12x12 in.	225.00 per M

HOLLOW BUILDING TILE (f.o.b. job)
carload lots.

8x12x5½	$ 94.50
6x12x5½	73.50

Building Paper—

1 ply per 1000 ft. roll	$3.50
2 ply per 1000 ft. roll	5.00
3 ply per 1000 ft. roll	6.25
Brownskin, 500 ft. roll	4.50
Brownskin, Pro-tect-o-mat, 1000 ft. roll	9.00
Sisalkraft, 500 ft. roll	5.00
Sash cord com. No. 7	$1.20 per 100 ft
Sash cord com. No. 8	1.50 per 100 ft
Sash cord spot No. 7	1.90 per 100 ft
Sash cord spot No. 8	2.25 per 100 ft.

Sash weights cast iron, $50.00 ton.
Nails, $3.50 base.
Sash weights, $45 per ton.

Concrete Work (material at San Francisco bunkers)—Quotations below 2000 lbs. to the ton. $2.00 delivered.

No. 3 rock, at bunkers	$1.45 per ton
No. 4 rock, at bunkers	1.45 per ton
Elliott top gravel, at bunkers	2.10 per ton
Washed gravel, at bunkers	1.45 per ton
Elliott top gravel, at bunkers	2.10 per ton
City gravel, at bunkers	1.45 per ton
River sand, at bunkers	1.40 per ton
Delivered bank sand	1.00 cu. yd.

Note—Above prices are subject to discount of 2% per ton on invoices paid on or before the 10th of month, following delivery.

SAND

Del Monte, $1.75 to $3.00 per ton.
Fan Shell Beach (car lots, f.o.b. Lake Majella), $2.75 to $4.00 per ton.

Cement (paper sacks) $3.00 bbl., warehouse or delivery.
Car-load lots delivered $2.70, f.o.b. cars $2.52
(Cloth sacks) $3.00 bbl..
Rebate 10 cents bbl. cash in 15 days.

Atlas White, Calaveras White, Medusa White: 1 to 100 sacks, $1.50 sack, warehouse or delivery; over 100 sacks, $1.25; 2% discount 10th of month.

Forms, Labors average $40.00 per M.
Average cost of concrete in place, exclusive of forms, 35c per cu. ft.; with forms, 60c.
4-inch concrete basement floor ..... 12½c to 14c per sq. ft.
Rat-proofing 7½c
Concrete Steps ..... $1.25 per lin. ft.

Dampproofing and Waterproofing—

Two-coat work, 20c per yard.
Membrane waterproofing—4 layers of saturated felt, $4.50 per square.
Hot coating work, $1.80 per square.
Medusa Waterproofing, 15c per lb., San Francisco Warehouse.
Tricocel waterproofing.

Electric Wiring—$12.00 to $15.00 per outlet for conduit work (including switches). Knob and tube average $3.50 per outlet.

Elevators—

Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in four-story building, $2800; direct automatic, about $2700.

Excavation—

Sand, 60 cents; clay or shale $1 per yard.
Teams, $12.00 per day.
Trucks, $22 to $27.50 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—

Ten-foot galvanized iron balcony, with stairs, $115 installed on new buildings; $140 on old buildings.

Floors—

Composition Floors—18c to 35c per sq. ft. In large quantities, 16c per sq. ft. laid.
Mosaic Floors—80c per sq. ft.
Dureflex Floor—23c to 30c sq. ft
Rubber Tile—50c to 75c per sq. ft.
Terazzo Floors—45c to 60c per sq. ft
Terazzo Steps—$1.60 lin. ft.

Hardwood Flooring (delivered to building)—

13-16x3¼" T & G Maple	$120.00 M ft
1 1-16x2¼" T & G Maple	132.00 M ft
⅞x3½ sq. edge Maple	140.00 M ft.

	13-16x2¼" T&G	⅜x2" T&G	5-16x2" Sq.Ed.
Clr. Otd. Oak	$200.00 M	$150.00 M	$180 M
Sel. Otd. Oak	140.00 M	120.00 M	135 M
Clr. Pla. Oak	135.00 M	107.00 M	120 M
Sel. Pla. Oak	120.00 M	88.00 M	107 M
Clear Maple	140.00 M	100.00 M	
Laying & Finishing	13c ft.	11 ft.	10 ft.

Wage—Floor layers, $7.50 per day.

Glass (consult with manufacturers)—

Double strength window glass, 20c per square foot.
Quartz Lite, 50c per square foot.
Plate 75c per square foot (unglazed) in place, $1.00.
Art, $1.00 up per square foot.
Wire (for skylights), 40c per sq. foot.
Obscure glass, 30c square foot.
Glass bricks, $2.40 per sq. ft., in place.
Note—If not stipulated add extra for setting.

Heating—

Average, $1.90 per sq. ft. of radiation, according to conditions.

Iron—Cost of ornamental iron, cast iron, etc., depends on designs.

Lumber (prices delivered to bldg. site).

No. 1 common	$38.00 per M
No. 2 common	34.00 per M
Select O. P. common	39.00 per M
2x4 No. 3 form lumber	26.00 per M
1x4 No. 2 flooring VG	65.00 per M
1x4 No. 3 flooring VG	55.00 per M
1x6 No. 2 flooring VG	65.00 per M
1¼x4 and 6, No. 2 flooring	70.00 per M

Slash grain—

1x4 No. 2 flooring	$50.00 per M
1x4 No. 3 flooring	40.00 per M
No. 1 common run T. & G.	35.00 per M
Lath	8.00 per M

Shingles (add cartage to price quoted)—

Redwood, No. 1	$1.10 per bdle.
Redwood, No. 2	.90 per bdle.
Red Cedar	1.00 per bdle.

Millwork—Standard.

O. P. $110.00 per 1000. R. W., $115.00 per 1000 (delivered).
Double hung box window frames, average, with trim, $6.50 and up, each.
Doors, including trim (single panel, 1¾ in. Oregon pine) $8.00 and up, each.
Doors, including trim (five panel, 1¾ in. Oregon pine) $6.50 each.
Screen doors, $4.00 each.
Patent screen windows, 25c a sq. ft.
Cases for kitchen pantries seven ft. high, per lineal ft., $8.00 each.
Dining room cases, $8.00 per lineal foot.

Labor—Rough carpentry, warehouse heavy framing (average), $17.50 per M.
For smaller work average, $35.00 to $45.00 per 1000.

Marble—(See Dealers)

Painting—

Two-coat work	35c per yard
Three-coat work	45c per yard
Cold Water Painting	12c per yard
Whitewashing	4c per yard

Turpentine, 75c per gal., in 5 gal. cans, and 65c per gal. in drums.
Raw Linseed Oil—$1.02 gal. in bbls.
Boiled Linseed Oil—$1.05 gal. in bbls.
Medusa Portland Cement Paint, 20c per lb.

Carter or Dutch Boy White Lead in Oil (in steel kegs).

	Per Lb.
1 ton lots, 100 lbs. net weight	11¾c
500 lbs. and less than 1 ton lots	12c
Less than 500 lb. lots	12½c

Dutch Boy Dry Red Lead and Litharge (in steel kegs).

1 ton lots, 100 lb. kegs, net wt.	11¾c
500 lbs. and less than 1 ton lots	12c
Less than 500 lb. lots	12½c

Red Lead in Oil (in steel kegs)

1 ton lots, 100 lb. kegs, net wt.	12¼c
500 lb. and less than 1 ton lots	12½c
Less than 500 lb. lots	13c

Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.00 lineal foot
8-inch	1.50 lineal foot
10-inch	1.75 lineal foot
12-inch	2.00 lineal foot

Plastering—Interior—

	Yard
1 coat, brown mortar only, wood lath	$0.75
2 coats, lime mortar hard finish, wood lath	.80
2 coats, hard wall plaster, wood lath	.85
3 coats, metal lath and plaster	1.30
Keene cement on metal lath	1.30
Ceilings with ¾ hat roll channels metal lath	.75
Ceilings with ¾ hat roll channels metal lath plastered	1.50
Single partition ¾ channel lath 1 side	.85
Single partition ¾ channel lath 2 sides 2 inches thick	1.50
4-inch double partition ¾ channel lath 2 sides	1.30
4-inch double partition ¾ channel lath 2 sides plastered	3.00

Plastering—Exterior—

	Yard
2 coats cement finish, brick or concrete wall	$1.00
2 coats Calaveras cement, brick or concrete wall	1.35
3 coats cement finish, No. 18 gauge wire mesh	1.50
3 coats Calaveras finish, No. 18 gauge wire mesh	2.75

Wood lath, $7.50 to $8.00 per 1000.

2.5-lb. metal lath (dipped)	.17
2.5-lb. metal lath (galvanized)	.20
3.4-lb. metal lath (dipped)	.22
3.4-lb. metal lath (galvanized)	.28

¾-inch hat roll channels, $72 per ton.
Finish plaster, $18.90 ton; in paper sacks.
Dealer's commission, $1.00 off above quotations. $13.85 (rebate 10c sack).
Lime, f.o.b. warehouse, $2.25 bbl.; cars, $2.15
Lime, bulk (ton 2000 lbs.), $16.00 ton.
Wall Board 5 ply, $50.00 per M.
Hydrate Lime, $19.50 ton.

Plasterers Wage Scale	$1.25 per hour
Lathers Wage Scale	1.25 per hour
Hod Carriers Wage Scale	1.10 per hour

Composition Stucco—$1.80 to $2.00 sq. yard (applied).

Plumbing—
From $70.00 per fixture up, according to grade quantity and runs.

Roofing—
"Standard" tar and gravel, $6.50 per sq. for 30 sqs. or over.
Less than 30 sqs. $7.00 per sq.
Tile, $20.00 to $35.00 per square.
Redwood Shingles, $8.00 per square in place.
Copper, $16.50 to $18.00 per sq. in place.
Cedar Shingles, $9.00 sq. in place.
Recoat, with Gravel, $3.00 per sq.
Asbestos Shingles, $15 to $25 per sq. laid.
Slate, from $25.00 to $60.00 per sq. laid according to color and thickness.

Sheet Metal—
Windows—Metal, $1.75 a sq. foot.
Fire doors (average), including hardware $1.75 per sq. ft.

Skylights—
Copper, 90c sq. ft. (not glazed).
Galvanized iron, 30c sq. ft. (not glazed).

Steel—Structural
$110 ton (erected), this quotation is an average for comparatively small quantities. Light truss work higher. Plain beams and column work in large quantities $80 to $90 per ton cost of steel; average building, $95.00.

Steel Reinforcing—
$80.00 to $120.00 per ton, set.

Stone—
Granite, average, $6.50 cu. foot in place.
Sandstone, average Blue, $4.00, Boise, $3.00 sq. ft. in place.
Indiana Limestone, $2.80 per sq. ft. in place.

Store Fronts—
Copper sash bars for store fronts, corner, center and around sides, will average 75c per lineal foot.
Note—Consult with agents.

Tile—Floor, Wainscot, Etc.—(See Dealers)
Asphalt Tile—18c to 28c per sq. ft. installed.

Venetian Blinds—
40c per square foot and up. Installation extra.

SAN FRANCISCO BUILDING TRADES WAGE SCALE

Recommended by the Impartial Wage Board, June 18, 1936. Effective July 1, 1936

This scale is based on an eight-hour day and is to be considered as a minimum and employees of superior skill and craft knowledge may be paid in excess of the amounts set forth herein. This scale applies only to work on buildings and does not include inside or shop workers.

CRAFT	Journeymen Mechanics
Asbestos Workers	$ 8.00
Bricklayers	12.00
Bricklayers' Hodcarriers	8.00
Cabinet Workers (Outside)	9.00
Carpenters	9.00
Cement Finishers	9.00
Cork Insulation Workers	9.00
Electrical Workers	10.00
Electrical Fixture Hangers	8.00
Elevator Constructors	10.00
Engineers, Portable and Hoisting	9.00
Glass Workers (all classifications)	B.50
Hardwood Floormen	9.00
Housesmiths, Architectural Iron (outside)	9.00
Housesmiths, Reinforced Concrete, or Rodmen	9.00
Iron Workers (Bridge and Structural)	11.00
Iron Workers (Hoisting Engineers)	11.00
Laborers (six-day week)	$ 5.50
Lathers, Channel Iron	10.00
Lathers, all others	9.00
Marble Setters	10.00
Millwrights	9.00
Mosaic and Terrazzo Workers (outside)	9.00
Painters	9.00
Painters, Varnishers and Polishers (outside)	9.00
Pile Drivers and Wharf Builders	9.00
Pile Drivers Engineers	10.00
Plasterers	12.00
Plasterers' Hodcarriers	8.00
Plumbers	10.00
Roofers (all classifications)	B.00
Sheet Metal Workers	9.00
Sprinkler Fitters	10.00
Steam Fitters	10.00
Stair Builders	9.00
Stone Cutters, Soft and Granite	9.00
Stone Setters, Soft and Granite	12.00
Stone Derrickmen	9.00
Tile Setters	10.00
Tile, Cork and Rubber	9.00
Welders, Structural Steel Frame on Buildings	11.00
Welders, All Others on Buildings	9.00
Dump Truck Drivers, 2 yards or less	6.00
Dump Truck Drivers, 3 yards	6.50
Dump Truck Drivers, 4 yards	7.00
Dump Truck Drivers, 5 yards	7.00
Dump Truck Drivers, 6 yards	7.50
Truck Drivers of Concrete Mixer Trucks:	
2 yards or less	6.50
3 yards	7.00
4 yards	7.50
5 yards	7.50
6 yards	8.00

GENERAL WORKING CONDITIONS

1. Eight hours should constitute a day's work for all crafts, except as otherwise noted.
2. Where less than eight hours are worked pro rata rates for such shorter period should be paid.
3. Plasterers' Hodcarriers, Bricklayers' Hodcarriers, Roofers' Laborers and Engineers, Portable and Hoisting, shall start 15 minutes before other workmen, both at morning and at noon.
4. Five days, consisting of not more than eight hours a day, on Monday to Friday, inclusive, should constitute a week's work, except for building laborers.
5. The wages set forth herein should be considered as net wages.
6. Except as noted the above rates of pay apply only to work performed at the job site.
7. Transportation costs except for intra-city fares should be paid by contractor.
8. Traveling time in excess of one hour each way should be paid for at straight time rates.
9. Overtime should be paid as follows: For the first four hours after the first eight hours, time and one-half. All time thereafter should be paid double time. Saturdays (except for Laborers), Sundays and Holidays from 12 midnight of the preceding day, should be paid double time. Irrespective of starting time, overtime for Cement Finishers should not commence until after eight hours of work, except that after 12 midnight overtime for cement finishers should be paid at the rate of time and one-half for the first four hours and double time thereafter. Shift work for cement workers should be subject to the provisions of paragraph 11.
10. On Saturday Laborers should be paid straight time up to eight hours. Overtime rates should be paid as specified in paragraph 9.
11. Where two shifts are worked in any twenty-four hours, shift time should be straight time. Where three shifts are worked, eight hours' pay should be paid for seven hours on the second and third shifts.
12. All work, except as noted in paragraph 13, should be performed between the hours of 8 A. M. and 5 P. M.
13. In emergencies, or where premises cannot be vacated until the close of business, men then reporting for work should work at straight time. Any work performed on such jobs after midnight should be paid time and one-half up to four hours of overtime and double time thereafter.
14. Recognized holidays to be: New Year's Day, Decoration Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Christmas Day.
15. Men ordered to report for work, for whom no employment is provided should be entitled to two hours' pay.
16. This award should be effective in the City and County of San Francisco.

ture, the last hundred years represent the lowest point yet reached by humanity.

The factory and the rows of small houses illustrate, between them, a curious inconsistency in our modern way of living.

While production has become increasingly communal, and is no longer, in its important branches, a matter for the single handicraftsman, our general outlook has become more and more individualistic. In the factory there is social life, which has produced the trade unions; but at home each family desires isolation. "I keep myself to myself," the women say. This feeling makes them endure, and even prefer, the separate little house, the separate little kitchen, the separate drudgery at house work, the separate care of children while they are not at school.

This type of architecture is connected with the status of women. In spite of feminism, the position of wives, especially in the working class, is not much changed from what it was. The wife still depends upon her husband's earnings, and does not receive wages although she works hard. Being professionally a housekeeper, she wants to have a house to keep. The desire to have scope for personal initiative, which is common to most human beings, has no outlet except in the home. The husband, on his side, enjoys the feeling that his wife works for him; moreover, his wife and his house provide more satisfaction for his instinct of property than would be possible with any different type of architecture.

All this would be changed if a woman's livelihood were not earned by the profession of wife and mother, but by some ordinary paid occupation. Already in the "middle class" there are enough wives who earn their living outside the home, to produce, in big towns, some approach to what their circumstances make desirable. If a woman has to work outside the home, she cannot cook or mind the children during the day; this requires communal kitchens and nursery schools. This, in turn, demands a type of architecture quite different from the sprawling streets of little villas that constitute an English or American suburb.

In the Middle Ages, communities of celibates produced a type of architecture which was satisfying and esthetically delightful. In England, monasteries and abbeys survive mainly as ruins to please tourists, but colleges, as Oxford and Cambridge, are still part of the national life, and retain the beauty of medieval communalism. In relation to the general population, the problem is to secure the same communal advantages without celibacy. This problem will not be solved until most women earn their living outside the home. But when this economic change has been secured, certain important and highly desirable architectural changes will become possible, and indeed almost inevitable.

Robert Owen, more than a hundred years ago, incurred much ridicule for his "cooperative parallelograms," which were an attempt to secure for wage earners the advantages of collegiate life. Although he was perhaps premature in this suggestion, it has since

come nearer and nearer to what is practicable and desirable.

If I were dictator of town planning, I should pull down the squalid streets of separate houses, and substitute high blocks of buildings round three sides of a square, open to the sun, with a communal kitchen, a spacious dining hall, another hall for amusements or meetings, and a nursery school in the center, which should be in the open air except during the bad weather.

The advantages of such a system of architecture would be many. To begin with the children: they would have wholesome food, provided in the nursery school according to the best principles of diet; they would have the companionship of children of their own age; they would have far more liberty of movement than is possible in a tiny home of the usual sort where grown-up work has to be carried on.

Rickets, now appallingly common, would disappear; the children would be freed from the nagging of an overworked mother; and their mental and physical development would be promoted by the freedom of the nursery school.

For women, the advantages would be quite as great. As soon as their children were weaned, they would be able to hand them over throughout the day to women specially trained in the care of young children. They would not have the business of buying food, cooking it, and washing up. They would, like their husbands, have hours of work and hours of leisure, instead of being always busy. They would see their children in the mornings and evenings, long enough for affection but not long enough for frayed nerves. And even the most affectionate adult is bound to find children trying on the nerves if there is never a moment's rest from their clamorous demands for attention.

Finally, for men and women equally, there would be an escape from the confinement of small rooms and sordidness into large public rooms, which might be as architecturally splendid as college halls. Beauty and space need no longer be the prerogative of the rich. There would be an end to the irritation that comes from being cooped up in too close quarters, a situation that too often makes family life intolerable.

Communal life decayed during the Nineteenth Century with the decay of institutions that had produced its traditional forms. But no community can remain healthy without communal life; and it must be the task of the immediate future to build up new forms more in harmony with the age.

And in building up these forms, architecture must play an essential part.

SWIMMING POOL AND BATHHOUSE

The Paso Tiempo Country Club is building a concrete swimming pool and bathhouse on its property near Santa Cruz. John E. Fennacy of Oakland is the architect.

HAWS SANITARY DRINKING FOUNTAINS

The new catalog of the Haws Drinking Faucet Company is being distributed to architects, engineers and the plumbing trade. As usual the catalog is an attractive piece of typography, profusely illustrated and conveniently indexed. Haws sanitary drinking fountains have been manufactured since 1909. The fixtures may be found in practically every city and town on the Pacific Coast, in use by state, county, municipal and town governments. The company manufactures all types of fixtures for all types of buildings, including public and private, also playgrounds, parks, theaters and wherever people congregate. A number of good looking, modern designs are pictured in the latest catalog, a copy of which will be mailed to any address upon request. The catalog is A.I.A. File size.

BANK ALTERATIONS

Plans have been completed for a one-story reinforced concrete addition to the California Pacific Title & Trust Company's building in Redwood City, estimated to cost $30,000. The architect, E. L. Norberg of Burlingame.

GOING TO EUROPE

William W. Wurster, architect of San Francisco, leaves shortly for a six weeks' trip abroad.

AMENDMENTS TO CONTRACTORS' ACT

Governor Frank F. Merriam of California has signed Senate Bill 240, by Senator DeLap, amending the Contractors' License Law, thus assuring the construction industry and the public of a materially strengthened act to become effective August 27 of this year.

The bill, sponsored by practically every contractors' organization in the state of California not only adds teeth to the present punitive provisions of the law, but also definitely allows the State License Board to prequalify future applicants within reasonable bounds.

The $200.00 exemption clause is reduced to $100.00 which will bring within the act many contractors and subcontractors, who have hitherto successfully avoided registration by only taking jobs under $200.00, and refusing to work where other construction was also in progress.

The present agricultural clause, exempting licensees from the jurisdiction of the Registrar upon the construction of farm houses or upon any other type of work incidental to agriculture or horticulture is almost eliminated. Farmers may still undertake contracts for each other, but a licensee who undertakes an agricultural job may lose his license for any violation of the License Law on that project. An attempt to entirely eliminate the agricultural exemption resulted in this compromise with agricultural factions who desire the protection of the License Law but do not wish to be required to become licensed because of the interchange of work in slack seasons.

Prequalification of new applicants by the Board is provided by an amendment which now allows the Board to require applicants to have a reasonable amount of experience and a general or basic knowledge of the building, safety, health, and lien laws of the State. In addition, the Board will require applicants to show knowledge of the "rudimentary administrative principles" of the contracting business.

Provision is made for the issuance of licenses to persons who are not possessed of experience by allowing them to have their construction work directed by an individual who has qualified as to experience.

All applicants must, as in the past, prove the possession of good character. Lack of good character may be established by proving that the applicant has previously done some act which would have been grounds for suspension or revocation of a license, or that the applicant had done some dishonest, fraudulent or deceitful act causing injury to another, or that the applicant bears a bad reputation for honesty and integrity.

The grounds for action leading to suspension or revocation of licenses are also extended by the amendments. Heretofore if the Registrar found a licensee failing to operate in the "exact" name in which his license was issued, the Registrar was forced to declare such contractor a fraudulent operator and to immediately revoke his license. Such acts are now the basis for a complaint and the Registrar has the discretion of

either suspending or revoking the contractor's license for failure to use his name as shown upon the license, and then only after a hearing at which the licensee may appear in his own behalf.

Contractors knowingly entering into contracts with unlicensed operators will henceforth be subject to suspension by the Registrar; and the licensee who causes a material injury because of illegal and wilful failure or refusal to prosecute his contracts with reasonable diligence may be made a defendant before the Registrar.

Licensees deliberately failing or refusing to pay other contractors, employees or material men for the purpose of forcing a discount may also be brought before the Registrar. A charge of this nature must show that the licensee had the capacity to pay, and that he knew the obligation was just, but that he nevertheless refused to settle the account.

Commenting upon the amendments Registrar Earl S. Anderson states, "these amendments to the License Law place it far in advance of any similar legislation in the United States. The development of the License Law in California has been consistent and has been successful because it was administered in a reasonable, human fashion. Education of the industry and the public has been carried on as a necessary part of our work."

STEEL INDUSTRY PROSPEROUS

The fabricated structural steel industry in the United States has a capacity to meet promptly a much larger demand for its output than is at present being experienced. This condition is probably greatly different from that which exists in Europe, as was accented in the reports read at the opening meeting of the Sixth International Conference on Steel Development. The report from the United States was sent by the American Institute of Steel Construction, under the signature of V. G. Iden, secretary.

The Conference drew representatives from England, France, Germany, Holland, the United States and other steel producing countries of the world. The opening session was held in Dusseldorf, Germany.

The report of the American Institute of Steel Construction follows:

"Coincident with the announcement of the Government of the United States that it will exercise greater economy and greatly curtail expenditures for public works, the structural steel industry is facing a decided improvement in volume of business. This is further proof of the fact that governmental expenditures on made work have failed to demonstrate the practicability of effecting business recovery through extravagant use of the tax machine.

"The volume of business of this industry during the past year has approximated 57 per cent of normal (normal being the average annual volume for the years 1928 to 1931 inclusive). The shipments of our industry during the first three months of 1937 were 19 per cent larger than the shipments for the same three months of 1936, while the bookings for these same three months were 9 per cent larger than the bookings of the same period last year. The apparent hesitancy on future business results from buyers' apprehensions over prices which have been advancing constantly in recent months.

"During 1936 the structural steel fabricating industry produced over 1,600,000 tons of fabricated struc-

tural steel. Thirty-seven per cent of the total went into bridges, including railway as well as highway bridges. Twenty-five per cent went into buildings—governmental, institutional and commercial. A little better than 22 per cent went into the erection of new industrial plants. The year 1936 was very active in that direction.

"Only about 3 per cent of the fabricated structural steel sold in 1936 is known to have gone into engineering projects. The remainder, approximately 13 per cent, constituted those odd jobs, all under fifty tons each, that are difficult to classify. In that miscellaneous group are grade crossing projects, repairs and extensions to plants, etc.

"From the point of view of the industry the past year may be considered very happy. It showed a decided revival of business, insofar as volume is concerned. It also showed that the market for our product is not dependent upon public work appropriations. Bridge building is primarily a local problem. And bridge building is indicative of the trend of the traffic problem. It has grown to dominating importance within the past decade. We have reasons to expect that it will become of even greater importance in the next few years ahead.

"Our Institute has now completed its test on the effect of wind on tall buildings which has been in progress during recent years. We have dismantled our equipment used in this work on the Empire State Building at New York City. The test results, covering wind velocities, wind direction, negative and positive pressures recorded on the 33rd, 55th and 75th floors, sway of the tower and wind stresses in tower columns and girders, have been studied and a paper on this will probably be published this fall.

"The Institute also has been interested in promoting a study of the stress distribution in rigid frame knees. This study has progressed to the point where preliminary investigations of two test specimens, one with the angular knee and the other with the curved knee, have been completed."

THE LOW COST HOME PROBLEM

Writing in the Southwest Builder and Contractor on the complexity of low-cost homes, George Herz, a contractor of San Bernardino, lists the following fifteen items as essential to the solution of the small house plan:

1. Unit floor and structure plans in numerical sets. Exact duplication avoided by varied architectural ornamentation and colors. This demands concentrated architectural effort.

2. Mill-built unit cabinets. No changes for each floor plan, except colors. This applies to kitchen cabinets, and bedroom and linen closets.

3. Heating, refrigeration and cooking units alike, either electric or gas. Concentration of piping and outlets.

4. Minimum floor space and permanent fireproof construction favored, rather than construction with future high maintenance costs.

5. The elimination of a dining room by proper planning for occasional use of the living room for this purpose.

6. The specialization and promotion of the furnishing of the living room to plan the davenport as an emergency bed and a library table as an emergency dining room table. Dinette chairs should be planned so as to harmonize with the living room chairs in case of emergency.

7. Floor plans simplified to straight lines throughout as far as possible.

8. Furniture manufacturers to concentrate on salvaging a portion of the lost storage space under beds, tables, chairs and other pieces of furniture.

9. Elimination of all useless casings, mouldings and frills on exterior walls.

10. Concentration and education on proper building of concrete floors on the ground to receive hardwood floors, carpet, linoleum, or other finishes. This appears of prime importance, because of the termite hazard and since it is more economical. Further research as to methods to insure against dampness and dry rot seems in order.

11. Simplification of electric fixtures.

12. The use of portable heating units in some rooms with proper recesses provided therefor.

13. Explicit prior color schedule for painter throughout.

14. A rectangular building, with the large side facing the street, while slightly more costly than a square building, provides more opportunity for architectural variations. Thus it would appear that the closest to a rectangle would be most acceptable. Most lots are much deeper than they are wide and, therefore, a rectangular building with the narrow way running the depth of the lot offers more possibilities for future additions.

FIGURES CANNOT LIE

Figures cannot lie but they can tell an implausible story. When the point of the story carries an implication that in the building of a small house, neither an architect nor a building contractor is necessary, perhaps the figures should be analyzed.

A recent issue of the Saturday Evening Post carries an article entitled "The House That Very Little Jack Built." It does not suggest that the general public would do well to follow the example set, but as the architect and the contractor were deliberately thrown out of the picture, perhaps an architect should be privileged to comment.

The author describes the house as having a living room 27 by 17 feet, a bedroom and study, each 15 by 18 feet, two baths each 6 by 10 feet, a kitchen, a garage, servant's quarters and a studio room, all of which would make a house of at least 22,000 cubic feet. Now the author carefully avoided showing the floor plans of the finished house, but states that the frontage is 65 feet, and as the illustrations show two projecting wings apparently not over 25 feet long within the frontage of 65 feet, it is perhaps safe to assume that the contents of the completed house is not over 18,000 cubic feet.

The house is in Florida, of one story, with no cellar and no heating plant and the cost is given as $4,100, which would give a per cubic foot cost of $.23. But the author states that she and her husband and son built the house with their own hands —with a little assistance from non-union laborers. Let us assume that the house took three months to build and

that the author and her husband feel that their time is worth $50 per week, while that of their 19-year-old son is worth $25 per week. This will add another $1,600 to the cost, bringing it up to $5,700 or $.32 per cubic foot. And the house doesn't look so cheap.

The author mentions several conditions which made the cost of materials ridiculously low, conditions which would not be found normally once in a blue moon—the fact that the building blocks could be delivered at the site by barge, that the Royal Ponciana Hotel was being torn down and the plumbing fixtures for three bathrooms could be purchased for $65, and that from the same second hand source, all the woodwork, doors, windows, etc., were secured. She also states that all labor was non-union and that the unskilled labor received a dollar a day.

Now it is stated that the author refused an offer of $15,000 for her $4,000 house (or rather $5,000, because the lot really should be included). She is certainly to be congratulated and from the illustrations the author has charm and the house a beautiful setting in a grove of coconut, fish-tail and Washingtonia palms, on the East Coast Canal, but for the casual reader to duplicate her feat it would be necessary to engage the services of the author, her husband and her son for three months without pay, find a plot on a river canal for $1,000, a large hotel being torn down in the immediate vicinity and labor at a dollar a day, not to mention a few other things such as a draftsman to draw the plans for $10. Given these circumstances, an architect and builder can be dispensed with, but no doubt, with serious damage to the outcome.—The Blue Print.

DINING ROOM COLORS

Restful and dignified, the dining-room decoration unfolds many different color schemes for walls and furnishings. It is a response to more home entertaining. This leads to dining-living rooms, alcoves, breakfast rooms. An effect of larger size comes with walls and trim light, floor and baseboard

dark, 18 inches to two feet space around rug, unity of color between walls and furniture. Leather chair seats may carry wall shade. In another scheme, blue chair seats echo trim of doors and window frames, baseboard and cornice molding, with deep blue of floor almost black, rugs of light cream-tan beige. If floor is not covered, it should never be light, whether painted, stained or varnished. Effective are dark green, red and terra cotta. Old time spatter goes well with colonial hooked rugs and maple furniture. Fireplace is set off nicely by a light wall, individually different. Dark schemes generally are not cheerful enough for dining rooms.—National Painters' Magazine.

WALLBOARD JOINT CRACKS

Crack-proof interior walls with invisible panel-to-panel joints are possible with wallboard of all kinds, including plywood, by the use of special self-bonding, quick-setting waterproof glue. Fir plywood strips, three-ply, one-quarter-inch thick, 2½ inches wide, four feet long, are nailed to 2x4 studding and panels are glued to the strips, thus providing a smooth bed for the glue joints and also the vital feature of a reinforced panel joint, so any shrinkage which develops in the studding is not transmitted to the joint, as is always the case with merely nailed joints. The grain on the faces of the strips is at right angles to their their length. When installed, outside plies are crosswise of studs, which are left free to expand and contract on the nails without affecting glued joints, of which the strips are an integral part. The glue joint remains secure of its great strength, waterproofness and non-shrinkable construction. Small finishing nails hold the wallboard in place, as only good contact is required with the special glue, panels being glued both to strips and edge-glued to each other. Headers, 2x4, between studding, four feet above floor, make good backing for wallboard and stiffen wall.—Building Supply News.

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*ELECTRIC APPLIANCES, Inc., 2001 Van Ness Avenue, San Francisco.
*ALADDIN HEATING Corporation, 5107 Broadway, Oakland.
*FRANK EDWARDS Co. (General Electric), 930 Van Ness Avenue, San Francisco.

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*INTERNATIONAL BUSINESS Machines Corp., 25 Battery Street, San Francisco.

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A Frank Lloyd Wright House at Palo Alto

California's Twin Administrative Buildings, Sacramento

Development of Mountain View Memorial Park

Trussless Roof for School Auditorium, San Mateo

California State Housing Act Amendments

AUGUST

1937

Residence of Mr. and Mrs. Vernon Ball, Creston Road, Berkeley. Edwin Lewis Snyder, Architect; J. M. Walker, Builder.

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THE ARCHITECT & ENGINEER

August ·· 1937

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THE ARCHITECT AND ENGINEER, INC., 68 Post Street, San Francisco, EXbrook 7182. President, K. P. Kierulff; vice-president, Frederick W. Jones; secretary, L. B. Penhorwood. Los Angeles office, 832 W. Fifth Street. Chicago representative, Harry B. Boardman, 123 West Madison Street, Chicago, Ill. Published on the 12th of each month. Entered as second class matter, November 2, 1905, at the Postoffice at San Francisco, California, under the Act of March 3, 1897. Subscriptions, United States and Pan America, $3.00 a year; Foreign countries, $5.00 a year; single copy, $.50.

Notes and Comments

THE metropolitan newspapers in the Bay Region made liberal reference to our July comments on the building situation. The public in general is agreed that the time has arrived to cease building until prices are right. It is gratifying to note that the building industry has taken cognizance of the situation, is helping to bring about a return to normalcy, and a stabilization of prices. The public is still in a building mood and when convinced that the peak has been reached, there will undoubtedly be a resumption of building.

The following comments by R. W. Jimerson, financial editor of The San Francisco Examiner, date of July 10th, are timely:

Since the first of the year little has been said about the "building boom" which, supposedly, was just around the corner. Building permits have slumped throughout the United States, including the Pacific Coast, and it has become obvious that the construction industry faces another serious slump unless corrections are made.

In an effort to learn what is wrong, Editor Fred W. Jones of The Architect and Engineer (San Francisco) sent a questionnaire to a number of California architects whose work is mainly residential.

Replies show architects are unanimous in believing that if the building industry is to escape another serious depression, there should be no further rise in prices of building materials, and that the trades should hesitate before making further demands for higher wages.

Practically 100 per cent of the answers showed residence work as having dropped off 50 to 70 per cent since April. The small house field would appear to be the hardest hit, but expensive homes also are being delayed.

Speculative building is being continued on a relatively large scale, it was learned. Building by prospective owners, however, unquestionably has been blocked. As building money is available in greater volume and on easier terms than at any time in decades, the obstacle—as the architects conclude—must be the price of labor and materials.

John S. Piper, financial editor of the San Francisco News, in his well written column, "Finance and Industry," commented as follows:

Is a building slump in the offing? The Architect and Engineer, a trade journal published in San Francisco, edited by F. W. Jones, believes that it already has started. A leading article in the current issue attributes the decline to high prices and labor disputes.

It undoubtedly is true that within the last few months there has been a rather sharp reaction to the strong upward trend which began at the bottom of the depression after many years of abnormally low building operations.

The question is: Will the present slump prove temporary and merely an unimportant incident in a general cyclical building recovery movement, or will it become so significant that it will mark the actual beginning of a long-term downswing?

While the situation at the moment appears far from reassuring, the chances are that the recession of the last two or three months will develop into nothing but a moderate shortlived setback, and that within a relatively short time progress will be resumed.

Building costs, both material and labor, did rise too rapidly in the late winter and spring. But, with the general inflationary trend still prevalent, eventually other costs and prices will catch up with the advance in building costs.

The laws of economics in time prove themselves. It is an economic fact that America is far behind in building. The slump began two years before the 1929 stock market crash. For almost 10 years the normal replacement program has been below normal. Another factor is population growth. Each year there should be more houses to provide shelter for the increase in population.

During the depression families doubled up. Children married, but lived with their parents and parents-in-law. With recovery, they naturally have begun to plan their own homes.

The rise in labor costs has had its effect on building operations. A house which might have been constructed for $5000 a year ago would cost $7000 today. It will take time for the prospective builder to become accustomed to the higher price.

The time will come, however, when he can wait no longer. His own income probably will increase to a point where he will think no more of spending $7000 than he would have spent $5000 in 1936.

* * *

Some infants have a way of being born, doing a bit of crying, eating, growing, and going to school, then suddenly appearing in long trousers or skirts—completely grown up.

So it is with the trailer. Hardly had we become aware of it before this prodigious and precocious infant has come of age. It seems incredible—250,000 families rolling in tiny homes hitched on behind their motor cars. What will happen if a considerable portion of the country's population turns gypsy? How can their equitable share of taxes be collected? How can their children be educated? Should communities provide trailer camps? What control should there be over the sanitation and social relations of camps, whether private or public?

* * *

Being low bidder is sometimes cause of grief for a contractor but not in the way it turned out for one as reported in a news dispatch from Helena, Montana. The State of Montana has filed suit in the district court there, according to the dispatch, against the Inland Construction Company of Omaha, and the United States Guaranty Company, for $42,875, charging breach of contract. In the complaint filed it is alleged a contract was let to the construction company for an earth fill dam on Rock Creek in Western Montana on its bid of $231,945, which the company refused to accept. The contract was relet by the state to another firm for $264,223, which amount was $32,278 higher than the bid of the Inland Construction Company. Recovery of the difference in the bids is sought from the latter firm; also $11,579 from the bonding company, which, the complaint alleges, is liable for five per cent of the amount of the contract on a bid bond.

(Please turn to Page 73)

A FRANK LLOYD WRIGHT HOUSE
at Palo Alto, California
DESIGNED TO RESIST EARTHQUAKES

SOME OUTSTANDING FEATURES . . . all rooms sans square angles . . . furniture to be made on the premises . . . all copper roof . . . aluminum foil used to temper heat radiation . . . top of bath tubs are level with floor . . . parts of house built around trees . . . floors concrete marked into 30 inch hexagons.

OCCUPYING a commanding site on the rolling hills back of the Stanford University campus, Palo Alto, a new house has reached the roughing-in stage—a house unique in design and construction—a house that promises to excite more than average interest and comment upon completion. Reported in the center of the San Andreas earthquake fault, the dwelling is built to withstand the most severe seismic disturbance. The whole house is sans square angles. Most of the furniture will be made on the premises.

The materials used in the construction are brick, concrete, wood, copper, glass. The roof is entirely of copper. Under it aluminum foil has been laid to temper heat radiation. The front, sides and rear will be glassed in from ground level to roof line. A brick wall, extending along the front of the house, gives architectural character to the structure as does a very wide brick chimney which rises from the main living room to the equivalent of another story above the roof line.

All of the rooms are on the ground floor. The floors are pink concrete, marked off into 30-inch hexigons. Besides an immense living room, laboratory, sanctum, there is a master bedroom, rooms for the two sons and a daughter, guest room, servants' quarters and garage. Baths and flower receptacles are level with the floor. Several lovely oak trees are left as nature intended they should be, with portions of the house built around them. Near the house, visible from the street, is a sign, neatly printed, which reads:

The Architect
FRANK LLOYD WRIGHT
and
Harold P. Turner,
Builder.

The owners of the dwelling are Mr. and Mrs. Paul R. Hanna of Palo Alto. Mr. Hanna is a professor in Stanford University. Our readers will have more of this house later.

Two views of house taken from the front

Note roof built around tree

Bedrooms and owner's study face this patio

WINS PRIZE FOR BEST USE OF GLASS IN INDUSTRIAL PLANT

DE SOTO AUTOMOBILE FACTORY, DETROIT — Albert Kahn, Inc., Architects

First prize medal for the best executed example of the use of glass in industrial buildings during the past year has just been awarded Albert Kahn, Inc., of Detroit, for architectural work on the press plant of the new De Soto automobile factory. More than 650 entries were submitted. Above is a picture showing the rear of the building. Nearly 40,000 panes of glass, used in the building, provide daylight conditions for workmen.

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PULSE OF THE READER

Signs of Stabilization of Prices Already in Sight

Mr. Editor:

That was a good thing you did in sending architects a questionnaire on the building situation. Already there are signs of stabilization in prices. We don't want another slump in building construction. The fact that the leading newspapers commented liberally on your article proved you were justified in drawing attention to conditions.

EDWIN L. SNYDER, Architect
Berkeley, July 15, 1937.

Most Important Medium for Reaching Architects, Engineers

Mr. Editor:

If there is anything we can do to make **The Architect and Engineer** a more successful magazine, don't hesitate to let us know. Needless to say, we consider the advertising we are doing in it our most important medium to reach architects and engineers.

Yours very truly,
PORTLAND CEMENT ASSN.
J. E. Jellick
San Francisco, June 23, 1937.

H. Roy Kelley Architecture Meets with Texan Favor

Mr. Editor:

May thanks to you for the favor of showing my work as a "trend" in Texas, but as a matter of fact your own H. Roy Kelley is the most potent force in the Texas movement away from ugly building.

Texans, especially the southern ones, are unfriendly to everything Mexican. They remember the Alamo and are generous in the praise of the Aryan.

Ayers, Smith and Waters have done some very good Spanish and Mexican type work, but it remained for someone in San Antonio very recently to introduce H. Roy Kelley's California Monterey—whereupon it caught like the measles and is spreading like the black plague.

So Kelley, even though he may not know it, is the Vitrivous of Texas.

The Fascist pack box has made very little impression to date and may, as the brown derby, remain an oddity of another world.

Enclosed find $1.00 for two additional copies of July.

I am agreed with your notes by Philip Dana Orcutt and Harvey W. Corbett and if it will please William Wurster, suggest that there be more material from the offices of Reginald D. Johnson, Templeton Johnson, Winslow, H. Roy Kelley, etc., and less from the disciples of Mussolini.

Yours very truly,
L. S. SANDERSON.
Laredo, Texas, July 14, 1937.

Los Angeles Hotel Manager Proud of Architect & Engineer

Mr. Editor:

The June issue of The Architect and Engineer is something that we are very proud of, and consider it one of the best displays of our new Pueblo we have seen.

Sincerely yours,
CHAPMAN PARK HOTEL
J. J. Crouch
Los Angeles, July 6, 1937.

Work in Architect's Office Progresses Despite High Prices

Mr. Editor:

In reply to your questions, I don't believe that I have noticed a great deal of curtailment of residential work in my office due to the rise in building costs. However, I understand there has been a considerable curtailment in the small house field, and I also understand that plans on some of the larger houses have been stopped, but the work in my office, such as it is, seems to be progressing in spite of the higher costs.

Yours very truly,
GORDON B. KAUFMANN
Los Angeles, June 28, 1937.

Likes Our New Cover Roasts Eastern Magazines

Mr. Editor:

At last you have a dignified, modern cover . . . in pleasing contrast to the awful jumble of curves and letters appearing on the covers of some of the Eastern architectural magazines.

SUBSCRIBER
San Francisco, July 10, 1937.

Valuable Publication and Outstanding Generosity

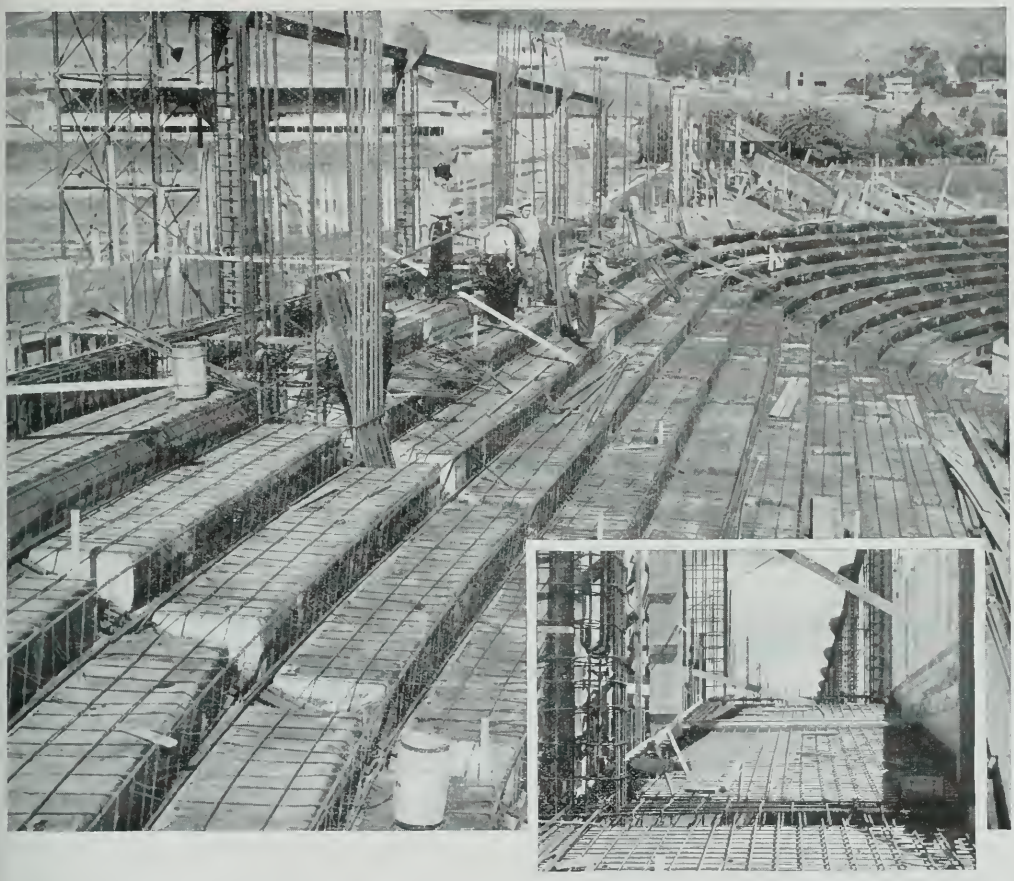
Dear Editor:

Attached is a story on the meeting of the Structural Engineers Association of Northern California last Tuesday night, July 6th, which you may use in your valuable publication, The Architect and Engineer.

Thank you for your outstanding generosity to the Structural Engineers.

WILLIAM H. POPERT.

Sinew of concrete structures throughout the West



THE Live Stock Exposition Building, now under construction at Visitacion Valley, is but one of many structures on the Coast in which Bethlehem Reinforcing Bars are used. Others are the Bonneville Dam, the anchor blocks of the Golden Gate Bridge and conduits of the Metropolitan Water District Aqueduct.

Rolled from new-billet steel, Bethlehem Reinforcing Bars have excellent concreting qualities. They have uniform, evenly-spaced deformations and are furnished plain, deformed or special, in squares or rounds. Large stocks are constantly maintained, assuring the prompt shipments essential to keeping work on schedule.

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Ingle & Trippett Building, San Diego
Earl F. Giberson, Architect

Walter Trepte, General Contractor
Installation by **Fritz Barthel**

CERAMIC

VENEER

MAURICE LANFRE PHOTOGRAPHS

Ceramic Veneer again demonstrates its adaptability in the remodeling of out-of-date buildings. The Architect for the Ingle & Trippett Building, taking full advantage of the flexibility of Ceramic Veneer, combined this material with glass block to secure a truly effective and modern design, replacing the building pictured below.

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BUILDING TRENDS

Second-Hand Brick a Menace

Faults in mortar are not the only cause of leaky walls. A heavy toll must be laid to second-hand bricks according to E. F. Gallagher in Brick & Clay Record. Many arguments have been advanced to show constructional advantages of old, weathered bricks against new ones. Some are good but many are bad. Fundamentally, the brick with the greatest bond with mortar is most likely to build walls which do not leak. Researches prove that second-hand brick do not average more than half the bond strength of new brick. Many old ones are covered with a thin layer of old mortar, even after thorough cleaning. As cleaning is expensive, and old brick are used on account of cheapness, most old brick are cleaned very poorly and carry more foreign material to interfere with strong bonding, the pores being filled with air-borne dirt, dust, soot, oil.

Strong, well-placed mortar which does not make hair cracks to let moisture penetrate, may still leave plenty of room where the bond with the old brick pulls apart. This menace of second-hand brick concerns only leaky walls and their possible effect on weakening foundations, or causing interior damage. Much more may be said about loss of load value and structural inadequacies.

Store Modernization

Analysis surveys of 8,000 stores in 43 representative cities by U. S. Department of Commerce show more than 50% in need of modernization. Fronts are generally unsatisfactory, when viewed from current standards. Remodeling, repainting and refinishing seem first considerations with much replacement of signs. Inside requirements stress better lighting, painting or repairing of walls and ceilings. Washrooms are ignored by 18% of all stores, most of the others being well behind up-to-date ideas of such conveniences. Mechanical refrigeration appears in 75% of grocery and drug stores, 61% of restaurants. Electric signs have not found place on 34% of the stores. Inadequate inside lighting is recorded for 29%. Apparel stores appear better than most others from the modernized aspect, yet nearly one-third are below average, 25% needing general rehabilitation, 20% suffering from bad floors, 12% having no washrooms. Drug stores lead in adopting electric or neon outdoor signs, but 20% are backward. Restaurants come next with new outside lighting.—American Builder.

Fireproof Awnings

Asbestos awnings are in use, but the material has not been perfected to a condition making it satisfactorily applicable to all types of buildings. The loose weave of real asbestos cloth permits water to seep through, such awnings being very far from waterproof, although in-

combustible. Any method of waterproofing seems to subtract from the fire-resisting quality, some even becoming almost useless from this aspect where the waterproofing is done with a paint formula. Real asbestos material is still too costly to come into competition with duck. Some fireproof awnings are made of chemically-treated fabric coated with paint. In single sheets for open awnings, it does not burn or propagate flame beyond the area exposed to the source of ignition. Hanging in folds, it is diffiult to ignite.—Condensed from Asbestos in Real Estate and Building Management.

Cleaning Marble

Ordinary soap and water will not clean marble, according to a writer in the Hotel Bulletin. The best solution for tne cleansing seems to be one ounce of oxalic acid dissolved in one quart of water. This should be brushed on the soiled surface and allowed to stand for two minutes then rinsed off with clear water. If discolorations are pronounced, or deep, it may be necessary to repeat the process. Before the marble has been stained, discoloration may be prevented by coating it with a solution of white beeswax in turpentine.

Wrap Me Up a House

Many a manufacturer has watched his sales jump when he was able to describe his product with those magic words, "Wrapped in Cellophane." Leavitt & Sons, New York builders, thought they'd try it with one of their model houses. So they wrapped a complete residence on Long Island in cellophane, put a 12-foot zipper in the front over the door. It turned out to be a grand promotion. Several thousand prospective home-owners turned out to see the zipper opening, and the cellophane-covered house is still pulling crowds.—Business Week.

Electric Eye Guards Homes

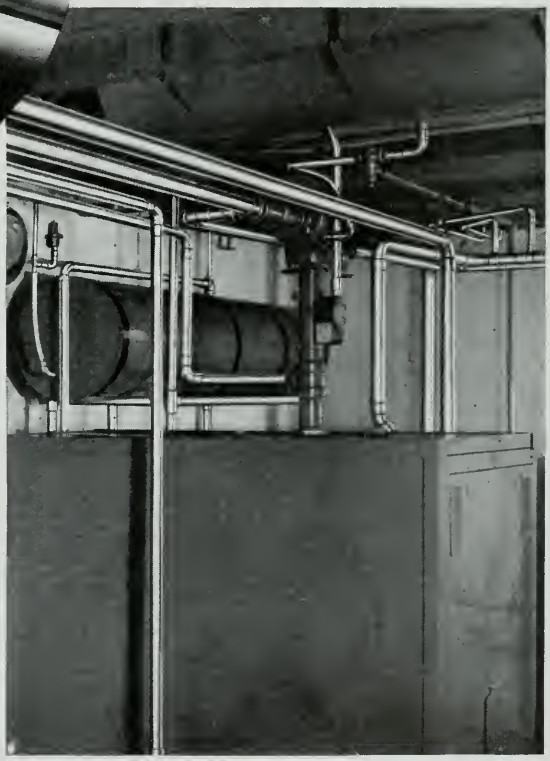
The electric eye has acquired a new function. It's a watch dog now. G. E. has perfected it to the point where it can be installed in your house, or apartment, making a protective network of spying eyes which raise the devil if anyone comes near them. As soon as someone steps into the protected area, the eyes start winking and before you can say "scat" they have set a gong to ringing or a siren to screaming and here come the police.

At the G. E. demonstration, though, the eyes were even more subtle. When someone crossed their beams, they quickly cleared a telephone line, dialed police headquarters, snapped on a record which called for help, "hung up" after a minute and a half and called the telephone company, where the call for help was repeated, and, just to be on the safe side, checked on the first call.—Tide.

Four Important Advantages

of Copper Tubes for heating lines

Anaconda Copper Tubes and Fittings offer far better value than rustable piping for hot water heating systems, particularly of the forced circulation type; also for low-pressure steam installations and for oil burner lines.



1. Copper Tubes reduce resistance to flow. Smooth interior surfaces permit 10% to 15% greater velocity of circulation with the same head.
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STATE BUILDING FOR MOTOR VEHICLE DEPARTMENT
SACRAMENTO, CALIFORNIA
GEO. B. McDOUGALL, STATE ARCHITECT

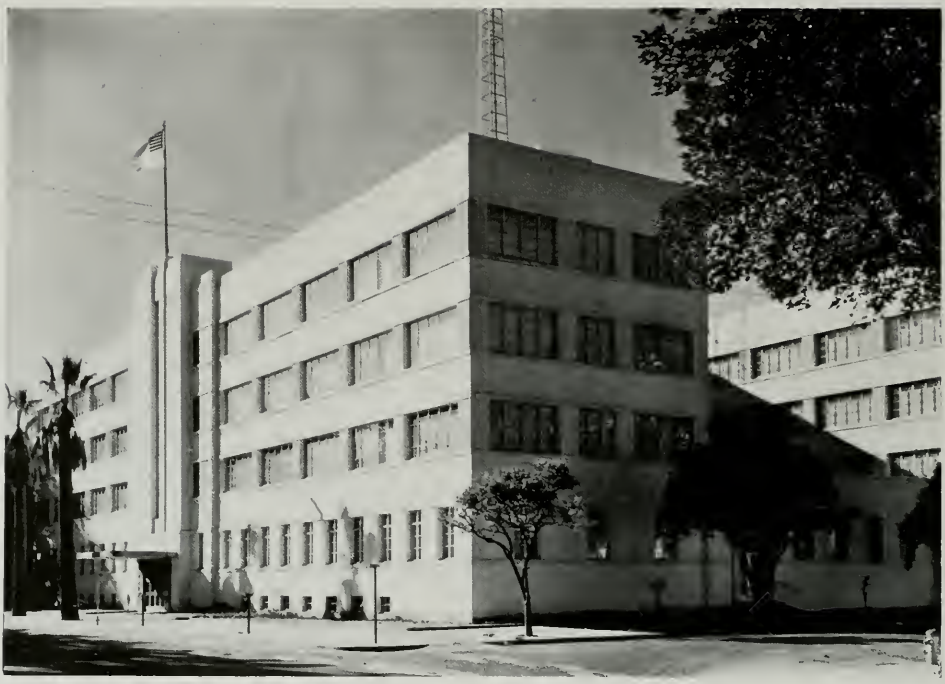
TWO WELL DESIGNED STATE BUILDINGS BUILT WITHOUT COST TO CALIFORNIA TAXPAYERS

BUILDING FOR PUBLIC WORKS DEPARTMENT, SACRAMENTO
Geo. B. McDougall, State Architect

FRESH, dignified modern lines accentuate the design of the State of California's two new administrative buildings in Sacramento. Crowded conditions at 11th and P Streets, necessitated erection of the new structure to house the Division of Highways, Division of Water Resources, Division of Architecture and Division of Contracts and Right-Of-Way, together with the headquarters staff of the Public Works Department. The second building, housing the Department of Motor Vehicles, is similar to the design of the Public Works Building, in fact the two are identical architectural twins.

Dignity, beauty and charm are characteristics of both buildings. The force of these characteristics is not lessened but rather emphasized and intensified by the simple lines of the exterior and the directness of the plan arrangement of the interior.

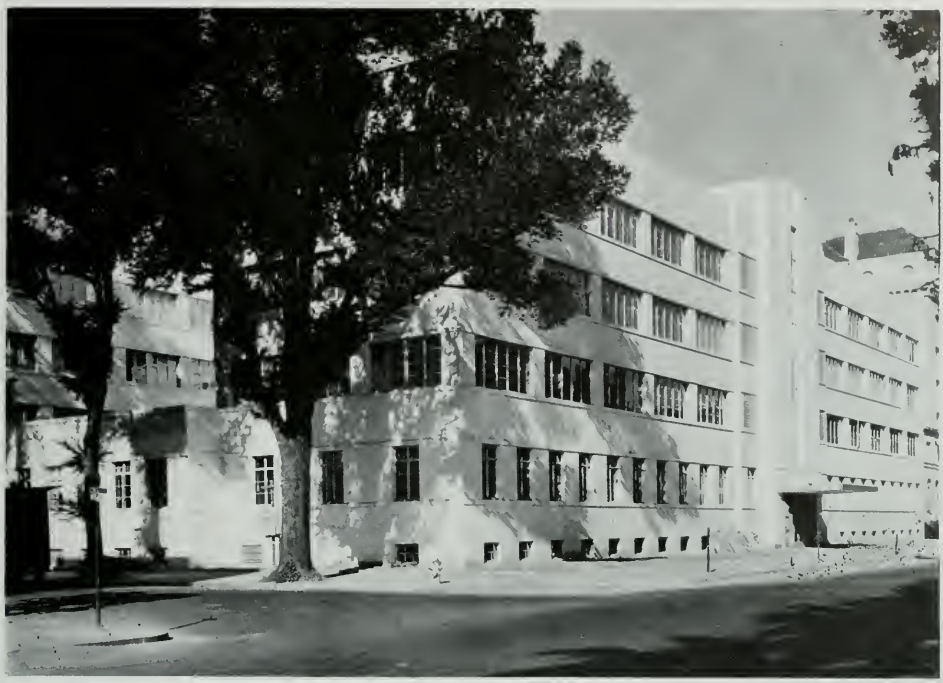
The buildings are of reinforced concrete, including the skeleton frames. Due to the exactness with which the manufacture of reinforced



MOTOR VEHICLE OFFICE BUILDING, SACRAMENTO, CALIFORNIA

OUTLINE SPECIFICATIONS

FOUNDATION	Raymond Concrete Piles
WALLS AND COLUMNS	Reinforced concrete—wood forms
FLOORS	Reinforced slabs and concrete joists—Monolithic cement finish-steel pan forms
ROOF	Temporary wood sheathed roof—insulated roof space—composition roof painted with aluminum paint
SHEET METAL	16 oz. sheet copper
INTERIOR PARTITIONS	Steel studs and metal lath—interior of exterior walls furred with 2 steel studs and metal lath
EXTERIOR FINISH	Exposed concrete painted with bonding cement paint
STEEL SASH	Heavy duty steel casements glazed with double strength A quality sheet glass
INTERIOR PLASTER	Gypsum hard plaster wainscots—Acoustic hard plaster walls and ceilings—cement base
FLOOR COVERING	Linoleum
MAIN STAIRS AND LOBBYS	Tile floor, marble base—painted canvas walls—aluminum handrails—doors and trim
INTERIOR FINISH	Hollow metal door frames—flush birch veneer doors, cabinets and trim
ELEVATORS	2 main passengers—Duplex Selective, collective automatic—1 plunger electric freight—1 automatic
ELECTRIC LIGHTING	Rigid metal conduit—indirect lighting
HEATING	Individual steam heating plant—combination forced air and direct radiation
VENTILATION	Refrigerated and warmed conditioned air throughout
LOCKS	Russwin Unit locks——dull bronze—oil rubbed finish.



PUBLIC WORKS OFFICE BUILDING, SACRAMENTO, CALIFORNIA

OUTLINE SPECIFICATIONS

FOUNDATION	Raymond Concrete Piles
WALLS AND COLUMNS	Reinforced concrete—wood forms
FLOORS	Reinforced slabs and concrete joists—Monolithic finish—steel pan forms
ROOF	Temporary wood sheathed roof—composition roofing coated with aluminum paint—insulated roof space
SHEET METAL	16 oz. copper
INTERIOR PARTITIONS	Steel studs and metal lath—interior of exterior walls furred with steel studs and metal lath
INTERIOR PLASTER	Gypsum plaster walls—furred ceilings plastered with acoustic plaster—cement and marble base
EXTERIOR	Exposed concrete—painted with bonding cement paint—main entrance trimmed with architectural terra cotta
STEEL SASH	Heavy duty steel casements—glazed with double strength A quality sheet glass
ELECTRIC LIGHTING	Indirect
VENTILATION	Conditioned air throughout
HEATING	Steam plant—combination forced air and direct radiation
FLOOR COVERING	Linotile in corridors—Linoleum and carpets in offices
MAIN STAIRS	Precast terrazzo—aluminum handrails
MAIN LOBBY	Walls—Roseal marble—Aluminum doors and trim—marble terrazzo floor
SECTIONAL PARTITIONS	Flush type metal partitions
ELEVATORS	2 Westinghouse duplex control—Selective, Collective and automatic
LOCKS	Schlage cylindrical Locks—dull bronze—oil rubbed finish

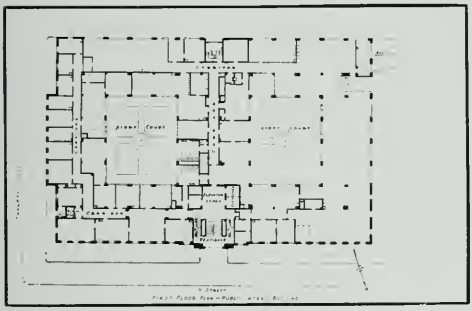
Courtesy California Highways and Public Works

GARDEN VIEW, PUBLIC WORKS BUILDING, SACRAMENTO

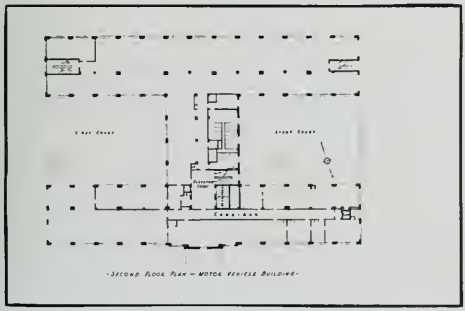
concrete is controlled, the resulting four stories are as sound structurally, with reference both to vertical and horizontal loads, as though their skeleton frames had been fabricated from structural steel shapes at considerably greater expense. Provision has been made for the addition of a future fifth story. The buildings are air conditioned for proper cooling in the summer and warming in the winter and scientific acoustical treatment has been applied throughout.

Both buildings were built without cost to California taxpayers. Prior to moving last year, the Department of Motor Vehicles had been paying rent to the Public Works Department at Eleventh and P Streets. At the rate its rentals were accruing as an equity in the Public Works Building it would not have been long before Motor Vehicles would have owned the building and the Department of Public Works would have had to begin paying rent to the Motor Vehicle Department.

As a result of this unusual situation it was decided to let each department erect its own building and pay for the same out of their respective equities in the Eleventh and P Streets structure and savings they would effect in rentals. The Department of Finance bought the equities of the two departments and other State agencies will be housed in the old headquarters.



FIRST FLOOR PLAN, PUBLIC WORKS BUILDING, SACRAMENTO



SECOND FLOOR PLAN, MOTOR VEHICLE BUILDING, SACRAMENTO

Detailed Description

The plans of the two structures are in the form of the capital letter "H" for the upper floors, with full coverage on the ground and first. The ground floors contain garages for official cars; rooms for air conditioning and heating plants; store rooms; and, in the Public Works Building, an assembly room to accommodate the Public at its meetings with the Highway Commission. The upper floors are devoted to the offices of the various departmental divisions. In the Motor Vehicle Building an ample license bureau has its own entrances from Twelfth Street. Quarters have been provided for 24-hour use by the Highway Patrol with isolated sound insulated rooms for radio transmitting. For this purpose a radio tower rises 134 feet above the roof. Each building provides 155,000 square feet of floor area.

The design was approached with a desire to create, through orderliness and rigid economy, well lighted and convenient work shops. For these reasons the current style was adopted employing the simplicity of exposed concrete. Thus its occupancy is differentiated from that of the more decorative Capitol and Capitol Extension Buildings whose styles bespeak the

actual seat of the government as personified in the Governor and other elective legislative and judicial officers.

In all working areas acoustical plaster or tile ceilings assist in sound control, Venetian blinds on the large windows allow perfect control of the bright valley sun, and properly placed indirect artificial illuminating units furnish as nearly a daytime effect as is possible for night work.

The buildings are of reinforced concrete construction, including their skeleton frames, designed to resist horizontal forces of 4% gravity. Thus, as depositories of valuable records, they are highly fire and earthquake resistive.

Underground conditions necessitated piles extending from 14 to 43 feet below basement floor. There are approximately 900 cubic yards of concrete below the pile caps and 5700 cubic yards above for each building. Design stresses were based on 2500 pounds per square inch compression in concrete with resulting economy, since only six sacks of cement per cubic yard were used. Rigid control of transit mix concrete justified this economy and resulted in test sample averages of 2200 lbs. per square inch for 7 days and 3300 for 28 days. These test samples include concrete of reduced strength and weight taken from basement walls where admixtures were used for waterproofing.

Close cooperation between architectural and structural design resulted in maximum window area with piers only as required for vertical and horizontal loads, and an office depth requiring columns on but one side of the corridors allowing the economy of a concrete joist system and a reduction of floor heights.

Two high speed, dual control, automatic or manual push button operated elevators serve the public in each building.

The air conditioning system is designed to control both temperature and humidity throughout the entire year with all windows tightly closed. The conditioned air is distributed by means of sheet metal supply ducts located in the furred ceilings of the corridors, and exhaust ducts which are formed by the furred space around the supply ducts.

The buildings are zoned for north and south exposure for both heating and air conditioning.

In the Public Works Building there are two main supply fans, one for each zone supplying a total of 82,000 cubic feet of air per minute against $1\frac{1}{4}$" static pressure. For summer conditions the air is first drawn through removable cloth type filters, thence through pre-cooling sections through which flow 550 gallons per minute of well water at $62\frac{1}{2}^{\circ}$ F, and finally through direct expansion refrigerating sections.

Approximately 120 tons of refrigeration is accomplished by the water cooled sections and 100 tons by the two Freon compressors. The well water, after passing through the pre-cooling sections, flows through condensers and thence into the sewer.

The system is designed to maintain 80° F dry bulb and 67° wet bulb, corresponding to 50% relative humidity on the inside when the outside temperature is 100° F, and 72° F wet bulb. Automatic temperature control compensates indoor temperatures to outdoor temperatures, so that a differential of not more than 20° is maintained.

For winter conditions air is preheated by well water, just as it is pre-cooled in summer, thence through steam heated, extended surface units, and delivered to the rooms at a temperature of approximately 70°. This is augmented by direct radiation in small rooms and suspended unit heaters in larger areas and drafting rooms to care for the heat loss through windows, walls, etc. Outside thermostats control diaphragm valves in the main steam lines for each of the two exposure zones. Steam is supplied by two welded steel, low pressure, oil fired, heating boilers.

The Motor Vehicle Building has a similar system with the addition of another unit necessitated by the greater number of employees in certain areas.

To counteract direct solar radiation an aluminum coated roofing and 4 inches of diatomaceous earth in the roof space were employed.

THE DEVELOPMENT OF MOUNTAIN VIEW MEMORIAL PARK

OAKLAND, CALIFORNIA

By Harry M. Michelsen, A.I.A.

> When we build, let us think that we build forever. Let it not be for present delight nor for present use alone. . . .
>
> John Ruskin

LATE in the afternoon of a day in the early spring, we viewed the site for a proposed mausoleum; and as we looked across the picturesque gardens that were vibrating with the colors of beautiful flowers, we were inspired with new ideas for the buildings. Surrounding us were maples, sycamores, camphor trees, and elms, with fresh light green leaves that sparkled and glistened in the late sunlight; among these and in the background were the deep greens of the stately pines and cypresses, and farther in the distance were large redwoods. As twilight approached and the color of these trees turned darker, we admired the eucalyptus in the distance, with their draping foliage silhouetted against a glowing orange colored sky, which faded into pink, and then into a deep blue overhead.

After visiting these gardens, which were so ably laid out by F. L. Olmstead, one of America's foremost landscape architects of many years ago, we realized that rarely is an architect afforded the opportunity to build in a setting as beautiful as this. We searched for a composition that would be full of light and shade, involving an imaginary sense of transparency—a composition that would harmonize with the everchanging shades and colors of the foliage. After many days of careful consideration and a thorough study of the architectural requirements for the mausoleum, we found ourselves established with a Neo-Greek design with openness at the ends and with decorated free motives, which would melt away into the beautiful surroundings with an effect of garden architecture. The sound judgment of W. P. Day, the architect, who directed the work during its progress, added to the development of this project many of its features.

Since the mausoleum has been completed, our thoughts drift back to our imaginary conception that took place a few years ago, amplified to a greater degree as ones color sense enjoys the foliage surrounding the open exedrae at the ends, which are draped with the soft, clear tones of green in the background and brilliant flowers in front. The free standing columns and entablatures setting against the walls lighten the mass and cast everchanging shadows of interesting forms. The modified Greek-Doric columns that frame the bronze doorway at the main entrance are large in scale and gracefully proportioned to emphasize the warm gray stone. Over the entrance, the sculptured panel under the pediment represents the story of the thread of life, and was placed there to express a symbol of thought and beauty. The length of the main facade is three hundred forty-two feet; the depth of the building, one hundred twenty-two feet.

Upon entering the building, the lobby is a center point of approach to the various units. On the transverse axis is the chapel with mar-

(Please turn to Page 26)

Copyright Photo by Clyde Sunderland

EAST EXEDRA, MAUSOLEUM, MOUNTAIN VIEW MEMORIAL PARK
OAKLAND, CALIFORNIA

W. P. DAY, ARCHITECT

ARCHITECT'S DRAWING OF EAST EXEDRA

W. P. DAY, ARCHITECT
RENDERING BY HARRY M. MICHELSEN

ARCHITECT'S DRAWING OF MAIN MAUSOLEUM
Rendering by Harry M. Michelsen

MAIN MAUSOLEUM, MOUNTAIN VIEW MEMORIAL PARK
OAKLAND, CALIFORNIA
W. P. Day, Architect

ARCHITECT'S DRAWING, MAIN FACADE OF MAUSOLEUM
Rendering by Harry M. Michelsen

MAIN FACADE OF MAUSOLEUM, MOUNTAIN VIEW MEMORIAL PARK, OAKLAND, CALIFORNIA
W. P. Day, Architect

ble pilasters, and acoustically treated walls of a soft beige that blends with the tones of the marble. The trusses supporting the roof are concrete, decorated in polychrome shades varying from brown to gold, and accented with darker tones of blues, black, and orange. For further harmony in color, the fixtures are of bronze with amber glass that blends with the ceiling.

Beyond the chapel is situated the patio, with walls of stone and openings leading to the circulating corridors. In the center is a fountain and pool, surrounded by flagstones. Around the walls are masses of glistening plants and tropical flowers.

The walls of the columbarium, which surrounds the chapel and patio, are covered with marble, inlaid with bronze, marble, and glass niches, varying in design, shape, and size. On the longitudinal axis from the lobby, in both directions, are the crypt corridors, with walls of warm Botticino marble, trimmed with Napoleon Grande Melange marble pilasters. The ceiling lights are of opalescent glass that sparkles with a mild amber light. These warm colors are cooled and softened by an abundance of plants and flowers that cover the floors and walls.

At the transverse axis of the west corridor is the approach to the west patio, which has been recently completed. It was desirable to establish a central unit at this point which would contain several tomb rooms and create a new center of interest. These tombs are flanked with columns of a free Greek style. The ceiling of the patio is of colored art glass in shades of rose and soft green and accented with red and gold spots. In the center of this room, which is massed with colorful growing flowers with varied foliage, there is a fountain

Photo by Clyde Sunderland

GRAND STAIRWAY IN WEST UNIT OF MAUSOLEUM, MOUNTAIN VIEW MEMORIAL PARK, OAKLAND, CALIFORNIA

W. P. Day, Architect

that glistens in opalescent colored light from above. On this same axis, at the south end of the building, is the marble and bronze grand stairway, which leads to the second story mausoleum and to the lawn terrace area below.

Sometime later when the administration and crematorium buildings were to be constructed, consideration was given to the style of architecture and landscape of the entrance to the park. Prior to this development, the main entrance driveway was slightly closed by a huge grove of magnolia trees. Under the able direction of the Building and Grounds Committees, the Trustees decided that this should be changed and opened up for view to the rolling hills in the back of the park. It was at this time that consideration was given to the establishing of new axes and taking advantage of the views of the gardens in the background. Many may wonder why our thoughts drifted from the classic architecture of the mausoleum to the English-Gothic for the administration and crematorium buildings, but the setting of redwoods and sycamores could receive nothing else that would melt away into the background. Diverting from the monumental architecture of the mausoleum to the late Gothic of these buildings, the architecture seemed to blend with variegated species of trees, placed there to create color which is soft and light in places and emphasized by the dark greens of the pines and cypresses.

The crematorium building, which is located to the north of the main entrance to the grounds, is free in design and color, adding to the surrounding gardens a natural setting. The brick walls are framed with light colored cast stone, and the roof is covered with slate varying in shades of green, blue, and brown.

The porte chere, with its Gothic arches and vaulted ceilings, at the main entrance, forms a fine means of shelter when required. This feature enabled us to obtain freedom and mass in structure and assisted the silhouette and the depth of color.

The entrance doors of the chapel are made up of moulded, hammered, and curved wrought iron bars. The chapel walls are amber colored;

WEST PATIO OF MAUSOLEUM

NORTHWEST CORRIDOR IN MAUSOLEUM

CREMATORIUM CHAPEL, MOUNTAIN VIEW MEMORIAL PARK, OAKLAND, CALIFORNIA
W. P. Day, Architect

the leaded glass of the stone trimmed window openings is rose, which softens the light. The art glass window over the entrance is of variegated colors in a field of rose, which colors throw beams of brilliant light into the chapel. Supporting the ceiling are wood trusses, inlaid at the top with carvings formed in tracery and ornament.

At the north end of the chapel is the altar and reredos of carved oak of later English-Gothic than the remainder of the building. To the left of the altar is the mourners' room, opening directly into the gardens to the east. Beyond the chapel are located the retorts which are highly equipped for the purpose they are intended.

Opposite the crematorium is the administration building; and between these two buildings is the large central fountain and pool, which acts as a reflecting surface for the color of the surrounding gardens and buildings. The administration building is also situated near the entrance driveway and has a fine background of redwoods, with lawns and flowering plants in front. Symmetrical bays of cast stone and brick frame the entrance.

In the lobby is a huge cast limestone fireplace, decorated with Gothic mouldings; the ornamental andirons, screen, and fire bench are of special design to harmonize with the architecture. The trustees room at the east end has English paneled walls; the women's lounge to the west of the lobby has walls of light jade green, which form a fine background

OFFICE BUILDING, MOUNTAIN VIEW MEMORIAL PARK, OAKLAND, CALIFORNIA
W. P. Day, Architect

for well selected furniture. The warm color of the rugs blends with the cooling color of the walls. To the south are the administrative offices, where business is transacted and where visitors are received.

The mausoleum, which contains approximately three thousand crypts, the administration and crematorium buildings, and other improvements on the grounds have added a great amount of stability to the East Bay community. In the near future the mausoleum will be extended to include two thousand additional crypts.

The work that has gone on in the last few years is only a start of the proposed developments to be made in the future. The landscaping of the hills to the east is now in progress, and eventually it is proposed to construct a huge mausoleum in this location that will stand as a monument overlooking the entire metropolitan bay area.

Photo by Gabriel Moulin

FACADE, MAUSOLEUM, COLUMBARIUM AND CREMATORY, HILLS OF ETERNITY CEMETERY, SAN MATEO COUNTY, CALIFORNIA

Samuel Lightner Hyman and A. Appleton, Architects; Wallace A. Stephen, Associate Architect

Photo by Gabriel Moulin

CHAPEL, MAUSOLEUM, COLUMBARIUM AND CREMATORY, HILLS OF ETERNITY CEMETERY, SAN MATEO COUNTY, CALIFORNIA

Samuel Lightner Hyman and A. Appleton, Architects; Wallace A. Stephen, Associate Architect

AMERICA'S RESOURCES IN ARCHITECTURE

By Francis P. Sullivan, A.I.A.

DURING the past few years it has been forcibly, indeed tragically, brought home to us that there is nothing in the scale of material values that is fixed or permanent. One day a document may be the visible evidence of great wealth; the next it is merely so much waste paper. The money of today may tomorrow be only a valueless token. Even the ownership of the earth itself, the land on which we live and from which all that we have and use is drawn, may change overnight from a possession to a burden and a liability.

It is comforting to reflect that in this inquiry to which we now address ourselves, in the attempt to appraise our country's resources in the field of art—and particularly, at the moment, in that of Architecture—we are dealing with values that are fixed and immutable. They have been established once and forever in the nature of the mind and soul of man.

Even the stern law of supply and demand has no power to alter them. If there were only one great work of art in the world we would still be immeasurably rich in its possession. If the number of them were multiplied a thousand-fold the value to the world of those that exist today would not be diminished but enhanced; the thirst of mankind for beauty, the aspiration toward that which is true and noble and inspiring would still remain unsatisfied.

Yet those riches, real as they are, and rare as they are, are not easy to evaluate.

The banker has his wealth in cash and securities; the merchant his money in the till and his stock on the shelves; the manufacturer has his raw material and his finished product—all these are tangible things that can be measured, weighed and counted.

Address delivered before the American Federation of Arts.

But we have to deal with intangibles—qualities of the hand, the head and the heart so elusive that those most skilled in the use of words have found it impossible to define them.

"The touch
That seems so little means so much,
And comes but by the Grace of God,
When all is said—"
"The incommunicable spark"

In such phrases as these poets have attempted to set forth the nature of the life-giving spirit which, springing through some mysterious procession out of the soul of the artist, compels his hand to follow a pattern of beauty, almost in spite of itself.

But though such phrases suggest much, they explain little; and in the end our discussion must confine itself to factors of less importance because those that are most important defy expression.

Let us first then consider the men, whose talents as they may be greater or less, set the bounds to the achievements which are possible to us.

It is of little consequence that, in the last census, there were fifteen thousand who set themselves down as followers of the profession of architecture. We know that many, perhaps most of these have little or nothing to offer that is to our purpose. So great a diversity of aim and purpose, of intellectual and ethical standards, of natural faculties, of education and training, exists among them that it is hard to see what they have in common except the name; and it might indeed be the subject of serious question whether during the whole long period that has elapsed from Stonehenge to Rockefeller Center, there have lived as many as fifteen thousand who truly deserved to be called by the name of architect.

We do know, however, that among this mass of men in which the greatest abilities rub shoulders with all degrees of mediocrity there is some nucleus, great or small, composed of those whose faculties are composed in just the right balanced proportion to enable them to do great things greatly or simple things in all true simplicity. This nucleus, to whom the name of architects may justly be given, constitutes the first and most essential of our resources.

But abilities, however outstanding they may be, can only with difficulty be put to work unless in the beginning they are wisely guided and controlled. Native genius may easily be misdirected and waste itself for a lifetime in the pursuit of unworthy ends or in the endeavor to achieve worthy ends by ineffective means. So that it is of the greatest importance that those who set out to practice this or any other art should be given sound instruction, not in the art itself, for that can hardly be taught, but in the technical methods that experience has proven are best adapted to help them through the period of their first fumbling endeavor and give them freedom, as soon as may be, to develop their own means of personal expression.

The work that has been done in this field during the past generation has been so brilliant, so well considered, and so fruitful in its results that it may well be rated as a resource of inestimable value.

I speak here particularly of what has been done by the Beaux Arts Institute of Design, by the Committee on Education of The American Institute of Architects, by the professors and instructors of our great universities and by the students themselves, since cooperative study and effort is an essential part of the plan.

Earnest men of serious purpose and great breadth of view—untiring in effort and sacrifice, patiently thorough in grappling with the dull problems of each present day, boldly imaginative in envisioning the promise of the future, have built an educational structure that has long ago proved itself, so that their chief future task must be to take care that it does not crystalize in rigid formulae, but remains flexible, adaptable and capable of absorbing and utilizing new ideas and new principles as they in time are brought to light.

There are workers in other branches of education to whose study and research we are much indebted, and teachers of architecture also who have found it more in keeping with their genius not to follow any set path that has been laid down for them but to pursue methods of their own devising in order to arrive at the common goal.

To all these we owe much gratitude, for all of them have contributed to the present high state of advancement in architectural education which is the second of our chief resources.

During the years that have seen this great advance take place, there has been an almost equal loss with respect to another most important resource which we once possessed, but now possess no longer.

Except in a few obscure quarters where it lingers on as an outmoded and little prized survival, craftsmanship in the building trades has been steadily vanishing from the earth, perhaps forever.

In the battle between man's handiwork and mechanism, the machine has won a sweeping victory. One after another the traditional skills have been lost to us. The old fine, faulty human perfection that was the offspring of an exquisitely harmonious mating between the hand and the eye, has surrendered its place to an inhuman, inflexible precision—the hybrid fruit of an unholy union between the engine room and the laboratory.

There are some who affect to see good omen in the change, just as there are some who contrive to deceive themselves into believing that they find elements of singular beauty in the skyline of New York, but to me this wilful sacrifice of aptitudes that it has cost the race ten thousand years of effort to acquire, is sheer calamity.

From one thing, at least, we can still draw comfort. No one has yet devised a machine that can think or feel. The machine—monster though it is—is a shackeled and subservient

monster. It is still our right to dictate the forms which in unthinking, unfeeling obedience it shall produce at our bidding.

The pallette of the architect is composed partly of natural materials such as stone and timber, and partly of artificial fabricated materials, such as steel and concrete.

During the greater part of history architects have had at their disposal only such of these as were produced within a relatively short distance of their place of use. This has been in some respects a decided advantage to them, giving their work an element of natural fitness to its environment, an unstudied harmony with its surroundings that it would be hard to achieve deliberately.

We of today can draw upon the whole world for whatever materials we think it fit to use. We can bring our marbles from Africa and our woods from exotic forests in the South Seas. So that the richness of our resources in this regard constitutes an embarrassment and a hindrance rather than a matter for gratification.

I have said that the principal purpose of artistic education is to provide a sound basis of technique. To this end one of the best means is a thorough knowledge of what the past has done so that we may avoid its errors and draw wisdom from its experience. Here the historians and archeologists have come to our aid, giving us an increasingly clear picture of the civilizations of the past and the manner in which the men of the past have interpreted those civilizations in brick and stone. Our knowledge of early American architectural forms has been especially enriched during the past few years by such wisely directed effort as the Historic American Buildings Survey and the researches that accompanied the restoration of Williamsburg. We are beginning to be conscious also, as the painters and sculptors have long ago realized, that great benefit is to be gained from an understanding of the principles underlying the great arts of the Orient.

Useful and necessary, however, as a knowledge of the past must be to any artist, great works of art are not achieved by bookworms in libraries.

How happily Pope pointed out to Lord Burlington the danger of over-emphasis on formula.

> "My lord," he says, "your just, your noble rules
> Fill half the land with imitating fools,
> Who call the wind through long arcades to roar
> Proud to catch cold at a Venetian door
> Conscious they act a true Palladian part
> And, if they starve, they starve by rules of Art."

Much as I revere the masterly work of our forerunners—little as I am convinced that the possibility of the development of the historic styles to serve our modern uses has been exhausted, it is a source of delight and satisfaction only to me that in my lifetime art has renounced the shelter of safe havens and trodden paths and has set out on a great and gay adventure; that, like a knight of Arthur's, it has addressed itself to a quest of a mysterious, hidden grail; that like an old conquistador it has plunged into a new and unmapped continent valiantly to seek some fountain of renewed youth.

I feel certain in advance that many who have undertaken this quest will wander off into byways, be betrayed by their guides, stumble into pitfalls, be deceived by mirages, or even, as in the old stories, be caught in the wiles of sirens and enchanters and, deluded by their spells, find themselves fighting on the side of evil against the forces of good.

I feel certain that many will return baffled, sick of sore wounds, with their shields broken and their crests shorn of plumes.

I feel certain that many will enter upon it as did some of those knights and some of those conquistadors, with no purpose of high achievement but seeking only their own sordid ends of notoriety or fortune.

Much that is futile and worthless must doubtless be done before anything enduring is accomplished.

But if, in the end, one hardy adventurer wins through to his goal; if only one eye, penetrated by a new vision, catches from his hardly won mountain top a distant glimpse of virgin golden ocean; if only one returns to lead us into a new

land flowing with riches, all that is lost and wasted and thrown away in the effort will be but a trivial price to pay for what we will have gained.

For there is nothing that we learn from the past more unmistakably than the lesson that as art approaches nearer and nearer to a complete and perfect solution of the problem which it has for the moment proposed for itself, the danger becomes greater and greater that it may be deceived into believing that it has arrived once and for all at a solution which will serve for all the problems that can be framed, and that it will sink from self-complacence to apathy, from apathy to torpor, and from torpor to death. It may just as truly be said of art as it has been said of science, that it commits suicide when it adopts a creed.

To protect us from this fate we must call upon the resources that we derive from within ourselves; **courage,** to attack new difficulties arising from changing demands, changing standards, change in the mutual relationship between us and our fellow men; **vision,** to interpret these changes and to devise those corresponding changes in our aesthetic interpretation through which they may be harmonized with and incorporated into our cultural system, as elements that contribute to its perfection and not as discordant intrusions; **imagination,** to forsee them and to prepare ourselves to meet and master them so that they will serve our aims instead of compassing our destruction.

With this courage, this vision, and this imagination, we can advance with confidence upon the mission to which the future beckons us, the building of beauty not only into our hours of ease and days of leisure but into the very framework of our workaday lives.

We have gone too long with life divided into two zones; one into which beauty dares enter, another from which it is sternly barred.

We have, upon I do not know what strange basis of illogic, decreed that we will permit some elements of order, intention and design to find their way into perhaps one-tenth of all the buildings we raise, on the express condition that from the other nine-tenths all these qualities must be entirely excluded.

We divide our buildings into two groups and would be as much surprised and shocked to find thought and care expended in improving the appearance of one of them as we would be to find it ignored and neglected in the other.

A bank, which is a warehouse for money, may be as splendid as one pleases to make it; a warehouse, which is a bank for commodities, must not only be extremely simple and unpretentious—which may be entirely fitting—but must also, according to our accepted tradition, attain its simplicity by crude and ill-considered means.

And this, I repeat, by our own deliberate choice. We could, if we chose to demand it, see nothing during the whole day, from waking to sleeping, except what would give delight to the eye and nourishment to the spirit.

And to what purpose is this extraordinary renunciation? If our eyes were equipped with automatic blinders that would open as we passed a church, an art gallery, or a public building and close tight as we passed a factory, a garage, or a freight station, we should at least be saved some of the extreme consequences of their disharmony.

But we possess no such protection nor are we even conscious of the need of it. Our senses are dulled to all the ugliness that surrounds and swamps the pitiful fragments of beauty that we permit ourselves to possess.

Surely this betrays a strange insensitiveness impossible to truly civilized beings.

May we not reasonably demand that every structure raised for every human need of shelter and enclosure, should not only fairly serve its purpose, but possess the element of beauty in that due form and manner that is appropriate for it?

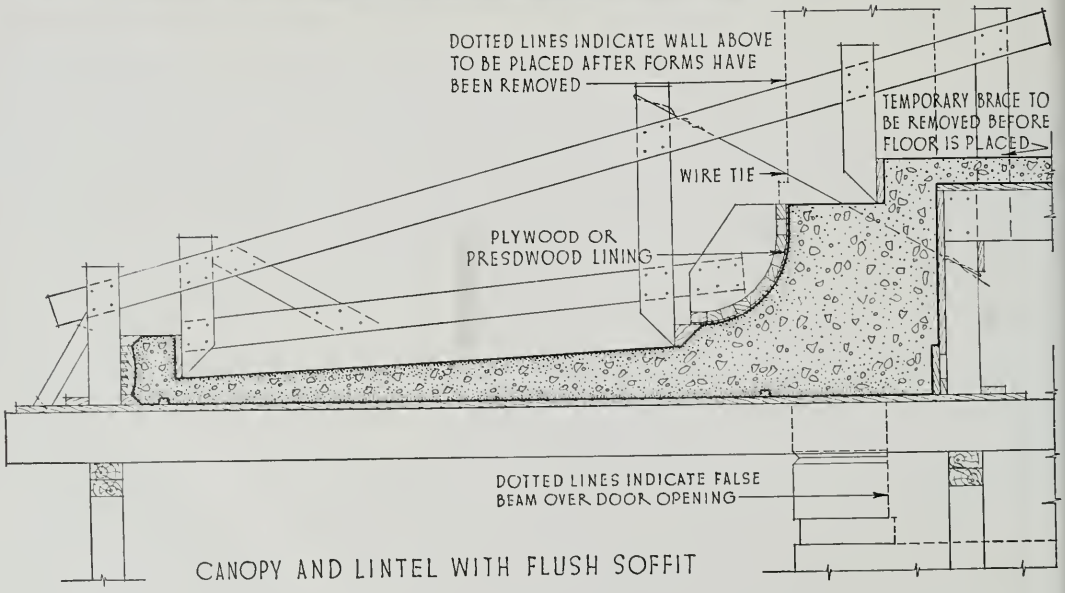
To me this seems, not only reasonable, but essential and inevitable and to its speedy accomplishment I pledge, so far as one man may, the resources of American Architecture.

ONCE A HOTEL NOW A BANK BUILDING

Picture below shows old Stewart Hotel, San Bernardino, California, before it was partly destroyed by fire. . . . At the right is a detail of remodeled structure. . . . Below is a photograph of the building now serving as a high class bank and office building. . . . Howard E. Jones, Architect.

DETAIL OF A CANOPY

Manual Arts High School, Los Angeles, Parkinson & Parkinson, Architects; Lindgren and Swinerton, Inc., Contractors.



CANOPY AND LINTEL WITH FLUSH SOFFIT

TRUSSLESS ROOF FOR SCHOOL AUDITORIUM

By L. H. Nishkian, C.E.

THE AUDITORIUM building of St. Matthew's School at San Mateo presented a problem in roof framing which not infrequently arises. It was desired to have an assembly room of large and spacious appearance in a rather low building whose tile covered roof was to have a pitch slightly flatter than 2 to 1.

Under these conditions it became apparent that the absence of trusses and tie rods and the maintenance of an open unobstructed ceiling vault would contribute greatly to the accomplishment of this objective. There was the further necessity of keeping a clear field of projection to the stage from the moving picture booth located above and to the rear of the small balcony which occupies one end of the hall. It would have been impossible to have obtained this clear line of projection with any other type of construction without increasing the height of the building several feet.

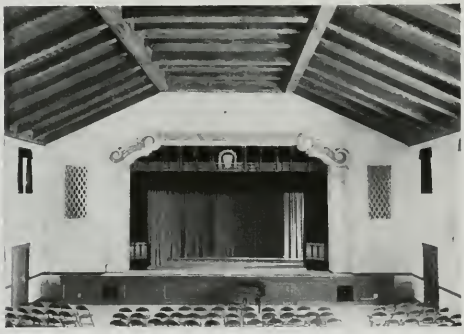
The roof design consequently took the form shown in the accompanying views and figures. It is a dome or arch of three straight segments, 48 ft. 8 in. in total overall breadth and extending for 86 ft. between the end walls of the room. The central horizontal section of this roof is 16 ft. wide, while the sloping side sections rise 7 ft. 8 1/2 in. in their horizontal width of 16 ft. 4 in.

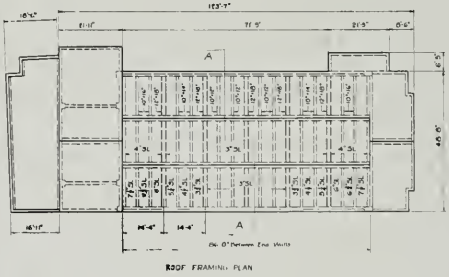
It is, however, a straight segmental arch of novel type, since it is so designed that its thrusts are concentrated at the extreme ends of the room. As shown in the illustrations, there are no interior ties between the side walls which are only 10 in. thick and are without pilasters or buttresses. These side walls receive the full vertical loads of the roof but the considerable outward thrusts which the very flat side slopes would normally develop are resisted by the inclined segments acting as horizontal beams and transmitting these thrusts to the end walls of the room. In the end walls therefore, there was placed steel equivalent in area to that of all the tie rods eliminated elsewhere. This steel extends from side wall to side wall, embedded in the concrete of the end walls.

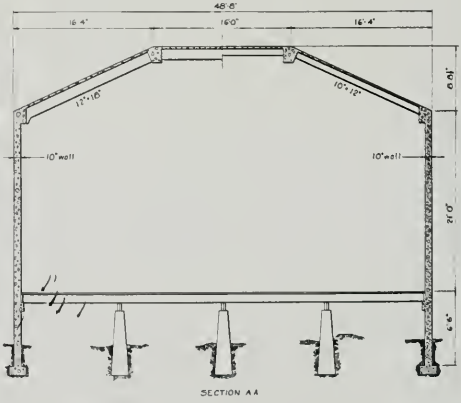
This type of roof is discussed in some detail in THE ARCHITECT & ENGINEER of January, 1936. It offers a simple means of obtaining maximum spaciousness. In its use of straight segments it automatically assures simple and economical form work and with respect to stresses, their distribution and action, it is definite and simple rather than indefinite and complex.

At St. Matthew's School no attempts were made to measure deflections and lateral displacements with extreme accuracy but the observations taken at the middle of the auditorium on the removal of falsework showed a vertical deflection of about 1 16 in. and an outward displacement of each side wall of about 1 16 in.

ST. MATTHEW'S SCHOOL AUDITORIUM, SAN MATEO, CALIFORNIA
H. A. Minton, Architect; L. H. Nishkian, Structural Engineer







AUDITORIUM, BRADFORD AVENUE SCHOOL, PLACENTIA, CALIFORNIA
T. C. KISTNER, ARCHITECT; W. T. WRIGHT, STRUCTURAL ENGINEER

SCHOOL AUDITORIUM AT PLACENTIA

By Homer M. Hadley

THE auditorium of the Bradford Avenue School at Placentia, California, is a simple, substantially built structure.

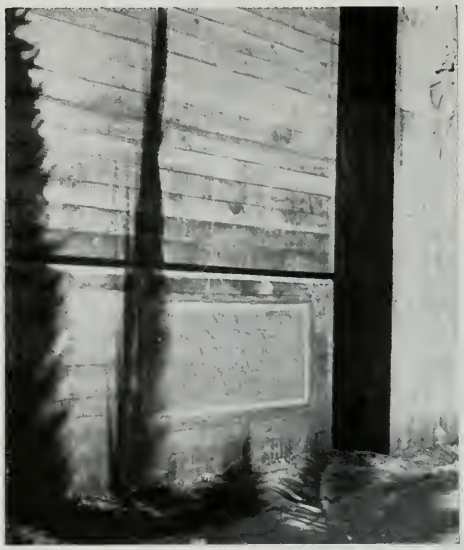
The Placentia Unified School District which built it operates on a very conservative basis. The District has no bonded indebtedness and its construction proceeds at no greater rate than accruing funds permit. On the other hand it recognizes that school work and education are permanent and continuous—one of the most basic social functions—and that of the school plant there will be demanded steady economical service not only now and for the next few years but for years and years to come. The recently dedicated auditorium is an expression of the District's policy: it is simple and substantial and well built; it is complete as far as present funds allow; it will be extended and provided with additional equipment in the future.

The present building is 127ft.-7 in. by 77 ft.-4 in. in plan and is provided with 986 fixed seats. Its stage is 22 ft. deep, the proscenium opening of which is 41 ft. wide and 15 ft.-7 in. high. The average distance from the sloping auditorium floor to the underside of the roof girders is 20 ft. In the future an extension at the front of the building will provide an entrance lobby, toilets, and a moving picture booth; a full stage switchboard and some other accessories and an electric organ will also be installed in the future.

The unique feature of this auditorium is its roof construction. It employs five hollow box girders of reinforced concrete which are made

AUDITORIUM, BRADFORD AVENUE SCHOOL, PLACENTIA, CALIFORNIA
T. C. Kistner, Architect

BELOW—DETAIL OF WALL TEXTURES AND CORNER STONE



LEFT—DETAIL OF INNER FORMS OF BOX GIRDER, showing open-bottomed unit, combining forms of girder webs, cross diaphragms and bottom fillets.

integral with their supporting columns—likewise hollow—to form rigid frames. Between these rigid frames the remainder of the roof is of familiar ".joist" construction: a thin concrete slab monolithic with the supporting joists. Except for the acoustical tile on the sides of the girders the interior concrete surfaces of the entire roof structure is given no other treatment than color coating.

The box girders are 4 ft.-7 in. wide and vary in depth with the pitch of the roof from 5 ft.-6 in. at midspan to 4 ft.-6 in. at the side walls. They are hollow, their sides being 6 in. thick for about the middle half of their span, increasing to 8 inches, and finally to 12½ inches at their ends. Their bottom slabs are 6 inches thick. Internally they are braced by five equi-spaced transverse diaphragm walls 6 in. thick, by fillets at the top and bottom of the side walls, and by the continuity of their transverse reinforcement. Though hollow they are made truly unitary in their structure, and they have mass and proportions which could not well be given to members of solid section. Their appearance of strength and stability is in keeping with their span and the size of the auditorium.

A number of soft pleasant colors blend harmoniously in the room. The reddish brown dado painted on the concrete is capped with an aluminum strip above which the acoustical tile covered walls are of a warm ivory shade. The girders and their supporting piers are a rich cream, while the V-grooves in their faces are colored a light blue. The joisted ceiling areas between the main frames are also finished in blue, with the slab soffits adjoining the frames patterned in peach and grey. The seats are of red leather with walnut backs, the stage curtain is henna, the proscenium walls light brown, enlivened with narrow strips of aluminum.

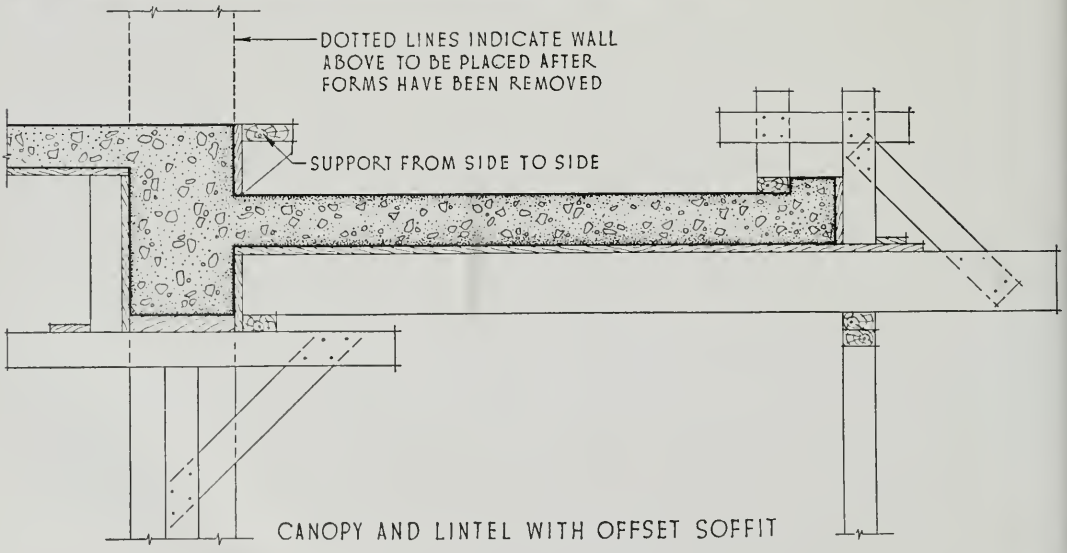
The acoustical treatment has proven very satisfactory. Acoustical tile covers the side walls below the window openings and the full area of the rear wall. It also was carried in broad bands across the sides of the girders. The remainder of the wall and ceiling areas are of concrete untouched except for the coloring. The fixed seats are of course of material help in minimizing the reflection of sound waves. The net result is a hall of most excellent acoustical properties: sounds can be heard sharply and distinctly but there are no blurring tones and repetitions.

It is natural that the question of cost should be asked regarding a somewhat novel construction. It was found to be very reasonable.

Under conditions then obtaining, the seating capacity of the room and the 20-foot height from floor to bottom of roof framing would have required Class A roof construction with at least 2 in. fireproofing over exposed steel roof trusses. Therefore the alternate layout which was made contemplated the use of steel trusses carrying a 4-in. concrete slab supported by steel purlins at the plane of their bottom chords and a wood roof at the planes of their top chord. This 4-in. slab provided the required fireproofing for the trusses and rendered other fireproofing unnecessary. It also furnished earthquake bracing for the upper zone of the enclosing walls. Estimates by two different contractors showed a saving in favor of the construction used.

DETAIL OF CANOPY

Lafayette Junior High School, Los Angeles, Parkinson & Parkinson, Architects.



CANOPY AND LINTEL WITH OFFSET SOFFIT

CALIFORNIA STATE HOUSING ACT AMENDMENTS

By Al Brinkman, Building Inspector, Berkeley

THE last California Legislature passed A. B. 524, amending the State Housing Act, its effective date being August 27, 1937. A brief review of the changes may be of interest to the readers of The Architect and Engineer at this time.

Sec. 2. Last paragraph changed to give commission of immigration and housing more definite powers in unincorporated areas.

Sec. 4. Changed to permit "replacement in kind" when required, and also to permit **necessary** alterations in order to comply with act.

Sec. 10. Definitions section altered in respect to: "Guest Room" so that definitions of "Dormitory" and "Guest Room" harmonize; every 100 square feet being a "Guest Room" for purposes of the act. "Basement" redefined.

Sec. 11. Changed to clarify meaning with respect to passage for rear buildings. Adds sentence: "Any passageway required by this section shall be **vested** in the same ownership as the building for which it is provided." (This conforms to the definition of a "Lot" in section 10—"vested" does not necessarily mean "owned by.") Incidentally, this section applies specifically and only to **buildings under the same ownership,** as can be seen from the frequent use of the words, "lot," "the lot," and "the same lot."

Sec. 15. No change regarding rear yards, when required, for dwellings (4 feet). Increases by one foot depths of rear yards (when required) for hotels under conditions such as when the yard is bounded by an outer court or a side yard.

Sec. 28-29. Increases clearances under joists in dwellings, apartment houses and hotels from **12** inches to **18** inches, and requires (new) a **12** inch clearance under beams and girders.

Sec. 30. **Important.** Allows an **eight foot ceiling** in apartment houses and hotels, provided the same **cubic contents** are obtained as would be provided by **nine foot** ceilings and corresponding minimum room areas. (The table shows the comparison more vividly.) Any portion of the room having ceiling heights under five feet is not counted for area, and no portion can have a ceiling height of less than three feet.

The other **important** change is the requirement that in **dwellings** the **kitchens** shall now have 50 sq. ft. of superficial floor area. Thus

Type of Room	Before 8/27/37 Floor Area Sq. ft.	Cubic Feet (8′ clg.)	Window Area* (Min.)	On 8/27/37 Floor Area Sq. ft.	Cubic Feet (9′ clg.)	Window Area* (Min.)
Living room	120	1080	15	135.00	1080	17
Bed room	90	810	12 (**)	101.25	810	12⅓
Kitchen	50	450	12 (**)	56.25	450	12 (**)
Guest room	70	630	16 (**)	78.50	630	16 (**)
Amusement room (sec. 32)	90 to 180; 180 plus	810	12 (**) to 22½; ⅛ area	101.25 (min.)	810	12⅔ but 22½ max. (%)

* One-half to be openable

** Min.—⅛ is **less**

% Max. required, regardless of **area** in excess of 180 sq. ft.

the "New York" type of "kitchen strip" is again definitely outlawed in the entire state and in all classes of residential buildings. Note that the last paragraph requiring three story or higher apartment houses and hotels to have all partitions well plastered, if not masonry, is included in this general **room area** section.

Sec. 32. (See table in discussion of Sec. 30). Principal change allows "amusement" rooms in apartment houses and hotels to have 8 foot ceilings; but floor area and corresponding window areas must change accordingly as shown in table.

Sec. 42. Requires water sealed and vented traps on all sanitary plumbing fixtures; requires vents to be terminated in proper locations; also requires adequate cleanouts in drainage systems.

Sec. 46. This section now requires a **vertical headroom of seven feet** in apartment house and hotel stairs only—dwelling stairs are only regulated to the extent that they must be at least 30 inches wide, and must have handrails.

Sec. 52. Rewritten to require fire-escapes to be located **off of stairs,** presumably (and preferably) access to be had by separate "hall" adjacent but separate from open stairway. (There has been much criticism of placing fire-escapes off of open stair landings, because if the **stairs** are involved, the fire escape cannot be reached.) Also adds the important provision that fire escapes must now terminate in courts or yards having free egress to streets and alleys. Formerly, some designers so located escapes that they terminated in "dead" courts or were built against adjacent buildings.

Sec. 55. Adds a paragraph regulating warm air ducts, return ducts, and such—all must be of 26 ga. sheet metal or other approved incombustible materials.

Sec. 56. Changes last paragraph to increase minimum dimension of a vent shaft in dwellings from 18 inches to 36 inches; area from 2.25 sq. ft. to 9 sq. ft.

Sec. 58. New section 58 includes only the first five paragraphs of the old section 58. No change is made in these paragraphs.

Sec. 58a. The last part of the old section 58 is rewritten to form a new section 58a, and this extends the act's authority regarding gas appliances and their installation and maintenance.

Sec. 61. Three important changes are made to the general construction regulations for all "buildings":

1. No specific factor of safety is now required for any material.
2. Definite "bracing" is now required, diagonal sheathing being specifically mentioned.
3. A definite deflection limit for ceiling joists (1 in 360) is now specified.

In connection with change (1), note that the old factor of **4** made it impossible to use the Euler column formulae as the factor used in them is **3.**

Sec. 62. Permits eight and sixteen foot ceilings in dormitories (limited to 20 persons) as against nine and eighteen feet, respectively, in the old section. This was done to be consistent with the other reductions of heights. Cubic contents must be same as old, however.

Sec. 63. Clarifies intent of this section. Many people thought the old section allowed **additions** to have these lower ceiling heights; it now definitely states that the allowable reductions only apply to portions already **within** the structure. The old section did not include **dwellings;** they are now definitely included by the word "building." (See definition.)

Sec. 65. Clarifies last paragraph so that rooms existing prior to Aug. 17, 1923, and containing 500 cubic feet, may be continued as sleeping rooms for one person only. (Minimum light to be 8 sq. ft. if "existing"—Sec. 64).

It is hoped that subsequent opportunities to further clarify and codify the Act will be presented. The staff of the Commission is to be congratulated on their access to a better act, and enhanced powers.

REVIEW OF PRESENT HOUSING NEEDS

HOME BUILDING PROBLEMS IN PERSPECTIVE

By James S. Taylor

IN attempting to obtain a helpful perspective view of the great tasks that confront the home building industry, it may be best to start by considering the present need for new housing.

At first glance it might appear discouraging that the estimated growth in population during the present decade is about 8,000,000 or 9,000,000 persons, compared with a growth of about 17,000,000 between 1920 and 1930. Happily, there need be no particular worry on that score in regard to the need for new dwellings during the next ten years or so.

First, you all know that during the depression there was an unprecedented falling off in new home building activity.

Second, the actual number of persons born in the United States reached a peak in the early 1920's, so that the number of persons becoming of marriageable age each year is still on the increase.

Third, the population has been splitting up into smaller housekeeping units for several generations, and the depression appears to have made only a temporary check in this process. Contrary to a widespread impression, people marry younger on the average than they used to; and the apartment house, the gas and electric range, the delicatessen store, the tea room, the commercial laundry, and a multitude of other modern equipment and institutions, all encourage the small housekeeping unit as contrasted with the large household, whether of the patriarchal or the boarding house type.

Taking all these points into consideration, statisticians are fairly well in agreement that during the next ten years the American people will require construction of a large number of new homes. Such estimates do not assume any extraordinary developments out of line with past experience, such as might result from a substantial increase in the rate of demolition of existing homes, millions of which are of a substandard character.

So much for needs. Your immediate concern is with demand. You know that if needs are to be fully expressed in terms of active demand general business and employment conditions must be good; it is also imperative that the home building industry offer the public a high-quality product for which families will think it worth while to strive and make sacrifices, and which can be financed on safe and reasonable terms. If you can do your part, you will help yourselves directly and indirectly, for you will be making an enormous contribution towards healthy economic conditions generally. It was said of the early 1920's, that "prosperity rode in on the wheels of the automobile." During the present recovery period the automobile industry, again, has made a quicker and greater recovery than home building; but let us hope that at some future time it will be said that, "after riding to town in a motor car, prosperity took a steady job in carpenter's overalls."

Location of New Housing

Where will the new dwellings be situated? That is a real question, for the American people have always been noted for their ability to move around, and even before the trailer vogue we were described as a nation on wheels.

For example, there was a net migration of 1,750,000 people into the single State of California, in the ten years following 1920. This was the greatest movement of its kind in our history. During the same period, one southern state with about 3,000,000 inhabitants lost some 400,000 persons who moved to other states; however, the state itself showed a slight gain in total population for the period, thanks to a high birth rate, and its principal city increased its population by 35 per cent.

Editor's Note. An address delivered before the Manufacturers' Housing Promotion Council, Philadelphia.

Manhattan Island, where spectacular events are apt to happen first and in a bigger way than anywhere else, provides ample evidence of how fast people can move. It had a population of about 2,200,000 in 1920. The 1930 Census showed that nearly a quarter of a million new immigrants and 100,000 negroes had moved there within the decade. Despite the entry of these 350,000 persons, plus many more white American citizens, whose movements cannot be so readily traced from Census data, the island lost 400,000 in total population during the ten years. Hence it appears that well upwards of three-quarters of a million people, or more than one-third of the persons living in Manhattan in 1920, must have moved elsewhere by 1930.

In a nation where such movements are an everyday affair, it is evident that every business concern, every public utility, and every public official concerned with providing these dwellings and the utilities and public works required for them must be alert to population movements. Otherwise, we may be confronted with extreme, acute local housing shortages in some cities, and others would suffer from overexpansion of subdivision activity and excessive expenditures for utility lines and public works.

The majority of cities must count on a smaller percentage of population growth than formerly, and may do well to use the estimates prepared by the National Resources Committee, supplemented by careful study of special local conditions that may be speeding up or retarding growth.

Stability in Home Building

When will the homes be built? Recovery in home building is well under way. Some 270,000 dwelling units were provided in dwellings of all types which were started in 1936, and of these 205,000 were in one and two-family homes. The number is greater than that during the three preceding years, 1933, 1934, and 1935, combined, and is enough to house a year's increase in population at an average rate of four persons per family. However, we know that demand increased by a substantially greater amount, because, in line with the trend which started in 1933, residential vacancies in our cities diminished generally during the year.

Most of you have seen the estimate by the Federal Housing Administrator, Mr. Stewart McDonald, that from 400,000 to 450,000 dwelling units will be provided in 1937 unless new building should be stifled by sharp increases in building costs.

So far, so good. What we all desire is that demand should develop, and be met, from year to year in an orderly manner. Neither your industry nor the public wants a peak of several hundred thousand dwelling units built in one year, to be followed by a tapering off to 50,000 a few years later, particularly if the peak should find its support, as it usually does, on a flood of unsound financing.

Types of Homes

As to types of homes that will be demanded, a statistician can start with Census data showing that in 1930 there were some 26,000,000 married couples, 2,000,000 widowers, 4,750,000 widows, and a million divorcees. These persons, together with all others, including some 35,000,000 children under fifteen, were grouped into 30,000,000 housekeeping units or families as defined by the Census. Of these, 75,000 were public and private institutions of various types in which some 3,000,000 persons were domiciled. Of the families, more than 9,000,000, or 31 per cent, comprised only one or two persons.

Of all the families, or housekeeping units, 61 per cent included one or more children under twenty-one years of age, and 41 per cent had one or more children under ten years of age. Only 25 per cent of all the Census families had three or more children under twenty-one at the time the Census was taken, and 23 per cent had two or more children under ten. Remember, these figures show families as they were organized at the time the Census was taken; thus a couple that had six grown sons and daughters was shown as having no minor children at the time of the Census.

Our statistician might be able to tell us just how many new homes for one, two, three, four, or more persons might be required in the country, but he could not tell us just where and how many of each type should be built, or at what time. That is a job that involves continuous contact with local conditions. On the other hand, that statistician might make a lot better guess than many builders who have followed the well tried method of Procrustes. That romantic character, who either stretched or cut off his guests to the proper length so that they would exactly fit his iron bed, applied one type of thinking that is now in wide use.

If the illustration seems far fetched, and perhaps it is, you may consult the study by Mr. Newman showing the extent to which houses in Philadelphia were built in price ranges far above the capacity of buyers to pay. You all know that the pocketbooks of the purchasers, which had been already stretched to the maximum limit in good times, ripped to shreds under the strain of the depression. Rows of new houses in which nearly every family has to keep a lodger, the failure in many developments to provide even one house with a downstairs bedroom and bath, and other examples, all indicate too much of a tendency to try to fit the buyer to the house rather than to study the specialized needs of the many different classes of families and to try to meet them. Even if a house with a downstairs bedroom and bath is in demand by only 10 per cent of all prospects in a given price range, it does not mean that a house so planned is only 10 per cent as salable. In fact, if only 5 per cent of houses are actually so equipped, such a house might be even more salable than the standard product.

There are, of course, many notable exceptions where the builders of apartments and of houses have studied the actual living needs of particular groups of families, and have turned out a well adapted product.

Progress in Coping with Problems

Much of this discussion may seem obvious or platitudinous, and could have been said, or actually was said, fifteen years ago. In regard to the same problems, studies were made, articles were written, addresses were given, committees were appointed. Was it all futile, did thousands of public spirited men and women waste their time, and will present efforts fail? Decidedly not. A lot of solid progress has been made, and where we did not make progress we at least gained experience.

Take five leading problems, for example: (1) site planning, (2) design and arrangement of small houses, (3) quality of construction, (4) financing, and (5) building in the wrong price ranges. Think of the progress that has been made away from the rigid gridiron plan with absolutely standard sizes of blocks and lots extending over great areas. Use of competent planning in high-grade subdivisions has fired millions of families with an aspiration for homes in well laid-out neighborhoods, within their capacity to pay. Even though some important traffic intersections are still being throttled with close-crowding commercial uses, there are hundreds of subdividers who plan with an intelligent regard to future needs, and hundreds of planning and zoning commissions are helping to put a stop to crude methods of land butchering. Zoning, still in its very infancy fifteen years ago, is now generally accepted as a necessary measure, and deed restrictions are now more effectively drawn up, and are much more widely used.

Skilled professional design and selection of materials and equipment for small houses are rapidly replacing construction from sketches by the boss carpenter. Improved architecture has spread down from the more expensive houses, and public taste has improved—thanks in no small measure to splendid work by the press. Improvements in materials and mechanical equipment have been extraordinary, and, partly as a result of education and partly as a result of bitter experience, there is a wider demand for construction of good quality. Besides, more people realize that homes may continue to be homes, and not just temporary quarters.

In the fields of financing and of building in the wrong price ranges, the force of good ex-

amples and of educational efforts was not so evident prior to the depression; but there is where experience has taught one of its severest lessons. Now, no one can minimize these problems, when the Federal Government has had to take over a million distressed mortgages, amounting to three billion dollars,

In all of the problems that I have just listed, the Federal Housing Administration is actively at work. We are in the business of insuring mortgages on small homes, loans made by private lending institutions. We recognize that deterioration of a neighborhood diminishes the security behind home mortgage loans, and we encourage subdivision developers to present their plans to us in advance, before the layout has been recorded and improvements have been installed. Carrying the idea one step further, we invite subdividers to conferences at which our requirements are explained, and we find that men who are providing low priced houses are most anxious to give their customers the benefit of good layout such as has been provided in the past in many higher priced subdivisions.

We feel that we are encouraging improved design and construction by our review of plans of new homes submitted for mortgage insurance commitments, and by our inspections during construction, made to insure compliance with the commitment.

We feel that our insistence on an adequate review of the borrower's capacity to meet his obligations is operating as a force of some magnitude against the former practice of extensive overbuilding in the upper price ranges, which, in practice, meant selling the houses to families that could not afford them.

In a more positive way, our Technical Division has studied the planning of low priced houses. Through the cooperation of members of your group, houses embodying its recommendations are being erected by private capital in communities throughout the country.

We have worked on the special problems involved in creating attractive and stable subdivisions for low priced houses, and we have brought to the attention of local builders and real estate developers the enormous broadening of the market for homes that can be tapped by building houses within the reach of families with small incomes.

In these and other ways, we feel that we are helping to make home financing a constructive force in the interest of better building. Mutual mortgage insurance has made the long term amortized home mortgage, for as high as 80 per cent of the appraised value of the home, a suitable form of investment for thousands of financial institutions which formerly were unable to make such loans. It thus thawed out the home mortgage money market earlier during the recovery period than would otherwise have been the case, and has thus contributed to a more orderly resumption of home building activity—which means less frantic searching for shelter, and a more orderly movement of rents.

Mortgage insurance has made home mortgages a marketable form of investment, and has thus aided the flow of home mortgage money to the points where it is most needed, —a matter of great importance in a highly mobile nation. It has substantially enlarged the present and potential market for homes by reducing financing charges. We believe that, guided by our studies of neighborhood trends and our records of experience with mortgages, the system will help to make homes more secure as investments, and to bring greater stability to home building and home real estate.

Measures of General Progress

Past and prospective progress in coping with particular problems is one thing; but how about actual progress in meeting the housing needs of the people? Reference to a considerable mass of material leads to the following conclusions:

In a city—let us name it Metropolis—which has grown at an average rate, two-thirds of the homes in the city and its environs have been erected since 1900. A substantial number of dwellings erected in Metropolis between 1900 and the world war were not provided with central heating; aside from that, the new homes generally are equipped with modern conveni-

ences. Of the dwellings built prior to 1900, thousands which were then lacking running water, bathrooms, electric light, gas for cooking, and central heating, have been so equipped. In these older dwellings there is much less overcrowding of two, three, or more persons per room than in 1900.

Two points appear clearly: first, average housing conditions in Metropolis have greatly improved during the generation since the turn of the century; second, the actual number of persons living under the most insanitary and degrading conditions has been greatly reduced during the same period. But there is room for honest difference of opinion as to whether the actual number of families—now about one-third of the total—that live in dreary, run-down houses, in forlorn, ill-kept, and depressing neighborhoods, has become any less during the same period. A large majority of such houses that existed in 1900 still remain and have become older and more dilapidated with the passage of years; further, considerable areas that were fairly attractive in 1900, because they were then new, have since run down. On the other hand, improved household equipment, together with street improvements and general cleaning up of neighborhoods, have helped, and on the average fewer people occupy each house.

Definitely, great progress has been made; but there is a great residue of bad housing that persists, and that presents an outstanding problem both to your industry and to government.

Looking into the future, which is so full of opportunities, you have research, the application of technical skills, and study of the needs and desires of many types of consumers, as instruments at your command. Modern business statesmanship is broad in outlook, and takes into account many factors that at first seemed remote or difficult to deal with. I am sure that your efforts to bring greater unity into your industry will be of great importance in helping to provide the American people with continually improving housing and living standards.

The Building Situation As Viewed by the Federal Housing Chief

Business done by the Federal Housing Administration in insuring mortgages during the first five months of the current year increased approximately 130 per cent, according to Thomas G. Grace, State Director. Slightly lesser increases were noted in the Albany and Buffalo districts, with the result that in total business done New York State now stands second only to California and Ohio during May.

Mr. Grace said that it was extremely unfortunate that so much stress had been laid lately on the increased cost of building materials, as such things tended strongly to discourage perfectly solvent persons from entering into home building investments.

"Of course, there have been increases," he said, "but most of them were to be expected. In the busiest of our territories there has been a general leveling off during the last few weeks but we are not at all alarmed. The real effect of agitation over increased costs is that it discourages the more timid of our people; in other words, it helps create a frame of mind that is hard to overcome."

He said the maintenance of good business conditions depends largely on building activity. "There never was a more propitious time to build or buy than right now," he declared. "The banks, building and loan associations, insurance companies and others are co-operating splendidly and mortgage money is plentiful," he said, "although I believe that this factor combined with labor unrest is responsible for the falling off we experienced in the first three weeks of June."

"The thing for everybody concerned with real estate or any business collateral to it to do right now is to contribute his share to the maintenance of good business conditions by getting behind the better housing movement and shoving for all he is worth," said Mr. Grace. "Outside of the increased cost of materials, which I do not regard yet as vital, every condition is favorable. Money for financing is available as never before in our history, architects and builders are eager to help. Homes bought today under the government plan of financing are not only quality from top to bottom, but are properly located to increase in value as the years go by, and are planned for beauty as well as utility. They can be built or bought on terms no more onerous than normal rent payments and no solvent person need hesitate a moment about such an investment."

$400,000 BERKELEY BUILDING

James W. Plachek, architect of Berkeley, has been commissioned to prepare plans for a new five-story reinforced concrete building for the Federal Farm Credit Administration, Willard D. Ellis, president. The structure which will cost $400,000 will occupy a section of the Berkeley Civic Center on Milvia Street, near Allston.

THE ROUTINE OF APARTMENT HOUSE ALTERATIONS

By H. Robert Mandel

in Building Management

THE writer has seen many successful and unusual alterations and it will be of interest to list some of them: 1. Conversion of apartment house into a rooming house. 2. Conversion of private dwellings to apartments, rooming houses or offices. 3. Conversion of tenement into poultry market. 4. Conversion of a rooming house into an apartment house. 5. Conversion of a theater into a radio broadcasting studio. 6. Conversion of a club into a hotel. 7. Conversion of a hotel into an office building. 8. Conversion of a loft building into studios. 9. Conversion of a tenement into studios. 10. Cutting off of one or more stories of a building.

It is not always possible to obtain the services of a general contractor in carrying out major changes that may become necessary in managing a property. Even if it is possible there are times when the owner will prefer to have the agent attend to all the details himself. When this occurs the agent is placed in the position of a general contractor and is then expected to employ architects, draftsmen, sub-contractors for the specialized trades, mechanics, laborers, purchase materials, etc.

The actual work of alteration is preceded by many preliminary operations and the usual steps are as follows: 1. Preliminary studies. 2. Preparation of plans and specifications. 3. Obtaining and maintaining adequate records. 5. Awarding contracts and purchasing materials. 6. Carrying out work planned.

Preliminary studies should not be left entirely to the architect and draftsmen. The owner is entitled to the maximum earning power, and this is only possible by making changes which will produce the greatest possible income. A poorly designed alteration or one that does not take into consideration future possibilities is sometimes worse than none at all. It is at such times that the agent proves his worth by suggesting, counselling, criticising and revising. He can materially assist in bringing about the best possible design, by pricing the space, and preparing comparative schedules of income and expense on the various types of plans projected. He can further assist by incorporating into the new plans the benefit of his past experience.

In the preparation of plans and specifications, the agent can be of material assistance in selecting materials and equipment which will facilitate renting and help to reduce maintenance costs. He can also advise on the size of units that are likely to be most popular; where the entrance to a corner store should be located; the size or type of sign panel; the type of store divisions to bring maximum income and so on.

When the final plans and specifications have been completed, the various trades are invited to bid, and when the bids are received (usually not less than three on each trade) they are tabulated and forwarded to the owner for his approval together with the agent's recommendations or suggestions.

The accounts, records and finances of a major change should be segregated from the ordinary agency routine. They are distinctive and are designed to serve particular needs.

Contract check sheets are used for tabulating preliminary estimates and final contracts and will enable periodical checks on contract status.

As contracts are awarded, they are entered into a "contract control account" assigned a number and filed numerically in a contract binder safe or vault. An individual account is opened with each contractor and to it are posted the entries from the "contract control account" as well as additions or deductions from the contract, which are handled in a similar manner. As the work progresses, the contractors present requisitions for payment on account of their contracts. These requisitions are submitted either monthly or more frequently, or are based on the contractors' reaching predetermined stages of their contracts. It is customary for the architect to check such requisitions and to amend them, if necessary. He then issues an architect's certificate which is attached to the requisition, which now becomes an original voucher and is ready to be entered into the "contract control account" and posted to the individual contractor's account. Provision is made for holding back a reserve in both the contract and individual accounts. Payments are also entered in the control account and posted to the individual accounts. It is obvious that a currently posted contractors' ledger will give an accurate picture of each contractor's status. At this point it is advisable to mention that a separate "control sheet" of contract additions is maintained for work ordered on a time and material basis until such time when the contractor sends in his invoice covering the particular items. When this has been received it is entered in the contractors' ledger in the usual manner. Trial balances of the ledger should be taken periodically.

Because of the complex problems encountered in making a major change, the ordinary purchase order form is wholly inadequate and it is necessary to enter into a more elaborate type. The American Institute of Architects issues a standard form of contract and general conditions form. Each contractor is also required to sign the specifications and plans accompanying the contract. His signature is placed in a stamp reading as follows: "Identified and acknowledged as part of contract dated....."

The contractors are given a time schedule and are required to watch the progress of other contractors to tie in at the proper time.

The supervision of large jobs is usually entrusted to a construction superintendent who is assisted by one or more timekeepers depending on the size of the job. There are times when the agent is expected to act as superintendent, and it is his duty to see that the work is pushed ahead according to schedule.

ARCHITECTS' BULLETIN

Issued For

THE STATE ASSOCIATION OF CALIFORNIA ARCHITECTS

Northern Section

UNIFICATION PROGRESS

MR. LOUIS N. CRAWFORD, delegate of the State Association of California Architects to the 69th Annual Convention of the American Institute of Architects in Boston, June, 1937, has presented a very comprehensive and satisfactory report. As chairman of the Resolutions Committee of the State Architectural Societies, he presented to the Institute Convention the following resolution:

"WHEREAS at the Convention of the State Architectural Societies held in Boston on May 31, 1937, the report of the Institute Committee on State Societies was read and carefully considered,

NOW THEREFORE the State Societies in Convention assembled do hereby approve and endorse the said report, omitting only the following final paragraph reading as follows:

6th: The Committee on State Organizations report to the Board of the Institute not later than May 15, 1938, definite recommendations upon—

First: Whether or not the Institute should abandon its present plan of Unification through membership of the State Organizations.

Second: Whether or not the Institute should promote a plan of nation-wide organization of State Associations, separate and distinct from the Institute.

The aforementioned report as adopted reads as follows:

Final Report: To the Board of Directors, American Institute of Architects, from the chairman, Committee on State Societies.

Review.

During the year since the Convention of 1936, there has been no change in the number of State Association members of the Institute. These remain as follows:

Michigan Society of Architects
Architects' Society of Ohio
State Association of California Architects
State Association of Wisconsin Architects

At the present time there are non-member State Organizations as follows:

Florida Association of Architects
Illinois Society of Architects
Indiana Society of Architects
State Association of Kentucky Architects
New Jersey Society of Architects
New York Council of Registered Architects
Oklahoma State Society of Architects
Pennsylvania Association of Architects
Washington State Society of Architects

It is understood that there are in formation Associations of Architects in the following states:

Maryland
Minnesota

Thirty-nine states now have legislation which calls for registration of architects, and it is quite likely that the formation of additional State Societies may be expected from time to time.

Question before the Committee: Why have not the nine non-member state organizations listed above seen fit to present their applications for membership in the Institute?

It is considered of importance to seek the proper answer to this question, as such an answer would naturally point the way with certainty to the possible expansion or, at least, revision of the present Unification plan. Possibly the answer might shed a revealing light on matters within the Institute itself which are in need of revision.

The Answer: Unfortunately, no specific answer is at hand. The arguments which have been heard regarding the aloofness of the State Associations quite generally fall within the following categories:

First: The Institute as a national organization is detached from local problems of the State Associations, consequently is unable to exercise any helpful influences in meeting such problems. Membership in the Institute, therefore, is just an added expense to be carried by State Organizations.

Second: The Institute should be conducted as an honorary or aesthetic society, and should not attempt to handle the business or practical affairs of the profession, which fall more naturally within the province of the State Organizations.

Recommendations: It is neither our purpose to answer the foregoing arguments, nor to make definite recommendations to the Board of Directors of the Institute. We are merely recording impressions, although it is recognized that there is much to be said concerning these matters.

Strange as it may seem, both arguments have been advanced by Institute members as well as State Organizations. Furthermore, we wish to point out that in any attempt to evaluate this situation, it must not be forgotten that quite generally the officers of the State Organizations are members of the Institute. This fact is often overlooked by Institute members in their consideration of the subject of Society relationship.

Constructive Suggestions: If the Institute desires to proceed along the lines of its present Unification project, it must initiate, adopt and effectively promote a policy and a program which will appeal to the State Organizations as sincere efforts toward solving professional problems of local importance. In consideration of that program the following items may be of importance to State Organizations:

1. To increase the influence and importance of State Organizations and their membership within their own geographical limits.

2. To serve the entire profession by group advertising, done in a professional way.

3. To oppose, as a profession, all unfair competition by governmental bureaus in whatever capacity they may be, and all others not qualified to practice architecture.

4. To suggest and promote laws which will tend to strengthen existing state laws concerning the registration of architects and the practice of the profession.

5. To oppose vigorously any legislation which may tend to lower the standards of registration of architects or for the practice of the profession.

Conclusion: It is suggested to the Board of Directors of the Institute that:

1st: The name of this committee be changed to "The Committee on State Organizations."

2nd: The membership of the committee include one Institute member from each of the thirteen existing State Organizations, whether or not such organizations are affiliated with the Institute.

3rd: The membership of the committee be made by election or appointment by the State Organizations.

4th: The Chairman of the committee be a member of a State Organization as well as the Institute, and be appointed by the President of the Institute.

5th: The Board of the Institute appropriate a sum for purpose of this committee sufficient to allow its representative to make one visit during the year to a meeting of each State Organization, together with a sum sufficient to carry on the business of the committee.

The State Associations affiliated with the Institute presented the following resolution, which was unanimously passed by the Convention of State Architectural Societies, for action by the Institute:

BE IT RESOLVED that the recommendations of the aforementioned report as revised be carried out in detail, and be it further

RESOLVED that the Institute adopt a vigorous policy of nation-wide organization of State Associations, and be it further

RESOLVED that the Committee set up under the recommendations of the report study carefully those portions of the Standard Form of Chapter By-Laws which pertain to State Associations and their affiliation with the Institute, and make recommendations for their revision to the proper authorities for action at the earliest possible time.

Mr. Crawford introduced this report and resolution at the Institute session of June 2, 1937. It was unanimously adopted by the Convention, which by resolution of the Board of Trustees and confirmed by the entire Convention set aside $1000.00 to be used in the promotion and strengthening of State Associations in accordance with the report submitted.

It is reasonable to assume that by this definite action of the Institute, State Associations will be conducted this coming year by a Committee consisting of one representative of each State Association, with a National Chairman, who will be called upon to make visits to the State Associations with the idea in mind of getting those Associations which do not belong to the Institute to affiliate, and further, to strengthen these

organizations in any way that may seem proper, leaving, however, the State Associations with all freedom of action as independent State Groups allowing them to determine matters of policy which are not in conflict with the Institute. It is your delegate's belief that this action of the Convention has done a great deal toward removing some of the criticisms which have been directed toward the Institute, i. e., lack of active work on the part of the Institute in forming State Associations and lack of any return to the State Associations for the moneys collected by the Institute from them."

Our compliments are extended to Mr. Crawford for his able representation of the California Association, as well as for his excellent report (of which the above is an excerpt.).

STATE LEGISLATION

The following Bills in which our Association was interested were passed, and signed by the Governor:

A.B. 722; Relating to State, regional, county and city planning.

A.B. 880; Relating to the estalishment of Business and Professions Code.

S.B. 240; Amending the Contractors' Act.

S.B. 253; Amending the Business and Professions Code.

S.B. 524; Revision of the State Housing Act (effective Aug. 28, 1937). (These changes will be printed in full in a later issue.)

CONFERENCE BOARD

The Joint Conference Board, to which many references have been made in the Bulletin, has changed its title as above stated—at the suggestion of our Stalwart Suggester, Albert J. Evers, who always pops up with sensible ideas. The name now will have an intelligible meaning to the general public, and in particular to the various Trades Unions with whom agreements are being negotiated. This board has already been helpful, and is expected to be of increasing usefulness, in these very important negotiations, the success of which is essential if the building situation is to be stabilized.

OFFICE FORMS

Henry C. Collins, Chairman, has presented certain changes in our standard S.A.C.A. forms, which the Executive Board has agreed are desirable. Proofs are being prepared for final submission to the Board.

DISCOVERS CALIFORNIA

Interesting, in view of the previous attitude of the Pennsylvania Association of Architects toward Unification, is the report of a Pennsylvania architect on California conditions, published in their Journal. Mr. Knickerbacker Boyd comments in detail on the history of the California Association (as reliably informed by Robert Orr, our current Father Serra) and specifically on the arrangements made with **The Architect & Engineer** and the Southwest Builder & Contractor for "Architects' Reports" news services. He says:

"There is no doubt in my mind that the results accomplished by these energetic gentlemen in California can equally well be obtained by us in Pennsylvania, and I for one would like to see a start made in a similar manner by our State Association without undue delay. . . . In the battles which lie before us, and in the words of Shakespeare, 'Money is a good soldier, sir, and will on.' "

1937 CONVENTION

The Executive Boards (north and south) have set October 14, 15, and 16, as dates for the 1937 convention, to be held in Santa Barbara. Reserve your time now for the Big Show.

Architects Chapters

ANNUAL SUMMER OUTING

Southern California Chapter held its annual summer outing at the Flintridge Riding Club in Flintridge, July 13, with approximately 40 members and guests in attendance.

A baseball game was featured by some lusty slugging on the part of Herbert Powell, Allen McGill, George Allison and Welton Becket, and a pitching duel between Samuel Lunden and Paul Hunter was an event worth witnessing.

Contestants at horeshoe pitching were treated to a remarkable display by Earl Heitschmidt and Eugene Weston, whose ability to ring everything but the peg kept the spectators well back out of range. A nail driving contest proved that the architects' knowledge of nails is entirely theoretical.

Honors on the badminton court were carried off by Don Emmons, Wm. Harrison, Edgar Bissantz, Walter Reichardt, H. Roy Kelley and Arthur Hutchason, all of whom proved that they are as facile with the racquet as they are with the pencil.

Following the athletic program, dinner was served under the oak trees on the clubhouse grounds.

Wm. Harrison introduced John H. Soldini, who announced a picture called "Heat and Its Control." The picture was shown by the joint technical societies of Los Angeles at the Engineers' Club, 333 Biltmore Hotel, July 29.

The following members and guests attended: Robert Murray, A. C. Zimmerman, Ralph Flewelling, George J. Adams, W. L. Risley, Don Emmons, Breo Freeman, Wm. J. Stone, P. A. Eisen, E. A. Evans, Walter Davis, Henry P. Withey, R. Germain Hubby, Carleton M. Winslow, Earl T. Heitshmidt, Herbert Powell, Ben O'Connor.

Samuel E. Lunden, S. B. Marston, Wm. M. Black, John H. Soldini, J. Robert Harris, Wm. H. Harrison,

Edgar Bissantz, R. H. Ainsworth, Robert D. Farquhar, Colin Farquhar, Paul Robinson Hunter,Welton Becket, George B. Allison, Walter Reichardt, Clifford H. James, Eugene Weston, Jr., Allen McGill, Arthur R. Hutchason, H. Roy Kelley, Reginald D. Johnson.

A.I.A. COAST LEAGUE

Inspection of the work of several Tacoma architects and general discussion of the advisability of forming a Pacific Coast League of the A.I.A. occupied the attention of the members of Washington Chapter who met as guests of the Tacoma group June 19.

Under the direction of Charles T. Pearson, president of the Tacoma Society of Architects and member of the recently organized firm of Lea, Pearson and Richards, a caravan was formed and an inspection tour made which included the following projects: The Lakewood Community Center, designed by Silas E. Nelsen; the mortuary chapel at Mountain View Burial Park by Mock and Morrison; and the new residence for John P. Weyerhaeuser, Jr., at American Lake, by Lea, Pearson and Richards.

The recently occupied quarters of the Club Tacoma, prepared under the direction of Charles W. Lea, Jr., were the scene of the monthly dinner meeting. After considering the crisis caused by mounting building costs, the members turned to discussing the advisability of forming regional groups of the A.I.A., with especial attention being paid to starting a Pacific Coast League at the 1938 national convention to be held in San Francisco.

ARIZONA CHAPTER

Arizona Chapter, American Institute of Architects, has been organized with Roy Place of Tucson, president; Leslie Mahoney of Phoenix, vice-president; M. H. Starkweather, Tucson, secretary, and Fred Whittlesey, Phoenix, treasurer. The Chapter has seven charter members but 16 will be affiliated with the group. Arizona architects were formerly within the jurisdiction of Southern California Chapter.

OREGON CHAPTER PICNIC

Oregon Chapter, A.I.A., held its annual picnic Tuesday, July 20, at Hatton Beach, near the Carver Bridge on Clackamas River. Abbott Lawrence, Failing Building, Portland, had charge of the entertainment features.

$150,000 BERKELEY SCHOOL

Plans are being completed by Architects Dragon & Schmidts, B. Reede Hardman and Gwynne Officer, for a thirteen-room, one- and two-story reinforced concrete school building for the Whittier Elementary School, Berkeley. W. Adrian is the structural engineer. Bids will be advertised this fall.

FIRST DROP IN BUILDING PERMITS IN TWO AND A HALF YEARS

(Dun & Bradstreet)

Three successive monthly declines brought the June volume of building permits below that of June, 1936. It is necessary to go back two and a half years, or to December, 1934, in order to find a decrease in building from the same month of the preceding year. At that time the drop was 15.2 per cent.

Building permit values for 215 cities of the United States, according to Dun & Bradstreet, Inc., amounted to $96,640,306, a loss of 3.7 per cent from the May figure of $98,304,779. There is no change for the normal seasonal movement for this period. The June total compared with $112,640,106 for the same month last year, or a decrease of 16.0 per cent, most of which was due to the sharp decline in permit values at New York.

Permits for New York aggregated $11,941,054 during June, the smallest since February, 1936, and compared with $19,346,563 in May, and $40,011,404 in June a year ago. This represented decreases, respectively, of 38.3 and 70.2 per cent.

Outside of New York the building volume totalled $82,699,252 last month, a gain of 4.7 per cent over the May figure of $78,958,216, and an increase of 13.9 per cent as compared with the 1936 comparative of $72,628,702.

The group totals of building permit values for the 215 cities for June, this year and last, together with percentage changes, are shown in the following table:

Groups:	June 1937	June 1936	Change P. Ct.
New England	$5,177,445	$4,596,764	+ 12.6
Middle Atlantic	21,744,273	50,844,122	— 57.2
South Atlantic	9,963,400	9,793,123	+ 1.7
East Central	27,513,163	18,580,398	+ 48.1
South Central	8,918,072	8,498,786	+ 4.9
West Central	4,425,362	3,900,565	+ 13.5
Mountain	1,999,995	1,772,228	+ 12.9
Pacific	14,898,596	14,654,120	+ 1.7
Total U. S.	$94,640,306	$112,640,106	— 16.0
New York City	$11,941,054	$40,011,404	— 70.2
Outside N. Y. C.	$82,699,252	$72,628,702	+ 13.9

CEMENT ASSOCIATION'S NEW CHIEF

Election of Frank T. Sheets as president of the Portland Cement Association, effective September 1, was announced in Chicago by Charles L. Hogan of New York, chairman of the Board. He succeeds Edward J. Mehren, who resigned last month to take care of his personal interests.

Mr. Sheets for the past four years has been consulting engineer and director of development of the Association.

Prior to that time he had been associated with the Illinois Highway Department for twenty-three years and for twelve years as superintendent of highways and chief engineer.

With the Architects

TO REMODEL RESIDENCE

Plans have been completed by Architects Hertzka and Knowles of San Francisco for alterations to the residence of George Goodday at 2513 Pierce Street, San Francisco. The same architects have a $13,000 store building at San Anselmo.

SACRAMENTO BANK BUILDING

S. Heiman, 605 Market Street, San Francisco, has completed working drawings for a one-story Class C bank building at Fourth and J Streets, Sacramento, for the West Coast Life Insurance Company. The estimated cost is $35,000.

BANK BUILDING

The Bank of America is to have a new building at Jackson, Amador County. The architectural department of the Capital Company, San Francisco, is preparing the plans. L. H. Nishkian is the structural engineer.

BURLINGAME RESIDENCE

Clarence Postley is the owner of a seven-room modern style residence to be built in Chapin Lane, San Mateo County, from plans by Gardner Dailey, 210 Post Street, San Francisco.

CLUB HOUSE REMODEL

John H. Ahnden, architect, of San Francisco, has completed drawings for extensive alterations to the two-story club building on McAllister Street for the Society of California Pioneers. About $15,000 will be expended on the improvements.

MONASTERY BUILDING

Construction is under way for a two-story reinforced concrete Franciscan monastery on 34th Avenue, Oakland, from plans by John Donovan, 950 Parker Street, Berkeley. There will be a tile roof. The work will cost in excess of $100,000.

BERKELEY RESIDENCE

Architect Edwin L. Snyder of Berkeley has awarded a contract for the construction of a Mediterranean style home in the Taylor Gardens Tract, Berkeley, for John R. McKee. There will be circulating gas hot air heat, air conditioning, tile roof, etc. The cost is placed at $15,000.

APARTMENT BUILDING

R. R. Irvine, 2048 Market Street, San Francisco, has completed plans for a $65,000 three-story frame apartment house, at 26th Avenue and Fulton Street, for Michael J. King of 231 Franklin Street, San Francisco. There will be fifteen 2- and 3-room apartments.

THEATER REMODELING

S. Charles Lee, 381 Bush Street, San Francisco, has let contracts for remodeling the Majestic Theater at 2465 Mission Street, San Francisco.

At San Anselmo the lobby and exterior of the Tamalpais Theater will be modernized from drawings by Norman R. Coulter, 45 Kearny Street, San Francisco.

A contract has been let by A. A. Cantin, architect, 64 Pine Street, San Francisco, for remodeling the U. C. Theater on University Avenue, Berkeley, at a cost of $7,500.

Mr. Cantin has also let a contract for remodeling a theater building in Napa into a market.

PRIZE FOR BELLINGHAM ARCHITECT

Franklin C. Stanton of Bellingham, Washington, has been awarded first prize in House & Garden's competition.

The award is for Class Two, covering houses of six rooms and under.

Mr. Stanton graduated from the University of Michigan, College of Architecture, in 1916.

HIS FOURTH YEAR

Elmer C. Jensen of the architectural firm of Mundie, Jensen, Bourke & Havens, has been elected president of the Illinois Society of Architects for the fourth time. He headed both the administration and members' tickets. Arthur Woltersdorf, also on both tickets, was elected first vice-president for the third time. Both officials are practicing architects in Chicago.

ALBERT H. LARSEN BUSY

The office of Albert H. Larsen, 333 Kearny Street, San Francisco, is busy preparing plans for a number of important projects, including apartment houses and residences. Bids were taken in July for an $8,000 house for R. N. Haight, Douglas, near 26th Street, San Francisco.

SAN JOSE LODGE BUILDING

Alterations are to made to the lodge and store building belonging to the Moose Hall Association, San Jose. Binder and Curtis are the architects. The same firm is completing plans for an addition to the Hazel Hawkins Memorial Hospital in Hollister to cost $40,000.

DUPLEX RESIDENCE

Plans have been finished and bids taken by Architect Otto G. Hintermann, Call Building, San Francisco, for a duplex residence to be built in the Aragon Tract, San Mateo, for Manuel Coroia, 207 South Claremont, San Mateo. The estimated cost is $14,000.

PERSONAL

The partnership existing between Architect **L. G. Scherer** and **K. D. Denney,** known as Scherer & Denney, and located at 8555 Sunset Boulevard, Hollywood, was dissolved on July 15.

Sidney B. Hayslip, Portland architect of 14 years experience, recently moved into new quarters in Room 418, Spalding Building. He was previously located in the Fenton Building.

John B. McCool, architect of San Francisco, is taking a three-months trip to Persia to make an architectural survey.

Claud B. Barton, Oakland architect, participated in the British Columbia lawn bowling tournament at Vancouver last month. When Barton is not leaning over the drafting table he is striving for the shot on the Lakeside Park bowling green, Oakland.

David R. Myers, of Myers, Ellis and Hennessy, 431 Central Building, Seattle, has returned from a business trip to Alaska.

Harry E. Nordquist, Jr., graduate of the School of Architecture, U. of W., and member of the firm of Nordquist and Milner, 704 Textile Tower, Seattle, was recently issued a license to practice architecture by the Washington State Department of Licenses, Olympia.

Ivan M. Palmaw, Seattle architect with offices at 437 Burke Building, has been retained by the Seattle City Light Department to design a housing project at the Ruby Dam site.

Cecil Schilling, architect, of Long Beach, has been elected chairman of the City Planning Commission of that city. Mr. Schilling was appointed a member of the commission in 1933 and was recently reappointed for a four-year term.

Appointment as a supervisor for the graduate scholarship competition of the School of Architecture and Allied Arts, New York University, is the honor recently conferred upon **Fred Aandahl,** member of Sutton, Whitney and Aandahl, architectural firm with offices in the Lewis Building, Portland, Oregon.

SALES AND SHOP BUILDING

Working drawings have been completed in the office of Architect Will P. Day, Financial Center Building, San Francisco, for a one-story reinforced concrete sales and shop building on Fremont, near Folsom Street, San Francisco, for Edward B. Ward & Company. There will be a modern black and green glazed tile and aluminum front. Cost about $10,000.

TROLLEY CAR BUNGALOW COURT

A novel bungalow court made up of retired trolley cars was completed recently at San Diego. The cars, minus their running gear, are mounted in pairs on concrete foundations, each pair containing two apartments of three rooms and bath.

BENJ. G. McDOUGALL, ARCHITECT

The recent passing of Benjamin G. McDougall, architect, brother of George B. McDougall, State Architect, was a shock to his many California friends. Death was caused by a heart attack. Mr. McDougall was one of the first San Francisco architects to use reinforced concrete for high office buildings. With John B. Leonard as his structural engineer, he designed the eight story Sheldon Building, at Market and First Streets, which was erected following the fire and earthquake. He was architect of the Shattuck Hotel, since named the Whitecotton, in Berkeley, and also the Y. M. C. A. Building in Berkeley.

Before establishing offices in the Bay Region Mr. McDougall practiced his profession in Fresno, where he designed many of the more prominent commercial structures, hotels, apartment houses and schools. When business dropped to nil during the recent depression, Mr. McDougall was engaged in architectural work in Sacramento. For quite a few years he made his home in Berkeley.

WINS GOLF TROPHY

LaMonte Shorett, member of Lytel and Shorett, Securities Building, Seattle, won the Clay Products Golf Trophy, the prize sought by members of the Washington State Chapter, A.I.A., June 25, at the University Golf Course, Seattle. The contest for second place developed into a three-way tie enjoyed by Floyd A. Naramore, George W. Stoddard and George W. Groves.

PALO ALTO ALTERATION WORK

There is much alteration work going on at the Stanford University campus, Palo Alto. At least three sorority and fraternity houses are undergoing transformation. Modernization has long been needed and the owners are taking advantage of the summer vacation to make the improvements. The H. H. Larsen Company is doing most of the work.

PORTLAND DWELLINGS

Construction of 24 new residences, ranging in cost from $4,000 to $12,000, is foreseen in the Kilpatrick, Undine and Park Hill additions late this summer and fall by Ward Cook, Inc., 407 Southwest Fourth Avenue, Portland.

BARRACKS BUILDING

Working drawings have ben completed by Architect J. W. Plachek of Berkeley for a barracks building at the county prison farm, near San Leandro, at a cost of $13,000.

PETALUMA FIRE HOUSE

Architect Brainerd Jones of Petaluma has completed plans for a two-story frame and stucco fire house for the city of Petaluma. Steel roof trusses will be used. The appropriation is $40,000.

STRUCTURAL ENGINEERS ASSOCIATION OF NORTHERN CALIFORNIA

DISCUSSES ARCHEOLOGY

The regular meeting of the Structural Engineer's Association of Northern California was held at the Engineer's Club, San Francisco, Tuesday evening July 6.

Immediately following the dinner, John S. Bolles, an architect and archeologist, told about some of his work in archeology and how fascinating it becomes to those who work at it; even the laborer soon becomes enthusiastic.

After a short intermission Association members and their guests were entertained by H. Wm. Bernhardt and A. P. Donia, representing the Pan-American Airways System. Mr. Bernhardt described the service offered by Pan-American and then sound moving pictures were shown, covering the trip along the Pan-American route from the United States down around South America.

Interesting close-ups of the people along the route, their great public buildings and parks and the natural scenery in which they live, made up a large part of the film. One film featured the Pan-American route across the Andes. The planes on this trip rise to 14,000 feet and cross the Andes at Uspallata Pass, which is just south of Mount Aconcagua, (altitude 22,850 feet, the highest mountain in the Western Hemisphere. Uspallata Pass is the location of the famous Christ of the Andes. The scenery along this route is magnificent. Rugged peaks and deep valleys make a continually changing picture to hold the attention of the traveler. Following the showing of the film, Mr. Bernhardt was called upon to answer several questions about Pan-American.

The regular business meeting followed showing of the films and although the hour was late when the meeting was officially adjourned, most of the members stayed a little longer to see William Adrian's movies of those who attended the Structural Engineer's annual picnic June 5th.

DOUBLE BILL FOR AUGUST MEETING

Besides the picture, "Empire of the West," which deals with the Metropolitan Water District of Southern California's quest for water, and the subsequent building of Parker Dam with its many miles of viaduct and canals, there will be presented at the August 17th meeting of the San Francisco Section, A. S. C. E., a moving picture, "Modern Transit," which deals with the modernization of rail transportation with particular reference to modern rail and highway equipment.

Norman Raab states that L. W. Birch, Transportation Engineer of the Ohio Brass Company, who has been intimately associated with each of the projects presented in this picture, will give a brief address preceding the reel. Mr. Birch is a member of the A. I. E. E., the American Railway Engineering Association, and the American Transit Association, and is at present serving on five engineering committees of the latter organization. His subject for the evening will deal with the Civil Engineer's side of the modernization of rail transportation.

"Empire of the West," a motion picture released by the Metropolitan Water District of Southern California, second feature of the evening, dramatizes man's conquest of the desert by the building of the Colorado River aqueduct along a 300-mile front. In the prologue, dealing with pioneer days in California, the role of the early Californian is played by Leo Carrillo, motion picture actor. The picture illustrates in detail the methods and equipment employed in constructing the project's 108 miles of tunnels, 63 miles of lined canals, 55 miles of conduits, 28 miles of siphons, 155 miles of distributing mains, in addition to various dams and pumping plants.

Typical shots: Parker Dam site diversion tunnel portals; conduit construction in Coachella Valley; completed canal sections; backfilling completed; concrete conduit with walking dragline; and placement of inside steel forms for open-cut aqueduct and carriage for moving it in place.

AUGUST MEETING

The August 3rd meeting of the Structural Engineers Association of Northern California was devoted to the subject, "The Engineer's Field of Participation in Civic Affairs." The principal speaker was Herman Weinberger, attorney, San Francisco.

MICHIGAN'S ONLY LADY ENGINEER

Elinore L. Tarbell of Jackson is the only woman in Michigan to hold an engineering degree from the University of Michigan. She graduated last June in Civil Engineering.

While Miss Tarbell is deeply interested in her profession, she has some apprehensions regarding advising other women to take up this course.

"I am convinced," she says, "that it is next to impossible for a girl to enter the profession. Perhaps she can get into a drafting room somewhere, but even that is difficult. I know, having tried for two years to locate a job.

"I am not complaining about the University or my professors. At Tri-State they told me I was taking a

long gamble, and at Michigan they told me I was plain crazy. It was a lot of fun, but one expects more than fun out of a college education.

"I know a number of women who have found geology an attractive profession and who are making good in it. I've done my field work and more. I have learned I can take it so perhaps I shall find my opening in that line."

Miss Tarbell is a cousin of Ida M. Tarbell, famous woman writer.

She first started studying architectural engineering at Tri-State University, and changed to civil engineering and now looks toward the geological field.—Ex.

ANENT STEEL WAREHOUSE COLLAPSE

Collapse of a steel frame warehouse building which was being erected at 4615 Bandini Boulevard, Los Angeles, mentioned in the July issue of this magazine, has been followed by a statement by the Los Angeles County Department of Building and Safety, William J. Fox, chief engineer, and Clyde N. Dirlam, building inspector, maintaining there was no fault in the structural design or suitability of materials but that it was due rather to "an error in judgment of those in charge." The statement follows:

"With reference to the collapse of the steel frame warehouse building which was being erected at 4615 Bandini Boulevard, for the Pacific Nut Oil Company, we wish to state that the collapse occurred at 9:15 on Wednesday morning, June 23, and that we began our examination of the wreckage at 2:30 that afternoon. The facts given in this statement are based upon our observation and upon evidence which was brought out at the coroner's inquest.

"Plans had been submitted to the Building Department and were approved and a building permit was issued covering the construction of the job. In our opinion there is no question regarding the adequacy of the design, nor is there any question regarding the suitability of the materials. We feel that the designers were not in any way responsible for what occurred.

"Erection work began on Monday morning, June 21, and at the end of the working day on Tuesday, June 22, the eighteen steel trusses were in place and were tied together by means of a few purlins and the ridge struts which were in place along the entire length of the building. There was one bolt in each connection of these purlins and struts.

"The plans call for a system of diagonal rods between trusses which were to give the building the necessary rigidity. At the time of the collapse only one of these rods was in place and that happened to be one which could not act in the direction toward which the trusses fell.

"It had been noticed that the frame was leaning out of plumb about six inches to the north. Two cables were attached to the peak of one truss and to the base of another truss and by means of turnbuckles in these cables the frame was pulled back to the vertical position. There was no counter brace of any kind which could have prevented movement to the south.

"The erection crew had begun to fill in between the trusses at the north end of the building and were using a whirly crane for this purpose. Suddenly it was noticed that the entire structure was leaning to the south and from then on collapse was rapid and resulted in all trusses falling to the south and laying on the concrete floor. The two men who were killed were working up in the frame and were unable to escape.

"The significant fact so far is to note that there were no permanent or temporary bracing in the structure which could have prevented collapse toward the south.

At the coroner's inquest the foreman testified that everyone on the job thought that it was safe, although he admitted that the usual method of procedure in erecting such a structure was to place the diagonal bracing as erection proceeded. He also admitted that this was not done and that the two temporary bracing cables which were installed could only prevent motion toward the north.

"While it is not possible to say just what gave the impulse which started the collapse, it is quite evident that had the usual methods of erecting such a structure been followed and had the permanent diagonal bracing been installed as erection progressed, or had there been even a few properly placed temporary cables, collapse would not have occurred.

"We wish to again emphasize that the designers are in no way to be blamed for this accident and that it was not a failure of material, but rather an error in judgment of those in charge."

EMPLOYMENT OF AN ARCHITECT

The following article, which has been syndicated throughout the country, is typical of the helpful hand extended to the architectural profession by the Federal Housing Administration:

It is estimated that approximately 80 per cent of the houses erected in this country are built without architectural service.

The employment of an architect, however, usually results in a more artistic and practical house and tends to effect economy in materials, labor, and general construction costs.

His supervision is invaluable in assuring satisfactory building results. In making his plans he can consider not only the immediate needs of the persons who will occupy the building, but can arrange to facilitate alterations that may be contemplated in the future.

The fee earned by the architect is paid usually many times over in the benefits his experience and knowledge bring to his clients.

Homes financed under the terms of the Federal Housing Administration program must be constructed according to certain standards, and the employment of an architect will assist in meeting these requirements.

FEDERAL HOME BUILDING SERVICE PLAN HITS JERRY BUILDERS

A nation-wide program to assure the small home builder a sound investment and eliminate shoddy construction, with its inherent waste and loss of property values, is announced by the Federal Home Loan Bank Board.

Developed and tested during the past two years through the 12 Regional Banks of the Federal Home Loan Bank System and its leading member institutions the plan will link home-financing agencies and architects and technicians to bring supervised construction to a field which embraces 83 per cent of American families, whose annual income of $3500 or less restricts them to homes costing less than $8,000.

The plan, to be known as the Federal Home Building Service Plan, is designed not only to benefit the home seeker, but to safeguard lending agencies in a field where it is expected that $2,000,000,000 will be spent annually for the next decade—the biggest single item on the nation's construction program. It strikes directly at past evils which have resulted in rapid deterioration of properties, dwindling equities and the passage of entire neighborhoods into obsolescence.

In "one package," the home seeker gets: (through his lending agency)

- Sound financing counsel.
- The largest loan and most liberal terms consistent with his resources and credit.
- Competent architectural aid in designing his home.
- A structure suitable to his family needs, site and neighborhood.
- Selection of a qualified contractor.
- Specification of proper building material and a check on those materials.
- Supervision of construction.
- A Federal Certificate of Registration, stating that his home has been built under the Plan—thereby strengthening investment security and resale value.

The Plan is a localized enterprise, financed by local capital. All of the 3900 thrift and home-financing institutions of the Federal Home Loan Bank System are eligible as lending agencies to make use and direct the Plan locally. Once inaugurated, they enter into cooperation with groups of architects or technicians, already formed or in the process of organization in all parts of the country, who will supply a technical service at a modified fee. The groundwork for the program has been carefully developed through the field forces of the Bank System and the Home Owners' Loan Corporation, whose technical talent directed the reconditioning of 450,000 American homes and whose operations revealed the full extent of poor materials and flimsy construction in the low cost field. Official brochures giving complete details for establishment and operation of the Plan are now being distributed throughout the Bank System.

As pointed out by the Bank Board, the program is based primarily on the mutual interests of borrowers and lenders. The local lending agency will be enabled to grant preferential loans and terms to those who build under the Plan because of increased security furnished by proper design and construction. The services of architects can be obtained at moderate costs because of the development of quantity supervision in a field where their services have seldom been utilized. And economies of construction and a sounder investment will more than compensate the home owner for the technical fee included in construction costs.

The procedure for the home seeker heretofore forced to "shop" in a field with which he was totally unfamiliar, is simple in its application. When the prospective borrower applies for a loan his resources and credit are examined. If these are adequate he then is turned over to an architect approved by the Board, for guidance in selection of a site, design and working specifications. That completed the lending institution draws a loan agreement, the contractor is selected and the work proceeds with the least possible delay.

But the service to the home builder does not end there. Even proper designing and proper specifications, the Board declared, fail to guarantee sound building. Supervision of construction and a check on materials and workmanship, are vital at every stage of the building process. Essential protective services are extended until the owner is in possession of his completed property, the home registered with the Bank Board and the certificate of supervised construction issued.

Although the program was conceived primarily for the protection of the small home seeker, John H. Fahey, Chairman of the Bank Board, emphasized the interest of lending agencies in its purposes.

"The principle that those who lend money on the security of residential building should be concerned with its structural quality now is generally endorsed," said Mr. Fahey. "But something more than mere endorsement of principle is needed. To achieve better housing and safer loans lenders must actively foster better construction. As the building and home owning public is taught to insist on better home values, and as builders are provided with an incentive to build to a quality rather than a price, many of the evils now present in the small home field will be eliminated.

"There is alarming evidence of a return to careless planning and jerry building. Repeated warnings have been sounded. Instead af depending upon warnings, the Bank Board is placing in the hands of experienced lenders a practical program for the benefit of the individual of limited resources which will enable him to obtain the full advantage of his investment and own a home that is structurally sound and suited to his needs."

The Board emphasizes that the plan of supervised construction is not original. As early as 1930, the United States Building & Loan League endorsed the principle as the best means of safeguarding both lenders and clients. Numerous institutions have sought to raise financing and building standards by such means. But the Federal Plan, the Board pointed out, is intended to provide a single, practical pattern which can be applied throughout the country. Endorsement of the plan by the directors of the American Institute of Architects and the active co-operation of national leaders of that profession, which was announced several months ago, offers the needed link between financing and construction, lack of which has crippled past construction in the small home field.

WORLD'S FAIR WEST-WIDE

Tourist and travel bureaus are predicting that the 1939 Golden Gate International Exposition in San Francisco Bay will lift western travel to new high levels. It goes without saying that the visitors who cross the Rockies will be those with two weeks or three or perhaps more, at their disposal; the hurried three-day throngs will be no factor.

This evident truth, combined with the World's Fair theme of recreational resources on the Pacific slope, greatly enhances the value of the 1939 "Pageant of the Pacific" to California and the West as a whole. In the Hall of Western States and in the Vacationland palace on "Treasure Island" the sports and scenic highlights of the coastal and inland empires will be summarized, dramatized, compiled as a "sample room" from which the leisured visitor may select his side-trips, his route home, his next summer's itinerary.

California legislators were impressed by this broadening of the visitor's Western interest and knowledge, when they unanimously appropriated $5,000,000 to tell the State's story fully. The showing was made that the State itself, through tourist revenues in the Gasoline Tax and Sales Tax divisions and economies in Relief administration by reason of 5,000 man-years of Exposition employment stands to gain an actual $14,000,000 by such an expenditure.

Legislatures of eleven Western States are impressed by this same broad travel picture and are squarely behind the 1939 World's Fair. All of them will share its benefits, yet in California all the travel lines will converge—drawn by this $50,000,000 Exposition—and even more widely through California will the travel lines radiate as the visitors take up their homeward journey.

Beaches, mountains, lakes, agricultural valleys, mineralized districts, orchards, industries, historical sites, everything Californian will have been drawn to the attention of 20,000,000 leisure visitors on Treasure Island in 1939. The pervasive value of the tourist is too well known to require further comment; a share of his dollar finds its way into every commercial, professional and salaried classification.

Completion of 400-acre Treasure Island dredged up in the center of San Francisco Bay is scheduled for midsummer. Under a dozen contracts its $16,000,000 building program is rapidly taking shape. Participation —governmental and industrial—is enlisting rapidly. Fifteen hundred conventions will bring 2,000,000 delegates and their parties through California, in addition to the Exposition expansion of normally heavy tourist travel.

It is the duty of the 1939 World's Fair to draw maximum attendance; the duty and the pleasure of California's every corner will be to intrigue the standard "one out of each ten" visitors into returning here to live, work, produce and build a great State into a greater one.

GOVERNMENT FINANCE

Total resources of the member thrift and home-financing institutions of the twelve Federal Home Loan Banks now exceed $3,544,000,000, an increase of $208,000,000 in the last six months, the Federal Home Loan Bank Board has reported. At the same time the number of member institutions reached 3,876.

This compares with 3,840 members with total assets of $3,380,000,000 on April 30 this year, and 2,086 members with $2,607,000,000 assets on December 31, 1933.

With the increase in assets the total reserve credit capacity of members now is more than $1,000,000,000, the Board stated. Member institutions of the Federal Home Loan Bank System are required to make the larger part of their home mortgage loans on a long-term basis with periodic repayments by the borrower, generally monthly. The Federal Home Loan Bank Board encourages sound and economical home ownership through the extension of the long-term monthly amortized loan.

Member institutions are entitled to obtain long- and short-term advances or loans at low interest rates from their district banks, of which there are twelve as funds are needed by them to satisfy their seasonal needs and to augment their funds on hand for loans on homes. Demand and time deposits may be made by the institutions with these twelve banks.

Each member institution maintains an investment in stock of its district Home Loan Bank equal to at least one per cent of the total of the members' outstanding home mortgage loans.

Institutions eligible for membership in the Federal Home Loan Bank System include savings, building and loan associations, homestead associations, co-operative banks, savings banks, and insurance companies.

The twelve Federal Home Loan Banks are located in Boston, New York, Pittsburgh, Winston-Salem, Cincinnati, Indianapolis, Chicago, Des Moines, Little Rock, Topeka, Portland, and Los Angeles.

RESULT OF BUILDING COSTS SURVEY

Architect and Engineer,
Gentlemen:

Recently we asked you to co-operate with us in making a national survey into construction costs. You did so and we thank you. In fulfillment of our promise to supply each contributor with the results of the Survey, we attach a sheet indicating the Cost Differentials for all of the 47 cities reporting. We hope you will find this report useful. If there are any questions you wish to ask, please write us.

Sincerely yours,

Myron L. Matthews

THE DOW SERVICE
GENERAL BUILDING COST DIFFERENTIAL TABLE
June 30, 1937
Indicating Average Percentage Relationship of 47 Cities to New York, N. Y.

Albany, N. Y.	96.98	Newark, N. J.	98.20
Atlanta, Ga.	76.32	New Haven, Conn.	97.45
Baltimore, Md.	80.58	New Orleans, La.	84.66
Birmingham, Ala.	85.75	New York, N. Y.	100.00
Boston, Mass.	99.95	Omaha, Nebraska	95.23
Buffalo, N. Y.	90.38	Paterson, N. J.	97.10
Charlotte, N. C.	65.38	Philadelphia, Pa.	89.80
Columbus, Ohio	88.90	Pittsburgh, Pa.	105.20
Chicago, Ill.	98.88	Providence, R. I.	89.70
Cincinnati, Ohio	94.26	Richmond, Va.	66.66
Cleveland, Ohio	97.70	Rochester, N. Y.	96.10
Dallas, Texas	91.54	St. Louis, Mo.	106.20
Denver, Colorado	98.45	St. Paul, Minn.	102.00
Detroit, Michigan	97.80	San Francisco, Cal.	79.90
Des Moines, Iowa	94.95	Seattle, Wash.	78.80
Grand Rapids, Mich.	64.40	Shreveport, La.	84.28
Hackensack, N. J.	96.90	Syracuse, N. Y.	92.65
Hempstead, N. Y.	90.38	Toronto, Canada	75.00
Houston, Texas	84.52	Utica, N. Y.	82.66
Jersey City, N. J.	103.66	Watertown, N. Y.	97.65
Kansas City, Mo.	95.07	White Plains, N. Y	96.45
Los Angeles, Cal.	79.16	Wilmington, Del.	92.92
Minneapolis, Minn.	100.85	Wyandotte, Michigan	90.90
Montreal, Canada	78.16	Yonkers, N. Y.	101.97

NOTE: These differentials reflect the average difference in cost between New York, N. Y., and each city listed. When applied to a specific class of building they may be in error, but when used for general purposes will be found quite accurate. The Los Angeles Differential of 79.16 means that Los Angeles costs are 20.84 per cent less than New York. The Atlanta Differential of 76.32 means that Atlanta costs are 23.68 per cent under New York.

It is possible with a little arithmetic to arrive at the cost differences between your city and all the others by simply considering your city as base at 100 and using your city's differential as the divisor in the series of arithmetic examples.

You are free to make any public use of this data you care to. In so doing our only requirement is that source credit be given to The Dow Service Cubic Foot Cost Standard Calculator.

Myron L. Matthews, Secretary.

GAS STEAM IN MAUSOLEUM

Gas steam heating of the most modern type provides comfortable temperatures in the recently completed mausoleum of the Mt. View Cemetery Association, Piedmont. Designed by Will P. Day, the group includes the main mausoleum, the 3000 crypts, chapel

and patio, a crematorium and administration building.

Steam lines are run under the floors from a gas boiler installation to supply heat to this group of buildings. The boiler is equipped for completely automatic operation and the high efficiency of gas fuel provides the most successful type of heating system that could be installed.

The new Mt. View Mausoleum is probably the first structure of its kind to be provided with heating, which has previously been neglected in planning. Comfortable temperatures on cold winter days create a conservatory-like atmosphere throughout the buildings.

MORE OIL FOR HEAT

Fuel oil prices are now considered stable, according to G. Harvey Porter, Managing Director of the Oil Burner Institute, announcing the results of a mid-year survey of the industry which the Institute has just completed.

Commenting on the increasing use of oil as a heating fuel, Mr. Porter revealed that during the past seven years, which included all of the depression period, more than 700,000 oil burner installations were sold throughout the country for household heating.

"During the same period the average retail price of number two fuel oil, most commonly used for household heating, has been 6.85 cents in New York, and approximately the same average applies for most of the rest of the country.

"There is a vital fact regarding fuel oil which should be borne in mind by those whose business it is to be concerned with commodity prices and by the million and half Americans who live in homes equipped with automatic oil heat.

"This fact is that the price of fuel oil is controlled by the oldest, most reliable of forces—free competition. The innumerable oil companies, as well as the 7,500 jobbers in the United States, sell against one another, and thereby keep prices steady at the lowest economic point."

CHANGES NAME

Effective July 1st, the name of Concrete Engineering Company was changed to Ceco Steel Products Corporation, according to an announcement made by C. Louis Meyer, president of the company. It was stated that expansion of the services and products of this organization made it necessary to adopt a name which would be more descriptive.

Ceco products now include steel joists, steel windows, metal frame screens, metal weatherstrip and metal lathing materials as well as reinforcing steel and welded wire fabrics, patented steel-forms and adjustable shores and column clamps.

There will be no change in management or personnel and general offices will continue to be located at Omaha, Nebraska, with branch sales offices and warehouses in principal cities. It was announced that 1937 marks the 25th anniversary of the Ceco organization.

BOOK REVIEW

STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. American Public Works Association, Chicago. 160 pages, loose-leaf. $3.00, binder $1.00.

For many years the American Society of Municipal Engineers had as one of its major activities the formulation of Standard Specifications for the construction of various types of municipal improvements. The present work is a revision and assembly of those specifications, as of 1936, published by the association formed by the consolidation of the American Society of Municipal Engineers and the International Association of Public Works Officials.

These specifications are intended to serve the public works engineer as guides or models for the preparation of actual contract specifications. They are not intended to be incorporated bodily in any set of contract documents. Local conditions, with which only the engineer responsible for a specific project can be familiar, must always be given full consideration and the specifications modified accordingly when necessary. However, when used as guides, these specifications will enable the specifying engineer to be confident that no essential item is overlooked and that the materials and construction methods specified conform to good practice.

The present edition consists of twenty-two specifications, two with sidewalks and curbs, one with brick pavements, one with stone block pavements, and nine with bituminous pavements. The specifications for Portland cement concrete pavements and for sewer construction are now being revised and will be given publication in the same format in the near future.

The format of this edition is entirely new, designed to facilitate revision and extension of the series.

"I AM A NEGRO"

The Paul Williams referred to in the following communication to the editor of the Courier-Journal of Louisville, is well known in Southern California as architect of a number of outstanding buildings. His latest work of interest is an apartment house illustrated in The Architect and Engineer for June, 1937. The letter:

A day or two ago I received a monthly magazine, "The American." In it was an article headed, "I Am a Negro," by Paul Williams, a Los Angeles architect. It was a real treat for every American Negro. I read it the moment I found it, and must say it was a masterpiece. I only wish it were possible for every Negro man, woman, boy and girl to read the same. In this article the writer proves that color is no real bar to one who has ambition, determination and willingness to fight to get to the top. It is true that he must have many discouraging experiences before his goal is reached, but they pay large dividends in the end. As a Negro, I am making this appeal through your paper to every one of my people who might read this letter to buy this magazine, read and digest well every word of this article. You will be repaid many, many times. If one reads this message and fails to become inspired, he has lost the vision that more than a million are striving to get a glimpse.

Judith Lacrelle Downs.

Louisville.

TAX PROVISIONS OF SOCIAL SECURITY ACT

Editor, Architect and Engineer
San Francisco, California

Dear Sir: Inclosed please find an article on the taxing provisions of the Social Security Act written expressly for the people in the industry among whom your periodical circulates. The facts contained therein cover the fundamental requirements found in Titles VIII and IX of the Act.

The Bureau will greatly appreciate any attention you may give this subject. At the same time it is obvious that you will be doing your readers a genuine service by providing them with information that will clarify some of the points in the Act about which they may be uncertain.

Yours very truly,
Guy T. Helvering,
Commissioner.

Delinquent employers in the contracting business and associated building trades are advised by Commissioner of Internal Revenue Guy T. Helvering to make immediate tax returns as required under the provisions of Titles VIII and IX of the Social Security Act to avoid further payment of drastic penalties which are now accruing.

Commissioner Helvering pointed out that every person employed in the contractors' business and associated building trades came under the provisions of Title VIII, which imposes an income tax on the wages of every taxable individual and an excise tax on the payroll of every employer of one or more. This tax is payable monthly at the office of the Collector of Internal Revenue. The present rate of employer and employee alike is one per cent of the taxable wages paid and received.

Under Title IX of the Act, employers of eight or more persons must pay an excise tax on their annual payroll. This tax went into effect on January 1, 1936, and tax payments were due from the employers, and the employers alone, at the office of the Collector of Internal Revenue on the first of this year. This tax is payable annually, although the employer may elect to pay it in regular quarterly installments.

The employer is held responsible for the collection of his employee's tax under Title VIII, the Commissioner explained, and is required to collect it when the wages are paid the employee, whether it be weekly or semi-monthly. Once the employer makes the one per cent deduction from the employee's pay, he becomes the custodian of Federal funds and must account for them to the Bureau of Internal Revenue.

Actual money, when paid as wages, is not the sole basis on which the tax is levied. Goods, clothing, lodging, if a part of compensation for services, are wages and a fair and reasonable value must be arrived at and become subject to the tax.

Commissions on sales, bonuses and premiums on insurance are wages and taxable.

Officers of corporations whether or not receiving compensation are considered employees for the purpose of taxation.

Wages paid during sick leave or vacation, or at dismissal are taxable.

Traveling expenses required by salesmen are not wages if the salesmen account for, by receipts or otherwise, their reasonable expenditures. That part of which no accounting is made is construed as a wage and is taxable.

Exercise great care in filling out Treasury forms SS-1 and 940. Directions are easy to follow and correct returns mean no unnecessary delay.

This is done, Mr. Helvering said, when the employer makes out Treasury form SS-1, which, accompanied by the employee-employer tax, is filed during the month directly following the month in which the taxes were collected. All tax payments must be made at the office of the Collector of Internal Revenue in the district in which the employer's place of business is located.

Penalties for delinquencies are levied against the employer, not the employee, the Commissioner pointed out, and range from 5 per cent to 25 per cent of the tax due, depending on the period of delinquency. Criminal action may be taken against those who wilfully refuse to pay their taxes.

The employers of one or more are also required to file Treasury forms SS-2 and SS-2a. Both are informational forms and must be filed at

Collectors' offices not later than July 31, covering the first six months of the year. After that they are to be filed at regular quarterly intervals. Form SS-2 will show all the taxable wages paid to all employees and SS-2a the taxable wages paid each employee.

Participation in a state unemployment compensation fund, approved by the Social Security Board, does not exempt employers from the excise tax under Title IX, Commissioner Helvering said. Nor does the fact that there is no state unemployment compensation fund relieve the employer of his Federal tax payments. In those states where an unemployment compensation fund has been approved deductions up to 90 per cent of the Federal tax are allowed the employer who has already paid his state tax. These deductions are not allowed unless the state tax has been paid.

This tax is due in full from all employers in states having no approved fund. The rate for 1936 was one per cent of the total annual payroll containing eight or more employees, and for 1937 it is two per cent. The rate increases to three per cent in 1938, when it reaches its maximum. The annual returns are made on Treasury form 940.

An employer who employs eight or more persons on each of twenty calendar days during a calendar year, each day being in a different calendar week, is liable to the tax. The same persons do not have to be employed during that period, nor do the hours of employment have to be the same.

BUILDING COSTS AND RENTS

In a recent editorial in the New York Herald-Tribune under the caption "Building Costs and Recovery" this paragraph appears:

"As to the ratio of building costs to rentals, this is not yet 'favorable' from a building standpoint. That is not because rents have not been rising recently; for they have advanced by just about as much as construction costs in the last twelve months. But the recovery in rentals must go farther than that of building costs to

restore the pre-depression balance, because rentals suffered a worse fall than building costs. Aside from the question of general prosperity, it would seem, therefore, to boil down to this one item. The rapidity of recovery in residential building will depend chiefly on the outcome of this adjustment between building costs on the one hand, and rental rates, on the other."

"Without discussing the arguable point as to whether or not rentals have recently advanced about as much as construction costs, what the editorial points out is the relationship between rental rates and building costs and the effect of that relationship on the rapidity of recovery in residential building may be applied to recovery in the real estate market as a whole.

The same factors that will make for increased building activity, mainly rental income which makes the ownership of real estate profitable, will bring improvement in the market because real estate will then become attractive as an investment. The same thing applies, of course, to the recovery of real estate in another direction, and that is the tapering off and the ultimate lifting of the mortgage moratorium which can only become a fact when circumstances are such that it is possible to refinance or extend on a reasonable basis those mortgages which are not on the face of them hopeless.

INSULITE PLAQUE

To provide contractors and builders with actual, visible evidence that the company's nationally advertised products are used in their structures, as well as to provide the consumer with a means of identifying the kind of insulation used when examining the property for rental or purchase, The Insulite Company, Minneapolis, Minnesota, has prepared a burnished brass plaque, size 6" x 5", embossed with red lettering, on a black background, and punched for tacking on the walls or supporting columns of structures in which their products have been used. The plaque is furnished without charge and provides

prominent spaces in which the names of the builders, the designer, and the address of the building are engraved by The Insulite Company. It also carries an imprint showing the company's seal of approved application.

It is felt that by identifying each plaque with the address of the building for which it is engraved, transfer of the plaque to other buildings will be avoided and that builders finding it difficult to demonstrate that Insulite insulation products have been used within the walls, will be amply supported in their sales efforts by showing their prospect the plaque.

NOTES AND COMMENTS

(Concluded from Page 2)

The Portland Chamber of Commerce has created an inner organization known as the City Planning Council and has assigned it the task of studying and promoting methods of correcting some of the unfavorable conditions in that city. The Council has been meeting regularly for several months for the review of work of its various sub-committees. It plans to co-operate with the City Planning Commission and other agencies concerned with urban planning.

Most pressing problems before Portland and the Planning Council are the depressed areas of the city and the question of transportation terminal unification. The highly decentralized freight terminal facilities in Portland are seen as a stumbling block to progress, inasmuch as there is no uniformity of switching charges in the city and the transfer of goods from one carrier to another within the city adds extra charges which, Portlanders feel, divert business elsewhere.

Foremost among the problem areas is the section of the business district lying along the west side of the Willamette River. For several years, property values in this region have been contracting until, in some cases, property owners contend that they

are unable to get enough rent to pay taxes and carrying charges. This condition, it is thought, has an ultimately disastrous effect on municipal finances.

The Chamber of Commerce's Planning Council believes that one of the first steps to be taken in the rehabilitation of the area is that of widening and improving Front Avenue along the river. An expensive "seawall" was built in this section some years ago, but nothing else has been done. At present, the area near the river is characterized by old buildings, most of which are in a run-down condition, and many of which are vacant.

At a recent meeting, the Planning Council adopted a resolution offered by the waterfront development committee, and calling for the widening of Front Avenue through the purchase of a 40-foot strip on the east side of the street and for the acquisition of the ground between the street and the waterfront for park purposes.

* * *

PRICE FIXING by trade associations and unreasonable wage demands by labor unions can have only one result, as far as private building construction is concerned. That result is stagnation . . . Private owners can afford to pay just so much, and no more, for housing. Owners feel that current building costs in Washington and western Oregon already have soared beyond their reach. This is indicated by the flood of stop orders received from clients by architects during the last six weeks. . . . Employers and workers should heed this warning. They may persist in maintaining an artificial price level for a while, but they will only lose, and lose heavily, in the end. It would be much smarter, from their standpoint, to keep costs within the range of those who would like to build, than to precipitate a buyer's strike.—Pacific Builder & Engineer.

* * *

Members of the Chicago Chapter of the American Institute of Architects voted to return to the Glessner estate the residence at the southwest corner of Prairie Avenue and 18th Street, Chicago, deeded to them in 1924 by the late John J. Glessner, one of the founders of the International Harvester Company. Inability to finance the project in compliance with the donor's wishes was given as the reason. It was built in 1886 from the plans by the late Henry Hobson Richardson, noted Boston architect.

* * *

PWA recognizes the need for thoroughgoing surveys with a view to determining future housing requirements. This alone should have a tendency to reduce costs inasmuch as planning removes part of the risk and the element of risk has tended to raise financing costs. Loaning institutions have had to contend with the fact that too many houses may be built in a single area to the end that market values in that section are partially destroyed.

WHAT SCIENCE MAY DO

Science has worked wonders, but has not scratched the surface, if the vision of Professor Thyndall Franck, University of Pennsylvania, should blossom into reality.

We have today far greater than the nine wonders of the world. Among other things the medical profession has made great progress in combatting disease, electrical engineers have given us the telephone, the radio, monster dams which supply man with abundance of water, electric trains, airships, automobiles, electric eyes which see and record facts and so on down through a long list of accomplishments, which makes life happier, easier and more enjoyable.

One might think we had reached the ultimate of our power, but not Professor Franck, who lists possible inventions which he thinks may be perfected during the next hundred years. Here they are:

The prolongation of the average human life to 100 years.

Rapid and complete cure of cancer, venereal disease and arthritis.

The control or abolition of all pain.

The creation of facilities for a round-the-world trip in 24 hours, in perfect safety.

The transmission of electricity without wires and without waste.

Mass production of radio transmitters and receivers no larger than a watch.

Transportation to the moon on interstellar machines.

The creation of artificial but perfect sunlight.

Popularization of chemical nourishment and feeding.

The preservation of feminine beauty until old age.

The perfection of a colored movie film in relief, to give a perfect illusion of reality.

THE new Broadway low level tunnel will be opened late in Sept., according to a recent announcement. Final completion will mark more than three years of actual work on the tunnel and will represent a $6,000,000 project. When finished the tunnel will consist of two underground highways 22 feet wide and 6,300 feet long.

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Classified Directory of Building Material Manufacturers, Dealers and Contractors

*Denotes subscriber of ARCHITECTS' REPORTS, sponsored and endorsed by State Association of California Architects, and published daily by THE ARCHITECT AND ENGINEER.

ACOUSTICAL AND SOUND CONTROL

WESTERN ASBESTOS Co., 675 Townsend Street, San Francisco.
INSULITE ACOUSTILE—The Insulite Co., 475 Brannan Street, San Francisco.
TURNER RESILIENT FLOORS, Inc., 141 New Montgomery Street, San Francisco.

AIR CONDITIONING

WESTINGHOUSE ELECTRIC & Mfg. Co., 1 Montgomery Street, San Francisco.
*ELECTRIC APPLIANCES, Inc., 2001 Van Ness Avenue, San Francisco.
*ALADDIN HEATING Corporation, 5107 Broadway, Oakland.
*FRANK EDWARDS Co. (General Electric), 930 Van Ness Avenue, San Francisco.

INSURANCE

*FIREMAN'S FUND Insurance Company, 401 California Street, San Francisco.

ARCHITECTURAL TERRA COTTA

N. CLARK & SONS, 116 Natoma Street, San Francisco.
GLADDING McBEAN & Co., 660 Market Street, San Francisco; 2901 Los Feliz Boulevard, Los Angeles; 1500 First Avenue South, Seattle; 79 S. E. Taylor Street, Portland; 22nd and Market Streets, Oakland; 1101 N. Monroe Street, Spokane; Vancouver, B.C.

BANKS

CROCKER FIRST NATIONAL Bank, Montgomery and Post Streets, San Francisco.

BATHROOM HEATERS

WESIX ELECTRIC Heater Company, 390 First Street, San Francisco; 631 San Julian Street, Los Angeles; 2008 Third Avenue, Seattle, Wash.

BLINDS—VENETIAN

HIGGINS CO., 1930 Van Ness Ave., San Francisco; 2335 Broadway, Oakland.
GUNN-CARLE & Co., 20 Potrero Avenue, San Francisco.
*H. E. ROOT, 1865 California Street, San Francisco.

BOILERS AND PIPE

*C. C. MOORE & Company, 450 Mission Street, San Francisco.

BRICK—FACE, COMMON, ETC.

N. CLARK & SONS, 116 Natoma Street, San Francisco.
GLADDING McBEAN & Co., 660 Market Street, San Francisco; 2901 Los Feliz Boulevard, Los Angeles; 1500 First Avenue, South, Seattle; 79 S.E. Taylor Street, Portland; 22nd and Market Streets, Oakland; 1102 N. Monroe Street, Spokane; Vancouver, B.C.
REMILLARD-DANDINI Co., 569 Third Street, Oakland; 633 Bryant Street, San Francisco.

BUILDERS HARDWARE

THE STANLEY WORKS, New Britain, Conn.; Monadnock Bldg., San Francisco; Los Angeles and Seattle.
*FARMER'S UNION, 151 W. Santa Clara Street, San Jose.
*MAXWELL HARDWARE Company, 1320 Washington Street, Oakland.
*P. and F. CORBIN, New Britain, Conn.

BUILDING MATERIALS

BUILDING MATERIAL EXHIBIT, Architect's Building, Los Angeles.

BUILDING DIRECTORIES

TABLET and TICKET Company, 407 Sansome Street, San Francisco, Exbrook 2878.

BUILDING PAPERS

THE SISALKRAFT Company, 205 W. Wacker Drive, Chicago, Ill., and 55 New Montgomery Street, San Francisco.
"BROWNSKIN" ANGIER Corporation, 370 Second Street, San Francisco.

CABINET WORK

*FINK and SCHINDLER, 552 Brannan Street, San Francisco.
MULLEN MANUFACTURING Co., 64 Rausch Street, San Francisco.

CEMENT

CALAVERAS CEMENT Company, 315 Montgomery Street, San Francisco.
PORTLAND CEMENT Association 564 Market Street, San Francisco; 816 West Fifth Street, Los Angeles; 146 West Fifth Street, Portland; 518 Exchange Building, Seattle.
"GOLDEN GATE" and "OLD MISSION" manufactured by Pacific Portland Cement Co., 111 Sutter Street, San Francisco; Portland, Los Angeles and San Diego.
*HENRY COWELL Lime & Cement Company, 2 Market Street, San Francisco.
*SANTA CRUZ PORTLAND Cement Company, Crocker Building, San Francisco.

CEMENT—COLOR

"GOLDEN GATE TAN CEMENT" manufactured by Pacific Portland Cement Co., 111 Sutter Street, San Francisco; Portland, Los Angeles and San Diego.

CEMENT PAINT

GENERAL PAINT Corporation, San Francisco, Los Angeles, Oakland, Portland and Seattle.
FRANK W. DUNNE Company, 41st and Linden Streets, Oakland.

CONCRETE AGGREGATES

GOLDEN GATE ATLAS Material Company, Sixteenth and Harrison Streets, San Francisco.
JOHN CASSARETTO, Sixth and Channel Streets, San Francisco.

CONCRETE CURING & PROTECTION

THE SISALKRAFT Company, 205 W. Wacker Drive, Chicago, Ill., and 55 New Montgomery Street, San Francisco.

CHEMICAL ENGINEERS

ABBOT A. HANKS, Inc., 624 Sacramento Street, San Francisco.
ROBERT W. HUNT, 251 Kearny Street, San Francisco.

CLAY PRODUCTS

GLADDING McBEAN & Company, San Francisco, Los Angeles, Portland and Seattle.
N. CLARK & SON, San Francisco and Los Angeles.
KRAFTILE Company, Niles, California.
*GLADDING BROS. Mfg. Co., San Jose.

CLOCKS—ELECTRIC TIME

*INTERNATIONAL BUSINESS Machines Corp., 25 Battery Street, San Francisco.

CONTRACTORS—GENERAL

LINDGREN & SWINERTON, Inc., Standard Oil Building, San Francisco.
DINWIDDIE CONSTRUCTION Co., Crocker Building, San Francisco.
CLINTON CONSTRUCTION Company, 923 Folsom Street, San Francisco.
ANDERSON & RINGROSE, 320 Market Street, San Francisco.
G. P. W. JENSEN, 320 Market Street, San Francisco.
*BARRETT & HILP, 918 Harrison Street, San Francisco.
*GEO. W. WILLIAMS Co., Ltd., 315 Primrose, Burlingame, Cal.
*W. C. TAIT, 883 Market Street, San Francisco.
THE SISALKRAFT Company, 205 W. Wacker Drive, Chicago, Ill., and 55 New Montgomery Street, San Francisco.

DOORS—HOLLOW METAL

FORDERER CORNICE Works, Potrero Avenue, San Francisco.
KAWNEER Mfg. Co., Eighth Street and Dwight Way, Berkeley.

DOOR HANGERS

PITCHER'S SLIDING DOOR HANGERS, Sheldon Building, San Francisco.

ACID PROOF DRAIN PIPE

CORROSION—Acid resisting pipe, fittings, exhaust fans, pumps, etc., Pacific Foundry Co., 3100 19th Street, San Francisco; 1400 S. Alameda Street, Los Angeles.

DRINKING FOUNTAINS

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THE... ARCHITECT & ENGINEER

September ·· 1937

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THE ARCHITECT AND ENGINEER, INC., 68 Post Street, San Francisco, EXbrook 7182. President, K. P. Kierulff; vice-president, Frederick W. Jones; secretary, L. B. Penhorwood. Los Angeles office, 832 W. Fifth Street. Chicago representative, Harry B. Boardman, 123 West Madison Street, Chicago, Ill. Published on the 12th of each month. Entered as second class matter, November 2, 1905, at the Postoffice at San Francisco, California, under the Act of March 3, 1897. Subscriptions, United States and Pan America, $3.00 a year; Foreign countries, $5.00 a year; single copy, $.50.

Notes and Comments

GUEST EDITOR

Harris C. Allen, F.A.I.A., of San Francisco, has accepted an invitation as Guest Editor of The Architect and Engineer for the issue of October. Illustrations and reading matter will be selected and prepared personally by Mr. Allen who will also contribute to the Notes and Comments page. Other prominent architects on the Coast will be invited to serve as Guest Editor in later issues and the plan should result in the publication of some interesting numbers—issues that will reflect the architect's ideas of what an architectural magazine should be.

* * *

Unadulterated architectural criticism has always been a questionable policy for architectural magazines to follow. There have been instances of honest criticism that have worked disaster for both the critic and the criticized.

The cooperation of the architect is usually sought by editors of architectural magazines when presenting their readers with illustrations. If the architect is good enough to supply pictures, plans and renderings he very naturally expects some kindly comments on his work from the editor. At least he isn't looking for a "roast."

We know of a case where an architect's houses were portfolioed in a certain publication and accompanying the pictures was a rather scathing paragraph about one of the houses which the writer criticized in no uncertain language. The owner of this house happened to read the article and was he sore. Chided by his friends for having built the "monstrosity" he demanded of his architect an explanation. Naturally the situation was most embarrassing for the architect who later said that the criticism had cost him half a dozen good jobs.

The May Architectural Forum answers Robert Trask Cox's criticism of that journal's publication of HABS drawings. Mr. Cox deplores "the wishy-washy back slapping" comment "that occurs in almost every case."

The editor of Forum says architectural criticism offers the professional journal its most vexing problem; that there is a lack of precedent "in libel law to indicate that courts will view criticism of architecture with the same liberality they extend to all other arts." The editor says further that material is drawn from the very men who may prove sensitive to criticism. And finally, the editor asks for a large expression of opinion on this point from subscribers.

The editor's answer raises doubt in the minds of older architects, familiar with American architectural journals through the past forty years, of the editor's familiarity with his field. Does he not know that the Architectural Review (Bates & Guild, Boston) carried monthly from two to four pages of critical comment of current work appearing in the architectural journals; that these evaluations appeared over a period of at least twelve years, written by the well-known C. Howard Walker?

The Architectural Record's most valued feature, beginning at its birth about 1891, was the monthly dissection by Montgomery Schuyler of some big but bad building in an American city under the caption "Architectural Aberrations." When Mr. Schuyler retired, Russell Sturgis, architect, critic, historian, served the Record with monthly analyses of quite new structures and his criticism, too, was not timid.

Architecture & Building (W. T. Comstock, New York) carried architectural criticism by Barr Feree through a number of years.

The American Architect in the early 1920's once a month published critical comment by Egerton Swartwout, well-known New York architect, on current work.

The Journal of the A. I. A. until it expired ran monthly I. K. Pond's "Paper Boat," critical comment on new architecture.

But would the Harry Luce editors (Time, Fortune, Life, Architectural Forum) be permitted to produce an architectural journal of this type? No, it is not to be expected after viewing the noisy ballyhoo to which the Architectural Forum is addicted under the present ownership.

Competent, intelligent criticism is to be welcomed. The critic must be known and respected. Fair criticism is the life of progress.

* * *

William Lescaze, eminent New York architect, has received national recognition as an exponent of modern design. The Kalamazoo Gazette, of June 5, published pictures of Mr. Lescaze and his own home in New York. The picture of Mr. Lescaze's home was upside-down, but it looked pretty good at that. This seems to be another example of modern art winning honors whether upside-down or sideways.—Weekly Bulletin of Michigan Society of Architects.

* * *

Life goes in rhythm. It is up and down. We remember reading once in a book of William Dean Howells a sentence which stated that a person of mature years was not so apt to be cast down by ill-fortune because experience had taught him that ill-fortune was usually followed by good. Our great comfort during the depression has been the thought that if we have sunk so far and for so long a time into the depths, what a whale of a rebound into high places is due us!—Federal Architect.

* * *

One hears plenty of talk these days of new building materials, and the Architect and Building News of London muses over the possibilities. For instance, the aid of air in motion as an effective substitute for glass has been used by French locomotive engineers. They introduce an ingenious baffle in the design of the cab to eliminate the glazed opening and the danger of its becoming obscured by rain and dirt. When the locomotive is in motion, a thin plane of air is driven across the window, flicking away rain and grit. If we carry this idea a little further, we might have a house with walls and roof consisting entirely of thin planes of rapidly moving air. Turn off the air, and where are you? In the garden.

* * *

Selling homes through department stores seems destined to become a reality, according to The Economist, which reports thirty such establishments in various parts of the country ready to merchandise fabricated steel for house construction. They plan to display the houses and share commissions with dealers. As a side line, they can do a lot of furnishing.

* * *

Theaters built throughout the nation during the past eight years cost $540,000,000, the

(Please turn to Page 73)

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A restoration of John Howard Payne's "Home, Sweet Home" on Long Island.

Homes, Sweet Homes

HOMES being built today are designed to take much from the drudgery of housekeeping and give more to the art of living. You can thank your architect for that—for he builds the modern home by placing walls around your needs. Gone forever is the house of the "Nineties"—today's roofs are designed for efficiency—today's walls, to keep heat in or out. Yes, and in those walls are better windows, properly designed and placed to make the most of sunshine and surroundings.

Study these new homes: you will find glass used generously yet inexpensively—corner areas sparkle with glass—a Picture Window frames a favored view—part of a wall is mirrored to magnify the room. Vitrolite, that colorful and practical structural glass, makes kitchen and bathroom clean and bright as a crystal pool. Everywhere, it's glass, playing little parts and big, brightening and making living more cheerful. When you build, remember architectural guidance, a competent builder and good materials are your best assurance of lasting satisfaction with your building investment.
Libbey·Owens·Ford Glass Company, Toledo.

• • •

NEW AND NOVEL USES FOR GLASS, both decorative and practical. A glass pushplate on the door to the kitchen never tarnishes. Glass drawer fronts on a closet chest; you can tell at a glance what each drawer contains. A Vitrolux ceiling for lighting your bathroom. Many other practical suggestions which utilize the sparkling beauty of glass will gladly be offered by your decorator or local Libbey·Owens·Ford Glass Distributor.

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QUALITY GLASS

EARLY CALIFORNIA AND MODERN VERSION OF REGENCY TYPE

RESIDENCE OF D. R. JACOBS, STOCKTON, CALIFORNIA

DESIGNED with early California ranch house adaptations by J. Upton Clowdsley, the residence of D. R. Jacobs in Stockton, California, is built on one of the few lots in that city which is not absolutely level. The lot is situated on the south bank of Smith's Canal, with a 75-foot frontage and a 205-foot depth. The bank of Smith's Canal is about eight feet above the front sidewalk grade and slopes gradually to that point. To take advantage of this slope, the house is built on several different levels.

The design is in the shape of the letter T, top of the T running lengthwise of the lot and the stem across. Entrance hall, living room, sun room and entrance porch are in the stem, while from front to back, forming the top of the T, are the two-car garage, service porch, maid's room and bath, kitchen, breakfast room, dining room and three bedrooms. Owner's bedroom tops the levee, and the other two bedrooms are at a lower level, all where they can take advantage of the prevailing summer breezes.

The house is of wood frame and stucco exterior, with heavy split shingle roof, green slat shutters and a large front entrance porch, all reminiscent of the early California ranch house.

Year-around comfort is assured by a modern gas furnace. Air filter and humidifier condition the heated or unheated air, and a blower fan gives a forced circulation throughout the house. The installation has full automatic control for winter air conditioning, with a master switch in the owner's bedroom and a thermostat in the living room.

REFLECTED IN THESE TWO STOCKTON HOUSES BY J. U. CLOWDSLEY

RESIDENCE OF J. C. HICKENBOTHAM, STOCKTON, CALIFORNIA

A SUCCESSFUL adaptation of residence design to climatic conditions and owner's requirements is the recently completed Stockton residence for J. C. Hickenbotham, J. Upton Clowdsley, architect. The house was planned for a lot having a western frontage of 100 feet and a depth of 100 feet. This part of the San Joaquin Valley has rather warm summers and cold winters in comparison with coast cities, so it was thought desirable to develop an out-door living room or garden that would get the morning sun and afternoon shade, and have protection from the northwest wind.

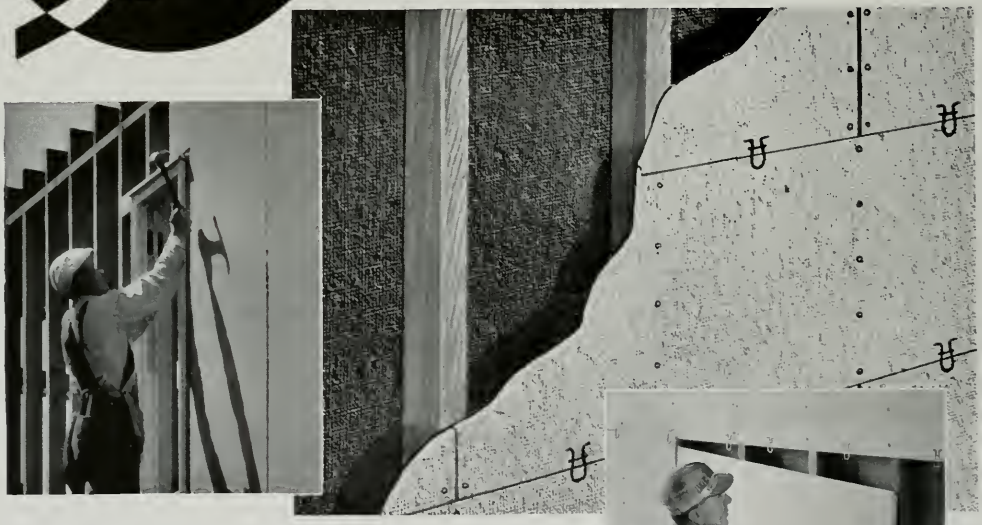
This was accomplished by placing the garage on the north side of the lot and connecting it to the house by means of a loggia which is completely closed on the west or front and open to the walled garden. The living room, with a large group of windows, overlooks this garden yard.

On the first floor are living room, hall, dining room, breakfast room, kitchen, maid's room and bath. There are three bedrooms and two baths on the second floor. Architecturally, the house is a modern version of the Regency type in brick veneer.

The house is thoroughly insulated against the summer heat and cold winter fogs by means of aluminum foil. It is well heated by a warm air gas furnace with heater pipes to every room. The furnace is equipped with filters for air cleaning, and humidifier for regulating moisture. A blower-fan unit provides constant forced circulation of air throughout the house, and will circulate unheated air for cooling effect in summer.

FOR STRONGER WALLS AND MORE COMFORTABLE INTERIORS

Specify INSULITE WALL OF PROTECTION



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Insulite Bildrite Sheathing on the outside, Insulite Lok-Joint Lath on the inside as a plaster base, combine to build the Insulite Wall of Protection.

BILDRITE SHEATHING

1. **Far more insulation than lumber.**
2. **Four times the bracing strength of ordinary wood sheathing.**
3. **No open joints or knotholes.**
4. **Lower application cost.**

Write for Samples and Complete Information

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Builders Exchange Bldg., Minneapolis, Minn.

WATER-PROOFED ALL THE WAY THROUGH

...every fibre of Bildrite Sheathing is Asphalt-Treated during manufacture

LOK-JOINT LATH

1. **Eliminates lath marks on ceilings.**
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3. **Minimizes plaster cracks.**
4. **Assures rigid plastering surface.**

Used together, they prevent infiltration of dampness and humidity . . . prevent internal condensation and moisture accumulation, eliminating warping and buckling.

Insulite Products are protected against attack by termites, rot and fungi, and have always been guaranteed

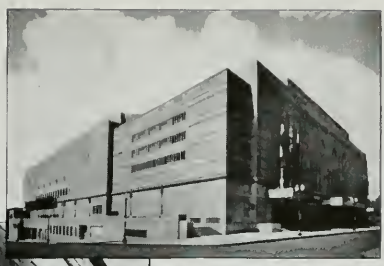
For Further Information, See SWEET'S Catalog No. 22, Section 10

INSULITE PRODUCTS

IN EVERY ADVERTISEMENT TO PROSPECTIVE HOME BUILDERS WE SAY, "IT WILL PAY YOU TO SEE AN ARCHITECT BEFORE YOU BUILD OR MODERNIZE"

Distributed on the Pacific Coast by THE PARAFFINE COMPANIES, Inc., San Francisco, Seattle, Portland and Los Angeles

MAPLE FLOORING
SHOWS ITS THRILLING BEAUTY
in Kansas City's Modern Auditorium



This mammoth structure, 426 x 332 ft., houses an exhibit area of 150,000 sq. ft., an arena to seat 14,000 persons, a general function room, many committee rooms, a theatre, little theatre and administrative offices, etc. A capacity crowd of 45,000 can be removed in 8 minutes.

A general view of the Function Room and (below) a "close-up" of the Northern Hard Maple floor

IMPORTANT to architects among many features of the Kansas City Auditorium, is the Function Room floor above. Here Northern Hard Maple—the *service* flooring—becomes a floor of brilliant beauty. 8″ strips were ebonized and laid with 5″ strips of natural white color, to form the striking pattern illustrated.

Let Mr. Homer F. Neville, of Architects Alonzo H. Gentry, Voskamp & Neville, explain:

"Northern Hard Maple was selected for this floor, since it seemed to be the material most suited for the hard wear which the flooring will receive, the most adaptable for execution of the design, and more harmonious in texture and finish with the high pitch to which the decoration of the balance of the room was carried."

"It has been our experience," continues Mr. Neville, "that for hard wear and durability, consistent with ease of maintenance and generally pleasing appearance, *there is no material equal to Northern Hard Maple.*"

Here is a point for every architect: With the attractive color finishes available, Hard Maple may be matched to any decorative scheme. Thus it is now simple to combine refreshing beauty with durability and ease of maintenance that ensure your client's satisfaction. Simply specify MFMA* Northern Hard Maple.

Write for interesting information concerning the color finishes available.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1790 McCormick Building, Chicago, Illinois

Floor *with* Maple

MFMA Approved

See our Catalog Data in Sweet's, Sec. 17 66

***MFMA**—This trademark on Maple Flooring guarantees that it conforms to the exacting grade standards of the Maple Flooring Manufacturers Association. It protects you against species substitution and inferior grade. It assures you of *genuine* Northern Hard Maple. Look for it on the flooring you buy.

NORTHERN HARD MAPLE IS THE LONGEST-WEARING COMFORTABLE FLOOR

BUILDING TRENDS

Painting Brick

Appearance of homes and commercial buildings is improved by painting brick walls. It brings economic and health benefits to occupants and owners. Aside from decoration, paint keeps out rain and moisture, some brick absorbing 10% to 30% of their weight in water, if not protected. Water conducts heat 25 times faster than air and damp walls surely tend to make heating costs larger. Paint, properly chosen and applied, becomes a factor in lighting, interior white walls adding as much as 50 foot-candles to some illumination levels. A good brick paint is more efficient for maintenance of high brightness in light wells and air-shafts between buildings than much of the more durable surfacing material. No special alkali-neutralizing medium is needed on old, weathered brick walls. New surfaces should get a water-wash of zinc sulphate to neutralize alkali in mortar joints. Then, after the wall has become thoroughly dry—and this applies to old walls, too—put on a priming coat of paint, consisting of exterior spar varnish containing an equal volume of house paint, or color in oil. A specially designed brick-and-stucco paint, made on a varnish base, may do as well. There should be one or two subsequent coats of high-quality house paint, in white or any desired tint, with dull or gloss finish.—Digest from Painters' Magazine.

$5,000,000 Apartment House

Plans were announced recently for the largest apartment house project disclosed in New York City in the last six years. It is to be a nineteen-story structure containing one thousand rooms and will represent an outlay, it is said, of $5,100,000.

The project will introduce a number of new construction features, including glass brick and special air conditioning. Suites will run from three to seven rooms, some being duplexes The building is to rise around an inner court sixty feet by eighty feet The location is on Riverside Drive between 86th and 87th Streets

New Type of Linoleum

Introduction of a new basic type of linoleum called "Monobelle" is expected to widen the use of custom floors of linoleum for home and commercial building installation, according to an announcement by the Armstrong Cork Products Company. "Monobelle" is a material which is softer in tone than marbelized linoleum. Because various tones of only one color are used, a subdued, monotone is obtained.

An addition of eight new plain colors of Armstrong's Linoleum marks a further step in the growth of the individualized floor trend. The new colors have been named Pearl Gray, Willow Green, Chinese Red, Midnight Blue, Fawn, Turquoise, Chartreuse, and Deep Rose. These new colors meet the needs of many decorative schemes and are effective for both custom floor work and allover installations.

AND NEW DEVICES

New Appliance Kitchens

A complete planned appliance kitchen for apartment house use has been announced by the Westinghouse Electric and Manufacturing Company This kitchen, while requiring only a limited space, has the facilities and equipment to do a complete cooking job, besides being ideal for the apartment-house dweller, where space is at a premium

One of the features of this new appliance kitchen is the introduction of a full-size Westinghouse roaster, used in place of the conventional range or stove as the main cooking unit This roaster, while small in comparison to the size of the average stove or range, is easily portable, and has the capacity to do the cooking job.

Other appliances, such as the coffee maker, sandwich grill, hot plate, toaster, and waffle maker, supplement the roaster as cooking equipment. These appliances do not require much storage space, and since adequate shelf and storage room is provided in the cabinets of the apartment house kitchen, the storage of the cooking equipment is no longer a major problem.

This apartment-house kitchen is 88 inches in height and 72 inches in width, so that it can be built in one end or side of a room. The linoleum counter tops and drainboard are the regulation 36 inches from the floor, and a "toe-well" allows the person doing the cooking to stand close to the work surface, eliminating fatigue.

In the top of the backsplasher, at the back of the work surface, two standard electric cords are located for connecting appliances to a source of electricity. This cord is so concealed that only the end plugged to the appliance is visible when the cord is not in use. When the cord is to be used the operator has only to pull it out of its socket, and connect it with the desired appliance. This method of handling the cords eliminates the necessity of finding a place to store them, and also prevents their becoming entangled with other equipment.

The cabinets for storage purposes, are available in steel or wood. The counter tops can also be obtained with linoleum or black Temperprest.

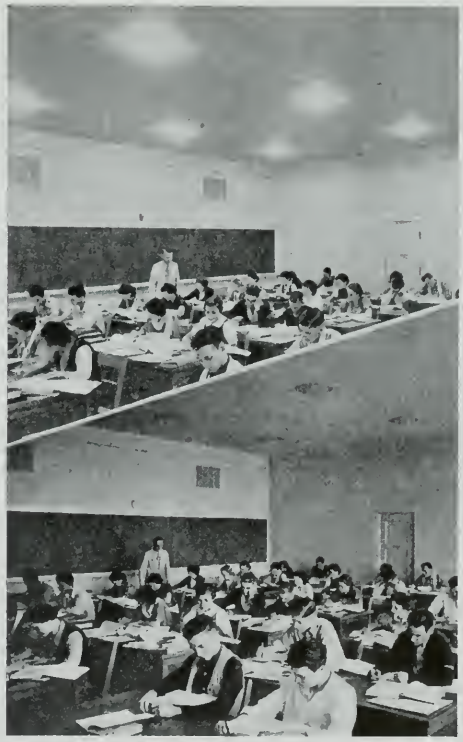
Even Illumination for Reading

The accompanying pictures show lighting arrangement in the Fullerton Junior College, the exterior of which was illustrated in The Architect and Engineer for July. Purposely built with few and small windows, the lighting installation consists of 12 S & M flush ceiling fixtures with 300-watt lamps, burning all day long to provide even illumination throughout (as contrasting pictures at right of lights on and off show). Convex shaped diffusing lens spills enough side light to illumine the ceiling, yet protect the eyes from glare.

Solve Old Problem in New Way

The rather old problem of giving a room ventilation, acoustical, and architectural treatment all at once is being met in a new way by the War Department in a theater at Fort Benning, Ga. All three of the birds are being slain with one tile—acoustical tile with the perforations going all the way through. This tile is being mechanically suspended on the ceilings of the rooms treated so there will be free passage of air from the furred space above, which serves as a plenum chamber, to the room below.

The idea is not entirely original with the War Department, but it is new and bright. The Bureau of Standards expresses the opinion that although they have not tested this tile yet, it should not be materially different in efficiency from the regular tile with the perforations going only part way through. It is said to eliminate the disfiguring grille and supplies fresh air practically uniformly over the ceiling area.



SCHOOL ROOM LIGHTING AT THE FULLERTON JUNIOR COLLEGE, FULLERTON, CALIFORNIA

JACK WILKINSON, 23-year-old student, who has been awarded the $2,000 James D. Phelan Traveling Scholarship by the California School of Fine Arts, San Francisco.

WINNER OF SCHOLARSHIP

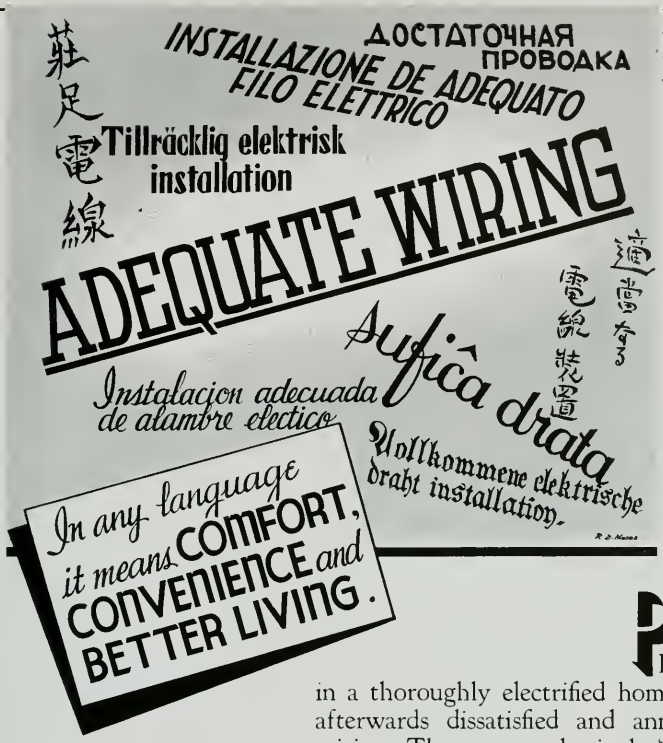
At present assisting Maurice Sterne, whose murals for the Treasury Department are being executed, Jack Wilson, winner of the Phelan Scholarship, will depart for Europe at the close of this year.

Wilkinson, a painter, first became interested in art when he took drawing courses at the University of Oregon in order to illustrate a column in the college paper.

The Phelan Traveling Scholarship Award is limited to past and present students of the California School of Fine Arts, San Francisco, who have completed two consecutive years of study, and who are under 30 years of age. Provision was made for this scholarship under the terms of the bequest left the San Francisco Art Association by the late Senator James D. Phelan.

This is the second time that the Phelan Scholarship has been awarded.

Miss Helen Phillips, who received the prize last year, is now in Paris.



PEOPLE who have lived in a thoroughly electrified home find themselves ever afterwards dissatisfied and annoyed with makeshift wiring. They are everlastingly "electrical minded" and demand their electric service when and where they want it.

They have little patience with inadequate service as they realize that faulty service is unnecessary—usually lack of proper planning when the house was built.

The home that is built by an architect in step with the times, will naturally be the thoroughly electrified home. The architect knows the easy availability of electric service is one of the most obvious marks of modern living.

No matter what language they speak, people everywhere want the universal servant, electricity, available when and where they want it in their homes. The architect who sees and supplies this demand is the architect whose name will be repeated everywhere by enthusiastic clients.

Be sure the wiring for the homes you plan is adequate and arranged for greatest convenience.

PACIFIC COAST ELECTRICAL BUREAU

PULSE OF THE READER

Unit Cost of a House Reduced 13% by Duplication

Dear Mr. Editor:

I have noticed lately quite a few discussions in the architectural magazines on the approximate saving in building material costs when purchasing on an operative basis rather than individual buying. The per cent saved varies from 10 to 15 according to location. Recently an official of the Chicago First Appraisal Company made this estimate:

"The same $8,877 6-room house, when duplicated in volume of ten or more in a given location, may be built by an operative builder at a saving of $1,162, or 13 per cent, over the cost to an individual who undertakes to build but one home."

Obviously the unit cost of a house is decreased as the number of houses in a project is increased. For enlightenment of your readers I am attaching the Chicago appraiser's figures, bearing out his claim of a 13 per cent saving, as published in the Forum last month:

	Individual Buying	Operative Buying
Excavation, backfill, grading	$ 250	$ 250
Foundations, damproofing	750	680
Structural steel	50	50
Masonry walls	1,030	950
Carpentry, including millwork, hardware, insulation and stairs	2,978	2,429
Plastering	710	615
Sheet metal	90	70
Roofing	125	125
Tile	145	145
Painting and decorating	650	535
Glass and glazing	70	70
Plumbing, sewerage, gas fitting	850	760
Heating, air conditioning	685	600
Electric wiring, service	232	174
Electric fixtures	75	75
Calking, weatherstrips	45	35
Shades and blinds	25	25
Linoleum	75	75
Building permit	52	52
TOTAL	$8,877	$7,715

Yours truly,
H. M. SNYDER.

San Francisco, August 16, 1937.

A. I. A. Standard Filing System Now Available to Architects

Dear Mr. Editor:

We believe it would be of interest to your readers to know that the 1937 edition of the A. I. A. Standard Filing System and Alphabetical Index for Filing Information on Building Materials and Appliances (A. I. A. Doc. 172) is now available and may be obtained from the office of the American Institute of Architects, the Octagon, 1741 New York Avenue, Washington, D. C., for $1.00 per copy, postage paid.

The revised edition embraces a number of changes and additions in classifications and file numbers to cover many materials and items of equipment, etc., which have entered the market since the former edition was published, in 1930.

The Alphabetical Index has been amplified to facilitate the selection of file numbers.

Producers in increasing numbers are recognizing the advantages of pre-marking their trade literature relating to building materials and appliances with the appropriate A. I. A. file number to facilitate convenience in filing, which encourages preservation for reference.

The Standard Filing System also provides a convenient method for the filing of clippings, technical and other data of interest in connection with construction activities.

Cordially yours,
THEODORE IRVING COE,
Technical Secretary.

Washington, D. C., July 21, '37.

HILL CASTLE HOTEL APARTMENTS, OAKLAND
Miller and Warnecke, Architects

Federal Housing Bill Will Insure Low Cost Dwellings

Dear Mr. Editor:

Two bills about to clear through Congress this month will have great direct and indirect influence on your field—the Housing and the Wages and Hours bills.

The wage and hours bill, a new NRA with "teeth," will naturally have widespread effect. Every reader should have before him immediately and for some months, provisions of this bill and its interpretation in terms of his own business.

The housing bill, intended to provide low-cost dwellings on a spectacular scale, opens up a great new field of sales for almost every product. There are materials for the buildings, equipment for slum and other clearance and future incentives of dwellers to purchase other goods.

Yours very truly,
GEORGE HERRICK.

New York, August 12, '37.

The Modern Trend Abroad; Too Radical For America

Dear Mr. Editor:

Will be returning to the States in August. Have done a lot of sketching all over Europe and picked up two beautiful Dutch Old Masters. Drove all over England and Scotland and have gathered considerable material for my future decorative work. Lots of modern stuff—some of it would never pass muster in America. Am returning on the "Queen Mary."

Sincerely,
A. B. HEINSBERGEN. London.

In Harmony

Dr. D. Charles Gardner residence, Carmel. Guy Koepp, Architect. C. L. Frost, Roofing Contractor.

FOR this rustic Carmel residence and the natural setting of the surroundings, the special Toledo Tile strikes a note of true harmony. The texture and general characteristics of the tile are obtainable only in a hand-made tile. The tile come in a full range of harmonious colors from buff and pink through salmons, reddish browns and browns to gunmetals and black. Some mossy green salt-glazed tile are available for scattering in patches throughout the field giving appearance of great age. Too, Toledo Tile is a practical roofing because of its density which sheds water with all the readiness of machine-made tile and has a strength seldom found in hand-made tile. In addition to being fire-proof, it requires no attention over long periods of time.

N. CLARK & SONS

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GAS HEATING ASSURES COMFORT OF CONGREGATION

The beauty of simple, formal grace — the comfort of modern gas heating — happily combined by Architect H. Roy Kelley in this distinguished edifice, the Twenty-fifth Church of Christ Scientist, Los Angeles. ☆ A forced air gas furnace assures uniform warmth and year-around ventilation. ☆ For homes, as for public buildings, gas heating is unrivaled in its combination of advantages. ☆ Your Gas Company's technical advice is free to owner, architect, builder. "Check" before you build.

Gas
THE MODERN FUEL

Photo by Waters and Hainlin

HOUSE IN PIEDMONT PINES, OAKLAND, CALIFORNIA

MILLER AND WARNECKE, ARCHITECTS

THE ARCHITECT & ENGINEER

TOWARD A CONTEMPORARY TYPE – A MODERN DEVELOPMENT OF THE CALIFORNIA TRADITION

By Harris C. Allen, F.A.I.A.

IT HAS become more and more evident, for a number of years now, that in California more opportunities for experiment in the field of domestic architecture have been offered—or seized—than in the more conservative eastern parts of the country. Modifications, adap-

HOUSE IN PIEDMONT PINES, OAKLAND, CALIFORNIA
Miller and Warnecke, Architects

PLAN, HOUSE IN PIEDMONT PINES, CALIFORNIA
Miller and Warnecke, Architects

tations, of traditional styles were here carried to extremes, frequently to excessively charming and even romantic compositions, and sometimes to the extent of combinations that turned out to be bizarre, fantastic freaks. Here are to be found very few rows of identical units, only to be identified by the number, or perhaps the color of painted trim, such as are to be seen almost by the mile in so many eastern cities; where signs should read "Only the sober may enter here."

And so, naturally, when the wave of revolt against stereotyped traditional design swept over the architectural world, many Californian architects refused to accept as an alternative the regimented pattern which the internationalists laid down. If not a pattern, there was,

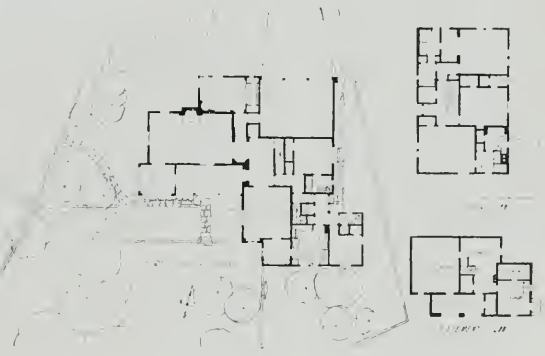
HOUSE OF GEORGE HARLOWE, OAKLAND, CALIFORNIA
Miller and Warnecke, Architects

certainly, an unwritten formula; which included such characteristic features as the flat roof, the corner window, the slender iron post or the cantilever, the gas-pipe railing, the circular projection, the asymmetrical fenestration and composition in general.

These modernistic houses looked, for the most part, very much alike, and there was no perceptible national or local flavor. Nor was there any climatic or geographic adjustment; hill or plain, desert or forest, Alps or Riviera, nowhere was any distinctive difference noticeable. It is not to be assumed, however, that they contained no interesting, notable or valuable features. If that had been true, the movement would have collapsed at an early stage, as did other attempts to produce a new style, such as the "L'Arts Nouveaux" movement at the end of the century.

STREET VIEW AND PLAN, HOUSE OF GEORGE HARLOWE, OAKLAND, CALIFORNIA

Miller and Warnecke, Architects



REAR GARDEN VIEW, HOUSE OF ROBERT MITCHELL, OAKLAND

Probably there were several reasons which contributed to the refusal of our bright young architects in California to accept the international formula.

First, they had been having their own way to such a large extent, that the idea of obscuring their identities was distasteful. If this statement may seem inconsistent with the previous use of traditional sources of design, one need only recall the ease with which the work turned out by various individuals could be recognized.

Moreover, there was a general demand on the part of clients for distinctive and different treatment, characteristic of the freer, more self-expressive atmosphere of the west. Mixed with personal preferences was doubtless a desire to be up-to-date so far as safety, comfort and equipment were concerned. Since well nigh universal information is expected, and many diverse factors must be reconciled with the problems of purse and personality, an architect's lot is not always a happy one. He cannot stand still—he must hurry, even to keep up with the parade. But that is beyond the point.

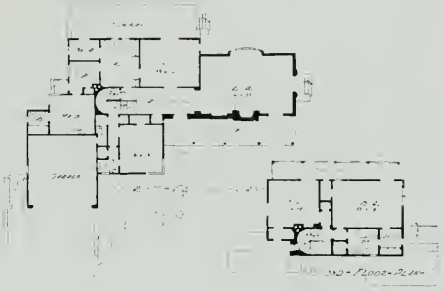
Other considerations have been present; an inherent love for beauty, respect for form,

BELOW—LIVING ROOM

REFRESHING, INSPIRATIONAL DESIGNS LIKE THESE

CORNER OF LIVING ROOM, HOUSE OF
GEORGE HARLOWE, OAKLAND

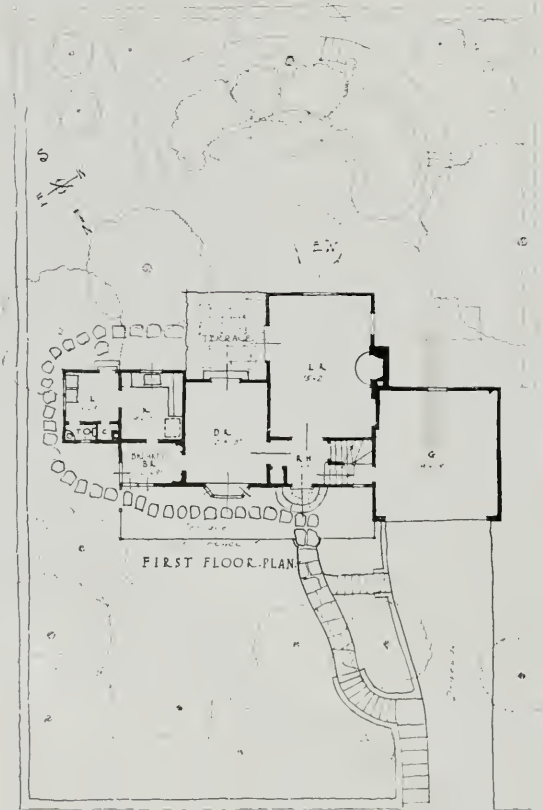
PLAN AND EXTERIOR, HOUSE OF
ROBERT MITCHELL, OAKLAND
Miller and Warnecke, Architects

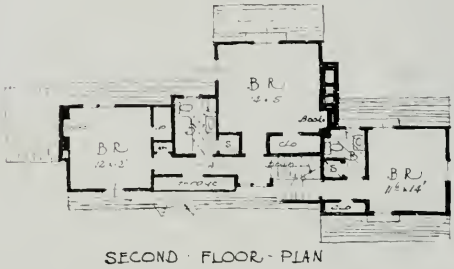


DISTINCTION AND "SOMETHING DIFFERENT," YET POSSESSING

RESIDENCE FOR CARREL WEAVER, ROCKRIDGE, OAKLAND, CALIFORNIA

Miller and Warnecke, Architects



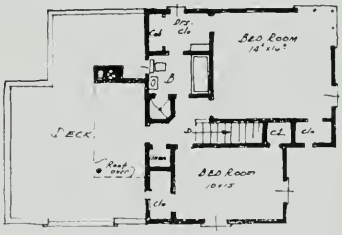


SECOND FLOOR PLAN

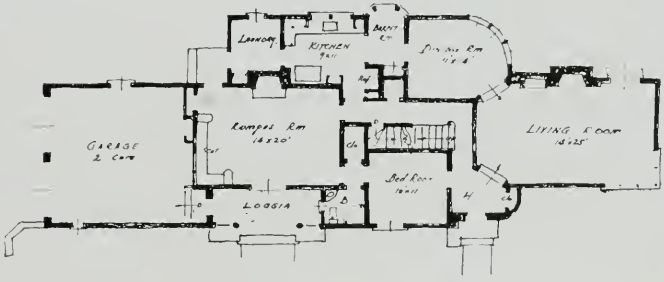
SENSIBLE RESTRAINT, CHARACTERIZE THESE LOVELY HOMES

RESIDENCE FOR EDWARD FRIEDRICHS, HAYWARD, CALIFORNIA
Miller and Warnecke, Architects

PLANS,
RESIDENCE OF
EDWARD
FRIEDRICHS,
HAYWARD,
CALIFORNIA



SECOND FLOOR PLAN



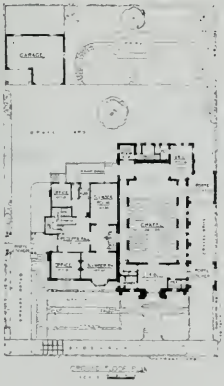
THE IMPRESSIVE BUILDING ON THE LOWER RIGHT HAND PAGE

DETAIL OF FRONT, RESIDENCE OF GEORGE BEAN, PIEDMONT
Miller and Warnecke, Architects

SHOWS SKILLFUL ALTERATION TREATMENT OF OLD OAKLAND HOME

"GARDEN CHAPEL," PRATT MORTUARY, HAYWARD, CALIFORNIA
Miller and Warnecke, Architects

CATHEDRAL CHAPEL,
GRANT MILLER MORTUARY,
OAKLAND, CALIFORNIA
Miller and Warnecke, Architects



THE SCHOOL ON THE RIGHT WON FIRST PRIZE IN

STORE BUILDING, OAKLAND, CALIFORNIA
Miller and Warnecke, Architects

BUILDING FOR THE OAKLAND LAUNDRY, OAKLAND, CALIFORNIA

sense of order, might be mentioned, but these are debatable attributes. What may be the outstanding motive (or at least I choose to think so, perhaps because I like to think so) is the compelling influence of California itself. The climate, the natural beauty, the warm and human traditions—all these count so much in any scheme for living that an environment which ignored them could not be finally satisfactory.

At any rate, there has been emerging what may be called a contemporary Californian type of domestic architecture. It is not confined to any one section of the state; differing climatic conditions are recognized in varying treatments of window and wall space, of roofs and porches and decks, and so on. But, north or south, it possesses quite clearly a Californian character. Any one can see that these houses would not be indigenous to New England, or the Middle West, or even the Old South. And although they show certain similar features, they could

EAST OAKLAND HIGH SCHOOL, OAKLAND, CALIFORNIA
Miller and Warnecke, Architects

by no stretch of the imagination be confounded with the mechanical, neutral structures of the modern internationalist school—led by le Corbusier, Oud and van der Rohe, Howe and Lescaze and Neutra (but scorned defiantly by Frank Lloyd Wright)—which owns no allegiance to anyone, anything or anywhere.

The designers of these homes are trying to express the Californian life of today, as they see it, as their clients wish it, as contemporary resources permit it. Among these persevering patriots who have the courage of their convictions may be counted the firm of Miller and Warnecke, some of whose recent work is shown herewith. Their practice is largely in Oakland and the general east bay region.

Both Chester Miller and Carl Warnecke are hard workers. I am sure that little or nothing goes out of their office that has not received very thorough and painstaking—and loving—

ENTRANCE DETAIL, HILL CASTLE APARTMENTS
OAKLAND, CALIFORNIA

study. When they were pursuing the customary eclectic policy of a young firm finding itself, their essays in historic style were correct in spirit and detail. Two or three of the buildings illustrated are of this type; the school building, which is really a much more interesting and coherent composition than the truncated photograph indicates, won a national grand prize in a brick competition.

A number of commercial buildings, stores, clubhouses and apartment houses have been turned out by the firm, all well designed and all, so I understand, functioning to the satisfaction of their owners. Probably the firm would prefer their practice to consist largely of this class of work, which is decidedly more profitable; but that would be a pity, for their domestic design is getting more sure and distinctive each year. They use local materials with authority, combining brick and stucco and wood with a nice sense of proportion and scale. Their house plans are especially well studied; they fulfill the four essentials of good living facilities —utility, flexibility, circulation, orientation. Utility, as you may remember from the brilliant article by Messrs. Fordyce and Hamby, consists of fitting the space to the functions. The primary living activities are cooking and dining, relaxation and entertainment, child play, sleeping, toileting, laundering, storage and chores. There are secondary activities, such as adult study and games. All of these functions as required or permitted by space and cost, are admirably adjusted. Circulation, exposure, are invariably good. These houses ought to "live well" and what is usually less remarked, they ought to "sell well." The possible desirability or necessity of sale is a contingency too often overlooked.

Plans and illustrations can speak for themselves, but I may comment on one or two things. One pleasantly composed cottage is reminiscent of another architect's design; the insistence of clients is sometimes impossible to overcome, and the modifications here have been skilfully made, to reduce the likeness. A good job of remodeling was done with the mortuary for Grant Miller, when an old residence was veneered with brick, a new chapel built beside, and lo! a complete new design with unity and character. And I should not be surprised some day to see a prize awarded to the Fitzgerald shop building, if it is carried out as the sketch indicates and with the usual care for detail, texture and color that characterizes Miller and Warnecke.

RESIDENCE OF MICHAEL GRODIN, PIEDMONT, CALIFORNIA
Miller and Warnecke, Architects

DESIGN AND EQUIPMENT OF THE MODERN APARTMENT HOUSE

By John E. Nordblom*

EXPERIENCE in renting apartments proves that certain types ot design and certain construction and equipment features have strong renting appeal. A recent survey among the hotel and apartment house managers of the R. A. Nordblom Company, Inc., turnishes considerable interesting and usable information about these features and about the likes and dislikes of prospective tenants in general. We feel that our conclusions, based on this survey and other data assembled during the company's long association with the promotion, construction and management of apartment properties, warrant thought in planning new buildings in this field.

Location is a subject in itself. For the purposes of this particular article, we will assume that a proper location in a desirable neighborhood has been secured and that we are ready for the planning of a modern apartment building that will have maximum attractiveness for prospective tenants and can be operated efficiently and economically.

Exterior

First, let's consider the exterior of the proposed building. This we must regard from two equally important angles; first, that of attractiveness, and second, that of the upkeep necessary to maintain its appearance. It is an axiom in business today that first impressions are vitally important. The exterior cannot be discarded or changed at will. We must approach its design with careful deliberation. Nothing creates more sales resistance than an outmoded structure, one, perhaps, which when it was built was the last word in the particular fad of "modern" architecture of its time. Simplicity is never outmoded and is always impressive. Therefore, in building our house, we will avoid the error of ornateness, at the same time sidestepping the pitfall of extreme plainness, which is equally disastrous from the viewpoint of sales appeal. Specifically, we will seek an impression of what has often been termed "expensive simplicity." This does not mean that we have to adhere to adaptation of classic architecture (although to do so is not unwise). We may be as modern as we please, provided we use common sense and good taste.

Taking for granted that we have decided upon a dignified and pleasing exterior for our house we must now give serious consideration to the question of maintenance. The subject of what materials to use for low upkeep is too broad to discuss at length in this article, but it is well to remember that very light colored materials show dirt and rust stains very quickly and that cleaning and sandblasting is far from inexpensive. Of course, materials of too dark a color unless most skilfully handled, give an effect of dinginess and drabness, so that here a happy medium is indicated. If, at this point, we make sure that the walls are solidly built, well pointed and possibly waterproofed, we will, after the first or the hundredth severe rainstorm, have saved doubly; saved our pocketbooks from excessive interior redecoration bills and our feelings from the ire of disgruntled tenants who do not appreciate running water on their tapestries. Screens should be of copper or bronze screening with heavy frames of bronze or brass that will not warp or twist. If so, we can forget annual repainting and if the screens are carefully stored in specially built

Editor's Note: Mr. Nordblom is with the R. A. Nordblom Company of Boston, Massachusetts. The article is reprinted from Buildings and Building Management.

racks during the winter there will be no holes develop in the screening. In short, we can buy them and practically dismiss the subject of screens from our minds for many years to come. Awnings had better be dispensed with wherever possible, for, in addition to being a constant fire hazard, they soil rapidly and thus detract from the appearance of the building. Also, as a rule, some are up, some down, and some midway between, presenting a most untidy ensemble.

Entrance and Lobby

Let's now decide on the entrance. This must be impressive. It is the focal point of the house —the center of interest. By all means let us have a canopy—if not of glass and metal, then an arched one of canvas. It sets the house apart from its neighbors, and shows that we have a protective thought for our tenants in shielding them from inclement weather. The entrance door should be on the sidewalk level. Even if the plans call for a main floor raised above the street level, we can always put stairs inside the vestibule. The house that requires even a single upward step to reach the front door is under a tremendous handicap. Look about and realize how department stores, chain stores and the newer hotels recognize this psychological antipathy. Then, too, let our entrance and vestibule sound the key note of the whole house. First of all, let it reflect scrupulous cleanliness, and this should be stressed constantly throughout the entire house, cellar to roof, backstairs and front, for there is no more potent selling argument for apartments than cleanliness and, adversely, the lack of complete and thorough cleanliness is the cardinal mistake upon which many an otherwise excellent house has floundered.

The next thing to consider is the foyer or entrance hall. Much that has been said of the entrance applies equally to this, particularly with respect to impressiveness and cleanliness. Marble, wood or other panelling, or, if lesser expense is necessary, the excellent imitations of travertine marble, caen stone or other materials formulated out of plastic cement impart an air of richness and are almost costless as to upkeep. A glistening terrazzo floor is a thing of beauty, is practically waterproof, does not permit of dirt being ground into it, as do softer materials and apart from its nightly cleaning and polishing can be kept in pristine condition on the sloppiest of days by an occasional swipe of a damp mop. Some materials which are widely used in the modern manner and which recommend themselves to us because of the low maintenance cost are rubber tile, asphalt tile, cork tile and linoleum (which carefully designed and applied give striking modern effects). These materials, with the exception of cork tile, never require stripping or sanding, shellac or varnish, as do wooden floors. A daily cleaning with a soft brush or wool mop, an occasional rinsing with a mop rinsed in clean cold water and an infrequent waxing with a good water wax, a buffing perhaps once a week and the floor will look new indefinitely. Walls also offer a wide choice of modern materials with low upkeep cost, among which are a tile-like composition of extreme hardness, used largely with tarnish proof metal inlays and trim and glass-like substances, advertised as being brilliant as glass and tough as stone, a thin flexibly backed linoleum product, canvas lined washable textiles, washable wallpaper and a host of other materials which need only wiping with a damp rag to maintain their cleanly, and in most cases, glistening appearance.

In planning our elevator cabs we would do well to keep the maintenance problem in the forefront. Here modern materials again prove their worth.

Corridors

Corridors leading to apartments play a most important part in creating a favorable impression in the mind of the prospect. Primarily corridors should be well ventilated. Cooking odors, fresh or stale, will nullify the pleasing effect of all that has been previously witnessed. These halls should be well proportioned, neither too narrow or low studded, for this gives an impression of stuffiness, nor too wide and high, for this creates a feeling of barn-like barrenness. The floor should be of a material which will deaden footsteps, such as cork tile, linoleum, rubber tile or asphalt tile. These floors have the advantage of a low upkeep cost. Finally we should paint the corridors (using a washable paint) in a light cheerful color and perhaps

panel them with wood molding as a decorative note and to relieve the tunnel effect. The doors and casings should be of a darker color, both for sake of contrast and because of the fact that the moving in and out of furniture scars both door and casing and the marks will show up more prominently against a light background.

A most important subject now presents itself —the apartments. The first step is to determine how many rooms each shall have. There has been for several years a definite trend toward apartments of few rooms and we are also aware that the dinette and kitchenette is supplanting the formal dining room and kitchen. In order to reach the greatest possible number of prospects, we should decide to have few apartments with more than two chambers, the greater number to consist of only one or two rooms in all, with the addition of a dinette and kitchenette. The importance of a foyer entrance cannot be too strongly stressed. Its lack will be reflected in vacant apartments. Giving a sense of size and completeness to a small suite, it, at the same time ensures the privacy which is obviously lacking when bath and bedroom doors lead off the living room.

Kitchens

Apartments should direct their strongest sales appeal to the woman, as it is usually she who influences the decision. The kitchenette, therefore, must come under close scrutiny, as it is here the housewife will spend much of her time. This room, in the average house of today, shows only too clearly that little or no thought has been expended on it. Insufficient floor space, inconveniently placed cabinets, little or no work space, unattractive equipment and lack of cheerfulness in decoration are mistakes which are detrimental to sales effort on the part of the renting agent. We shall encounter no difficulty here, however, for we have only to draw upon the freely offered advice of a score of firms who have made kitchen planning a serious study. The advertisements of these companies usually show kitchens or kitchenettes that would sell apartments with hardly a further step being taken.

In general we should bear in mind the following suggestions: The room should not be too small to take a full complement of equipment with which the housewife can work efficiently. It should be so arranged that the normal routine of work follows logical steps, the most generally accepted arrangement being a series of centers grouped about the major pieces of equipment and termed refrigerator to cleaning up centers, the last, of course, being centered about the sink. There should be ample work surfaces and storage cabinets handy to them. Cabinet sinks of stainless steel or monel metal with perhaps a dishwasher built in the lower section, smart looking table top gas ranges or electric ones with oven heat control, automatic lighters and other new devices, electric refrigerators which defrost themselves automatically, scientifically designed cabinets with shallow shelves, all of which are placed within easy reach of the woman of average height. All of these are practically irresistible to our prospect.

If we now put in a floor of linoleum or rubber tile, cover our walls with one of the modern materials mentioned previously, or a combination of them, and keep our colors light and cheerful, we have left little to be desired, either in eye appeal or ease and economy of upkeep. Ventilation is extremely important and provision should be made for a duct and possibly a built-in exhaust fan to carry off cooking odors. There should be a service entrance, a broom closet, a sufficient number of electrical outlets placed in the walls to take care of our own and added equipment, and, if there is room, a built-in ironing board is convenient.

Dinette

The dinette can be dismissed with less consideration. It should be large enough to accommodate, without crowding, the usual dinette furniture, including a side table or cabinet, should seat four to six persons comfortably and have wall plugs so located that connections can be made to a toaster or percolator on the table without the cord running along the floor at the kitchenette or living room entrance.

Living Room

A marked desire for living rooms of good size is apparent. Dimensions of thirteen to fifteen feet wide by twenty-one or twenty-two feet long are excellent as a room with this area

will accommodate all of the usual furniture pieces without crowding and yet is not so large that the furnishings of the average family seem lost. Windows should be grouped for pleasing effect. A wood burning fireplace and built-in bookcases have sold many an apartment. Concealed radiation will remove an unbeautiful object from the room and give added wall space. Built-in aerial and ground connections for radios are additional selling points. In case the room is to have in-a-door beds, we should have two single rather than a double one, they should be decorative and equipped with comfortable springs and closet space for linen, bedding and night clothes should be provided behind them.

From the standpoint of both appearance and upkeep, living room walls had best be painted unless we use wood panelling. Marks and dirt can easily be washed from painted walls, panels or single walls that are cracked or otherwise disfigured can be repaired and painted to match the rest of the room and in most cases a washing at the end of the year will restore the paint to a fresh looking condition. A panelling of wood molding, painted wall color, adds distinction to the room at small cost. Wherever possible it is advisable to adhere to a standard color for the living room as well as the bedroom and foyer. A soft shade of ivory with a lighter or darker tint for the trim is displeasing to few and is a good background for almost any furniture. If the ceiling is kalsomined with a very light tint of the same color it ties the room together and takes away from the glaring effect of a large expanse of white.

Experiments in color schemes had better take place in a single apartment which may possibly be used as a display suite to catch the eye of the person who may not be satisfied with standard colors. There is a question of decoration expense, for it usually takes two coats of paint and consequently double the labor to change walls over from one color to another. Base plugs should be ample in number and well distributed. Double outlets cost little to install and are greatly appreciated by the tenant. Windows should be of good size but not placed too near the floor for many people have a fear of accidents, particularly to children if this is the case. If the living room communicates with the dinette, a wide door opening will give the effect of expanding the apparent size of the former and will make the latter seem less cramped. A door or doors that slides into the wall will release valuable space that French doors take up when open.

Bedrooms

We should have our bedroom or rooms ample in size to accommodate all of the usual standard size articles of furniture, including twin beds. A room of about twelve by fifteen feet will do this comfortably. If possible there should be two closets, one cedar lined, and a full length mirror door. Sufficient base plugs, properly placed for the logical arrangement of furniture and a telephone outlet will save future expense and exposed wiring. Here, too, painted walls are sanitary, economical and pleasing to the eye. Panelling should be avoided in the bedroom as it often conflicts with the furniture arrangement. Cross ventilation is a decided selling argument. If plans permit, a second entrance to the bath from the bedroom is desirable.

Bathrooms

Bathrooms come in for close scrutiny by the average home seeker. Here, of course, ventilation plays a most important part. Smart appearance is essential, too, as with the exception of the kitchen, the bathroom dates the house more than any other room. We should incorporate a shower; if practical, a separate glass-fronted one. The equipment should be related or contrasting color rather than the usual white. Tarnish proof metal should be used for valves, faucets, etc., and a floor of a material such as rubber tile is modern in effect, good-looking and practicable. There should be a sufficiency of sturdy towel racks, a medicine cabinet ample in size, a mirror with lighting on either side and a wall plug for curlers and other appliances conveniently near.

General Features

Now for the apartment as a whole. Fireproof construction is, of course, essential and a decided talking point. Soundproofed walls,

(Please turn to Page 44)

SAN FRANCISCO'S GREATER AIRPORT

The New Terminal Building

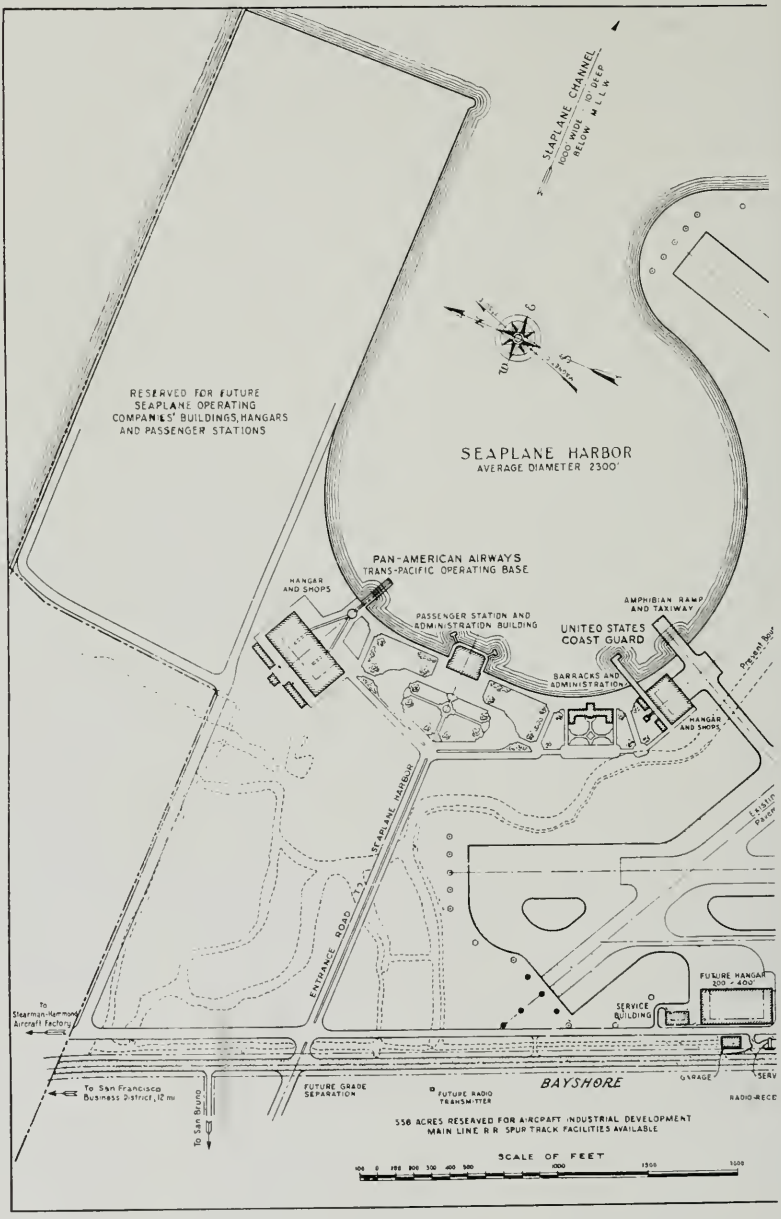
AIR transportation is passing through a period of phenomenally rapid growth, coupled with development of larger, heavier, faster and more powerful aircraft. Ships weighing up to 100,000 pounds gross weight will be operating in the near future, as compared to ships of about 12,000 pounds that were operating on transport lines about two years ago. These larger ships require larger landing fields and better terminal facilities. Many airports that were adequate two years ago are at present off of the scheduled air transport routes, because they are too small to be safe for operation of the newer and larger equipment now being flown. To keep pace with the rapid development of flying equipment and the increasing volume of traffic, the major airports must likewise rapidly develop their landing fields in size and load bearing capacity, and enlarge their terminal facilities to handle the greatly increased volume of traffic requiring ever increasing speed in handling. For an airport to fail to keep pace with the development in types of ships and traffic requirements, means abandonment of that airport by the airlines.

TOWER, ADMINISTRATION BUILDING, SAN FRANCISCO AIRPORT, SAN FRANCISCO

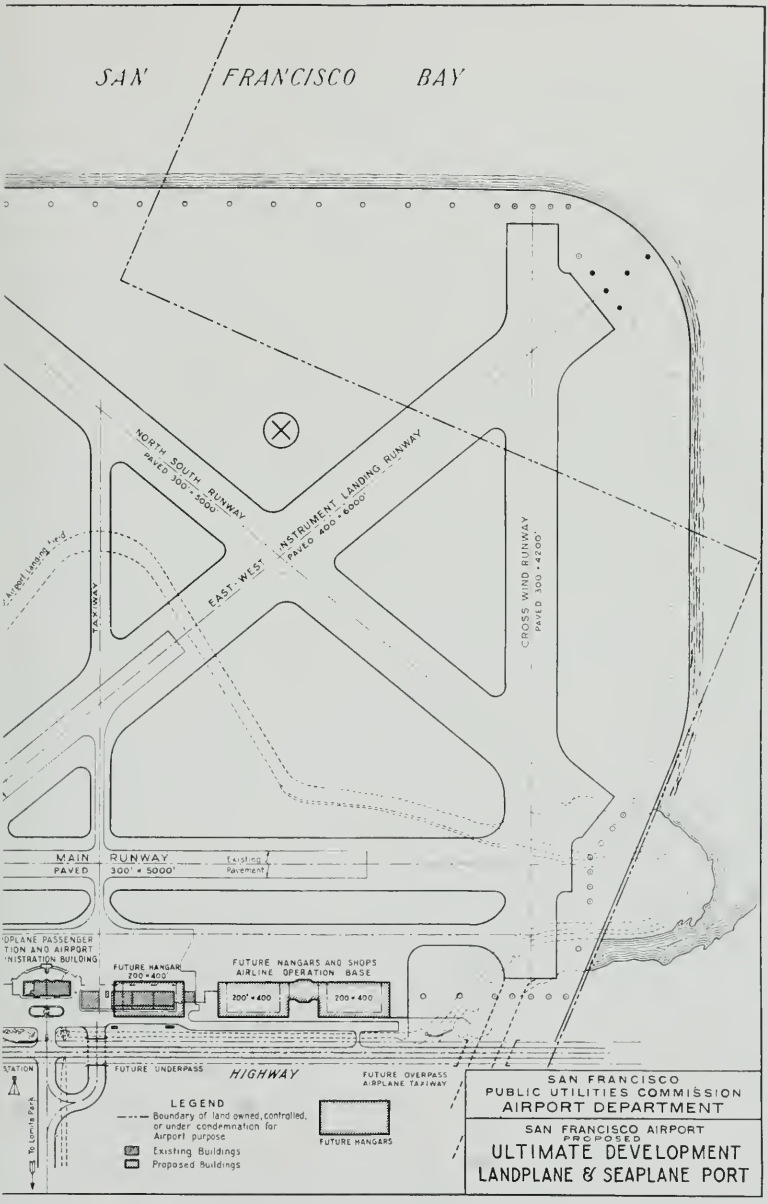
As a portion of the development program for San Francisco Airport, a new landplane port terminal building has just been completed. The architectural treatment for both the interior and exterior is modernized Spanish. It houses the control tower, meteorological observation platform, weather department offices, main waiting room, ticket counter, telegraph and telephone offices, check room, restaurant, cigar counter, cocktail lounge, public toilets, large entry arcades and vestibules, covered mail and express loading platform, baggage room, facilities for handling mail and express, quarters for the field crew, offices for the airport manager and staff, offices for the airline operating companies and their staffs, offices for the administration of several other businesses allied to air commerce, and offices for certain governmental establishments.

The building represents the latest advancement in arrangement and facilities for convenient and rapid handling of passengers, mail and express. Dignity and richness in appearance were preserved throughout the building, while

CALIFORNIA HAS 932 AIRCRAFT—2,809 PILOTS



This graphic plan shows ultimate development of Land Completed improvements are indicated in the drawing.
Works Progress Ad



plane and Seaplane Port at the San Francisco Airport—Since 1936 over $1,800,000 has been expended as a ministration Project.

SAN FRANCISCO'S NEW AIRPORT ADMINISTRATION

VIEW OF THE SAN FRANCISCO AIRPORT BEFORE RECLAMATION OF 38 ACRES OF TIDELAND

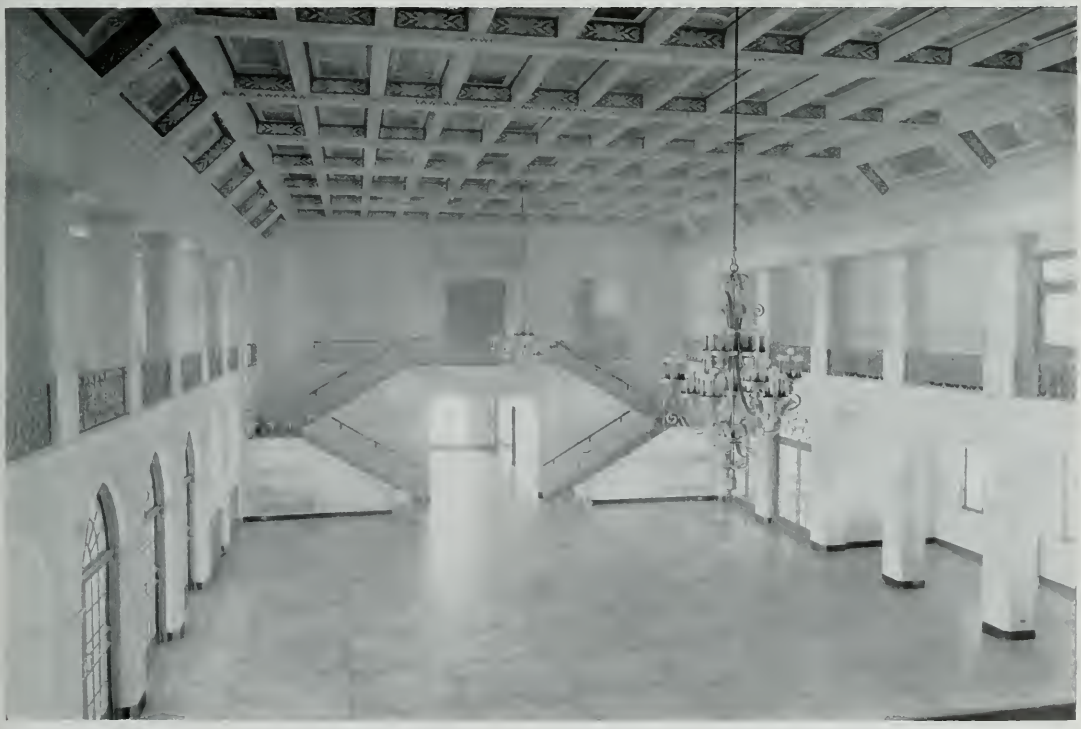
SAN FRANCISCO AIRPORT AFTER COMPLETION OF RECLAMATION, FINANCED BY $260,000 PWA BOND ISSUE

WEST ARCADE OF ADMINISTRATION BUILDING,
SAN FRANCISCO AIRPORT

SOUTHEAST ELEVATION, ADMINISTRATION BUILDING, SAN FRANCISCO AIRPORT, SAN FRANCISCO, CALIFORNIA

WAITING ROOM, LOOKING SOUTH, ADMINISTRATION BUILDING, SAN FRANCISCO AIRPORT, SAN FRANCISCO, CALIFORNIA

SOUTHWEST ELEVATION, ADMINISTRATION BUILDING, SAN FRANCISCO AIRPORT, SAN FRANCISCO, CALIFORNIA



WAITING ROOM, LOOKING NORTH, ADMINISTRATION BUILDING, SAN FRANCISCO AIRPORT, SAN FRANCISCO, CALIFORNIA

at the same time moderate cost was maintained. The cost of the building was about $155,000, which amounts to $0.30 per cubic foot, or about $5.28 per square foot of floor area.

The structure is 88 by 206 feet in plan, with a small north wing, and with provision for a future 86 by 66 foot wing extending to the north, similar in exterior appearance to the present south wing. The main waiting room is 40 by 80 feet in plan extending through two and one-half stories, and occupies the central portion of the main building. A four-story control tower, 25 by 25 feet in plan, dominates the easterly facade.

The building is of fire resistive construction throughout. The foundation consists of concrete piers supported by deep timber piling extending through about 60 to 90 feet of soft, plastic blue clay, to a firm stratum below. The structural frame, walls and floors of the building are of reinforced concrete construction. Interior partitions are of metal stud and plaster. The main roof is finished in Spanish tile. Steel framing was used to support the roof over the waiting room and over the control room.

A seismic factor of 10 per cent of gravity was used in the structural design of the building. In general, concrete walls are 7 inches thick in the first story and 6 inches thick in the second story. In order to obtain the deep reveals demanded by the architecture, vertical and horizontal beams were cast into the walls around the sides of the window openings. All reveals, mouldings and ornamentation on the outside walls and arcades were built into the form work, and cast with the structural concrete. The only finish used on the exterior concrete was a dash coat of pigmented white cement and sand.

The arcades are unusually attractive and in harmony with the architectural motif, although the effects were obtained at nominal cost. The steps were cast integrally with the structural concrete, using no special finish except troweling abrasive into the treads, and careful construction of the forms and placing of concrete. The floor finish consists of the smoothly troweled structural slab, acid stained in bronzed green and brown pattern, and pattern joints ground into the surface so that the floor resembles colored quarry tile. The walls are finished with a dash coat over the structural concrete. The ceilings appear to be weathered redwood beams supporting plank roofing. This effect was obtained by careful forming with rough lumber faces against the concrete, and acid staining.

The main waiting room is the dominant feature of the building interior. The happy combination of old Spanish treatment for the most modern of transport terminals lends a feeling of comfort and ease without sacrificing efficiency in traffic movements. The pleasing effects were obtained only by an unusually large amount of full size detailing and close supervision. The floor is in four-color patterned terrazzo having the richness in appearance of a fine oriental rug. Counter tops, base and thresholds are of Belgian black marble travertite. The main stairs are exceptionally handsome in marble travertite with wrought iron railings. The walls have a stone travertine finish run in the plaster. Woodwork is oak. Balcony railings and lighting fixtures are antique wrought iron. The ceiling is old Spanish in pattern and color. The effect was obtained by stenciled patterns over the plastered suspended ceiling, with a rotten stone glaze finish.

The completion of the new Terminal Building places the anticipated revenues above the operating expenses of the Airport for the first time. A bond issue in the amount of $2,850,000 is now pending, to be passed on by the voters in November. The proposed bond issue, if approved, will provide funds for the extension of paved runways from 3,000 to 5,000 feet in length, thus preventing early obsolescence of this airport, and protecting the present investment; will allow completion of the seaplane harbor and buildings thus allowing Pan-American Airways to establish their transpacific base here, and enabling the United States Coast Guard aviation station to be constructed with the existing $600,000 Federal appropriation;

(Please turn to Page 50)

PLAGUES AND PARASITES OF AIR CONDITIONING

By H. A. Harer

SINCE time began, the architect has been plagued by the jerry builder and others of his tribe who lift his ideas and designs and patronize his exhibits with sketch-pad and pencil. The unsuspecting prospect is then sold on the idea that the architect's services are not necessary because "this" is one of his plans for such and such a house and "we can give you one just like it."

There is another plague that is infecting the land today which one William Shaw in a recent paper so ably commented on in the following manner:

"Parasites seem to be the rule rather than the exception in every line of endeavor. Let an honest development spring from the laboratories and immediately a group of imitators come forward with cheap, unreliable merchandise to foist on the unsuspecting public. The relatively new development of air conditioning is an excellent case in point. No sooner had the public been informed of the advantages which accrue from air conditioning than a crop of cheap "air conditioners" appeared on the market consisting of equipment, or lack of equipment, to be bought eagerly by thousands looking for the benefits of conditioned air without the expense."

Most of these so-called air conditioners consist of nothing more than a fan built into some sort of a fancy cabinet and selling for about three times the value of the materials used. Occasionally they contain a method of vaporizing water to increase the humidity of the room. In any event those selling at a ridiculously low price—ridiculous in the face of the necessary cost for true air conditioning units—have little or no value from the standpoint of air conditioning.

In view of this situation the Scientific American says it is encouraging to learn that the Federal Trade Commission has recently stepped into the picture and "verbally spanked one manufacturer of an air 'purifier' and circulating device." The Commission has ordered that this company discontinue the use of the words "air conditioning" from its advertising.

The Air Conditioning Manufacturers' Association points out, furthermore, that the Federal Trade Commission has defined true air conditioning as consisting of warming, humidifying and circulating of the air in the winter, and cooling, dehumidifying and circulating of it in the summer, preferably also cleansing of the air at all times.

Legitimate warm air heating contractors literally get sick when they see some of the absurd claims made by the host of new vendors and manufacturers of warm air heating and so-called "air conditioning" equipment. The sky seems to be the limit and on any forced air job, they take the liberty of classifying it as an air

conditioning system, and even putting up signs to that effect, and in some cases actually signing their name to it.

Much can be done to remove a handicap which inhibits the growth of an industry that is rightfully its own if the warm air heating, air conditioning contractors and manufacturers will preface their proposals or specifications with a simple definition set up somewhat as follows:

Definition of Air Conditioning

As a basis whereby degrees of air conditioning may be assigned to any installation, air conditioning is defined by the following degrees, to—

Degree 1—Provision for heat supply.

Degree 2—Provision for supplying the proper humidity.

Degree 3—Provision for thermostatic control of room temperature.

Degree 4—Provision for positive circulation (supply and exhaust) of warm air.

Degree 5—Provision for cleaning the air by filters or washers.

Degree 6—Provision for increasing the supply of air for summer use.

Degree 7—Provision for dehumidifying air for summer use.

Degree 8—Provision for cooling the air for summer use.

Note: The installation herein specified will provide degrees: (the number of degrees should then be stated; i. e., 1-2-3-4-5). If this is done, there should never be any cause for misunderstanding and the heating contractor who takes the trouble to preface his proposal or specification in this manner will profit thereby.

APARTMENT HOUSE DESIGN

(Concluded from Page 34)

especially those adjoining corridors or other apartments, will not only bring in new tenants but aid in keeping old ones. Floors that deaden footsteps are valuable, cork tile being exceptionally good-looking for living rooms, bedrooms and halls. In addition, this last material has long wearing qualities, is comparatively easy to keep in good condition, never creaks or groans and is fire retardent. If we can afford the expenditure, Venetian blinds should be used on all of the windows. They will wear indefinitely, are smart and modern in appearance, can be easily and quickly washed and afford ventilation with privacy. Should these be impracticable from the standpoint of cost, there are shade cloth imitations which are worthy of investigation.

Lighting fixtures should be chosen with discrimination, keeping in mind simplicity in color and form. The new indirect lighting is coming more and more to the forefront and we should carefully consider its use. Within a few years the house without air conditioning will be considered old-fashioned and even if we cannot now afford the expense we should install ducts with inconspicuous openings into the various rooms so as to admit of its future installation without disfiguring our apartments. Closets should be more than sufficient in number and size. These are more important than is generally realized. A little special equipment, such as shoe racks, hat stands, conveniently placed shelves, a light that goes on when the closet door is opened and off when it is shut helps tremendously in renting.

General features of the building itself, which have caused favorable comment in other structures and which we would do well to consider seriously are as follows: A laundry in the basement with heating and drying equipment, dry storerooms of fair size for every apartment. Oversize heating equipment that will be ample for the exceptionally cold days. A little greenery about the building if possible, and a service entrance and elevator. We should plan on giving an ample and unfailing supply of heat and hot water at all reasonable times.

Qualities Necessary for the Successful Architect & Engineer

By J. Roy Petersen

WHAT are the qualities and interests most likely to make a person either a successful architect or an engineer?

Undertaking to answer this question in the most scientific manner possible, Dr. Edward K. Strong, Jr., professor of psychology at Stanford University, has worked out vocational-interest tests which register the "profile" of anyone going into either of these professions.

It is a well known fact that several factors influence the success of a person—health is primary; aptitude is essential; intelligence plays its part; and interest may "break" or "make" a man. The test as formulated by Dr. Strong is essentially one of interest. In no way is the vocational-interest test to be thought of as an intelligence test. Men engaged in a particular occupation have been found to have a characteristic pattern of likes and dislikes, which distinguish them from following other professions. Scores made on Dr. Strong's tests are a measure of how nearly a man's interests coincide with those of the average man successfully engaged in specified occupations.

As a criterion group. One hundred and fourteen practicing architects of the State of California were chosen and names for the engineers were based on a total of 362 successful men, three-fourths of them full members and one-fourth associate members of the four engineering societies, equally represented. All had been engaged in their occupaion for at least three previous years.

When asked to indicate upon a long list of occupations whether they would like different types of work, disregarding considerations of salary, social standing, future advancement, etc., the engineers showed that they like occupations which were, in a way, allied to engineering and involving handicraft such as being a carpenter, a building contractor, or a draftsman. He also showed some inclination to write. But much aversion was shown toward such occupations as life insurance salesman, politician or poet. As would be expected the architect was interested in professions which involve creative design and listed his preference as sculptor, artist, cartoonist, or landscape gardener. It seemed that he did not like jobs which involved office work or salesmanship and strongly disliked the work of bank teller, cashier or floorwalker.

The entire blank was scored for each occupation interest, using for instance, a different scoring scale for the engineers than for the architect. The scoring scale includes nine slips of cardboard, corresponding to the nine part of the test. On each slip are printed three columns of figures. To illustrate this and the method of using the scale, the first five items in the first part of the test having to do with occupational interests are given below and opposite them the scores which appear on the scoring scale (1) for the engineer and (2) for the architect:

		(1)			(2)		
Actor	L I D	-6	-1	4	-2	3	-1
Advertiser	L I D	-6		4	-3	1	2
Architect	L I D	3	-1	-4	15	-15	-10
Army Officer	L I D	1	1	-2		1	-1
Artist	L I D	-1		1	15	-8	-13

If the person should circle "L" (likes) opposite all five of these items he would be given the following scores for the engineer: -6, -6, 3, 1, -1,

totaling -9. On the basis of these five items he does not have the interests of an engineer. Totaling the five items and using the architects' scale, assuming that the person has marked them all "L," the total would be +25, indicating very definitely that the person has the same interests as a successful architect. To score the whole test one must ascertain the 420 scores assigned to likes (L), indifferents (I), and dislikes (D) that have been circled and then total them.

In the matter of amusements the architects and engineers both indicated that their best-liked sport was taking long walks and in the matter of reading they both indicated that "National Geographic" was their favorite magazine. While not indicative that they hated sport pages, the cumulative results of the test given to the 382 engineers showed that they were not too interested in that section of the daily paper. The architect was adverse to pet canaries and the engineer equally much against amusements parks. One of the things which the architect enjoyed doing more than anything else was visiting art galleries and museums.

In composing the test Dr. Strong assumed that a man will be more effective in his vocational career if he is engaged in work that he likes than if he is forced to do a great many things he dislikes. If he is given his own free will in the matter it is apparent from the surveys made at Stanford University, that his general interest will, to a surprising extent, influence his choice of career.

The question, "Does the individual have the interest characteristic of a particular profession?" is answered by three ratings: A—yes, B—not sure, and C—no. In the case of the architect, an A rating was a score of 299 and above, B rating 99 to 298, and C rating below 98. The engineer ratings differed and an A rating was obtained by scoring 202 or above; B rating 1 to 201; and C rating was 0 or below in the minus columns.

From the data gathered it appears that relatively few men rate "A" in any occupation outside of the group to which their occupation belongs, whereas a considerable number rate "B" in other occupations than their own.

If a man scores low, for example, in the interests of architects, it means that he would not like that occupational environment. "If he scores high," says Dr. Strong, "the score may be interpreted in three ways, depending upon how he scores in other occupational interest. First, if he scores higher in architecture than in any occupation presumably he should enter architecture. Second, if he scores higher in some other occupation han architecture, he possibly should enter that other occupation. But third, he may better plan his career to utilize his interests in two or more occupations." Thus if he scores high in both architecture and engineering he might prepare for both and become, for example, an architect specializing in engineering problems.

To get back to the diverse interests of the professions we find that when in school the engineers liked such things as mechanical drawing, shop work and the mathematics and sciences but would rather not have done anything with dramatics or sociology. The architect again follows form and indicates that he liked art and mechanical drawing. It was noticed that he liked geometry and not algebra.

Part IV of the test was a choice of interest with regard to activities. The architect likes to spend time looking at antique furniture and also enjoys cabinet making in his spare time. The engineer seemed to be mechanically-minded because the activities he preferred involved such things as operating machinery, repairing clocks and radio sets, or working on automobile engines. Both professions were against all forms of selling, displaying or buying merchandise.

In most psychological tests the higher the score the more the individual has of the trait in question. In this test the score is a measure of how nearly a man's interests coincide with those of the **average** man successfully engaged in that occupation. As mentioned previously, the interest tests are not intelligence tests, nor are there any time restrictions in marking the tests as is the case in most intelligence tests. However, Dr. Strong believes that the person who works rapidly and records his first thoughts, receives a rating more nearly what

it should be than the person who pauses and attempts to think out each item.

With this in mind the instructions at the beginning of the section which records what the person thinks about the various peculiarities of other people states, "Let yourself go and record the feeling that comes to mind as the items are read," instead of trying to think of various possibilities or of exceptional cases. Under the set-up we find the following recorded. Engineers like conservative people while architects show a preference for progressive people. Successful men from each group indicate their extreme dislike for men who use perfume; architects don't approve of people who talk too loudly while engineers give no stamp of approval on those who talk about themselves or those who always agree. An amusing item was noted in that architects like women who are more clever than they.

To develop the theory of the operation of a new machine, e. g., the automobile, is ranked number one in preference of activities for the engineer and although the architect shows a desire along this line he would rather create a new artistic effect, i. e., improve the beauty of the auto. Both admit that the job of selling the machine appeals to them least.

The test listed ten famous men and asked which of the three the tested person would rather have been. As would be expected the engineers listed Thomas A. Edison, inventor, as their first choice, followed in order by Henry Ford, manufacturer, and then J. J. Pershing, soldier. The architect's choice was entirely different from this—he would like to have been Charles Dana Gibson, artist; then Enrico Caruso, singer, and third choice was Luther Burbank, "plant wizard."

The results of the comparison of interest between two items was interesting, in which a choice had to be made. The architect would rather work for himself than carry out work under respected superiors and preferred work which interested him with only a small income to work with a large income which had no interest for him. If the engineer had the choice of becoming a street car motorman or a street car conductor he would take the former. The engineer has intense dislike for anything connected with selling and as a result he would rather do gardening than to do house to house canvassing; furthermore if he had a choice of house canvassing or retail selling he would take the latter. Dealing with things, rather than dealing with people, appeals more to the engineer and in the matter of payment for services he would prefer a salary to commissions. Members of both professions indicate that they like few women friends and a few very intimate friends instead of large acquaintances.

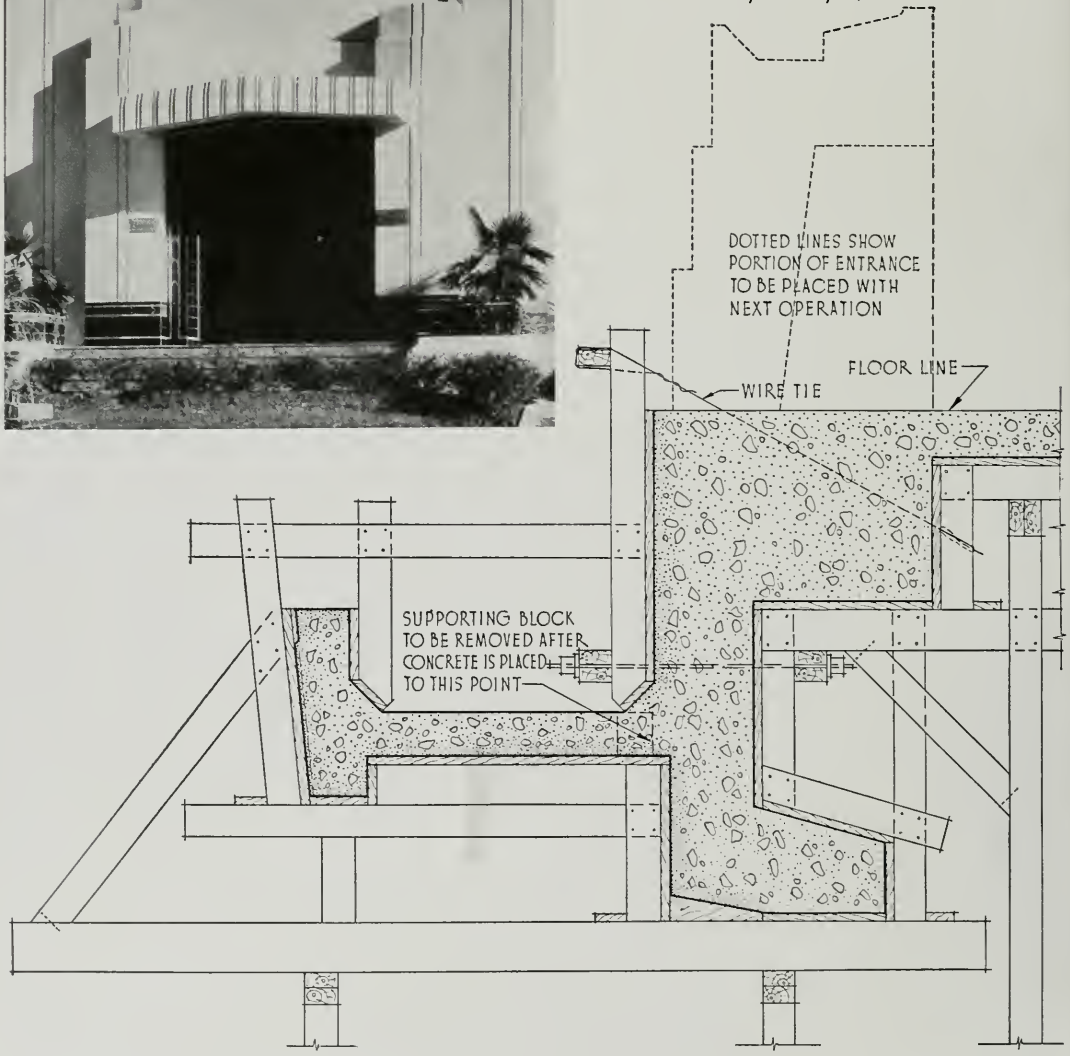
On the last part of the test with reference to the rating of the person's own present abilities and characteristics, the instructions ask the person taking the test to be frank and point out his weak points because selection of a vocation must be made in terms of them as well as on one's strong points. The **average** architect says he has the faculty of planning his work in detail and that he has more than his share of novel ideas. Both he and the engineer admit that one of their strong points is the mechanical ingenuity or inventiveness which they possess. In the admittance of weaknesses, the engineer prominently showed his inability to win friends easily, and insignificant as it may seem, listed one of his faults as that of not being always on time for work. The architect showed that he was a little backward in starting the activities of his group and said he had much trouble in remembering faces, names and incidents as well as the average person. He also admitted that his best friends are equal in ability.

The requirements for an adequate vocational guidance test are three-fold: Reliability, permanence and validity. A person's score should agree very closely with the score he would obtain if he took the test a second time, both with a short interval of time (reliability), and after a considerable period of time (permanence). His score would furthermore be indicative of the occupation he should enter (validity).

After ten years of study on this work Dr. Strong concludes, "It will be some time before the validity of this test can be **exactly** determined. Results so far obtained show that the test has genuine merit."

DETAIL OF CANOPY

BORDEN MILK PLANT,
SAN ANTONIO, TEXAS
Ayres & Ayres, Architects



NARROW CANOPY WITH FASCIA BEAM

Courtesy California Highways and Public Works

The N and O Street Viaduct in Wilmington in Los Angeles County completes another important link in California's State Highway. Lower view shows west approach to viaduct.

SAN FRANCISCO — OAKLAND BAY BRIDGE TERMINAL

CONSTRUCTION of the San Francisco-Oakland Bay Bridge railway terminal in San Francisco is progressing satisfactorily. Electric trains will be operating over the transbay system of the span by November, 1938, according to Chief Engineer C. H. Purcell.

The work of demolishing buildings remaining on the terminal site has been completed and the foundation work is well in hand.

Approximately 4,000,000 pounds of structural steel will be required for the street crossings of the viaducts, 2,800,000 pounds of steel roof framing for the terminal and 560,000 pounds for the catenary bridges.

The terminal has been designed to provide for a 50 per cent increase over present commuter traffic between San Francisco and the East Bay and is expected to be sufficient to accommodate with ease all traffic for the next thirty years on the basis of every passenger being seated.

Tracks and loading platforms will be entirely roofed over a length of 700 feet with large skylights and windows providing ample lighting. Trains will come in to the terminal over six tracks which will be arranged in pairs with platforms between alternate trains.

The main station width will be 164 feet. A fence will be placed between adjacent tracks in order to prevent hazards to passengers from incoming and outgoing trains.

The terminal will contain a large waiting room in the center of the station on the ground floor with access to four streets—Mission, Fremont, First and Natoma. Passengers leaving the bridge trains which come in on the elevated train level above the mezzanine floor need not pass through this waiting room but may leave the concourse by means of outdoor or indoor ramps to be located in front of the head house and at each end of the station.

Rest rooms, restaurants, first aid rooms, concessions, telegraph offices and telephones will be situated around the waiting room. On the mezzanine floor, between the ground floor and the track level, information booths, ticket offices, directional signs and concessions will be located.

From this mezzanine floor, passengers may travel directly to the street cars which will stop just outside the station on the same level as the mezzanine floor.

All the terminal will be of reinforced concrete or structural steel. It will have acoustical treatment to eliminate noise. Floors will be of terrazzo and the walls of the waiting room of terra cotta tile.

SAN FRANCISCO'S GREATER AIRPORT

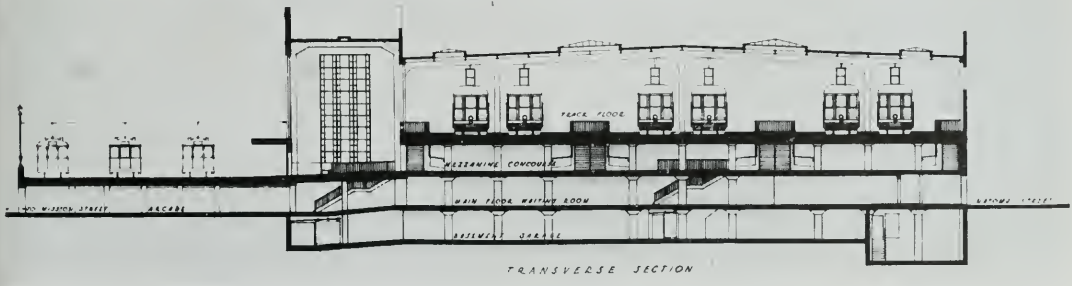
(Concluded from Page 42)

and will assure Federal lighting and radio beacon construction directly into the airport. The harbor dredging and maintenance will be done largely at Federal expense with existing Federal appropriations, provided the city constructs the shore facilities with the proposed bond issue funds.

The airport development and the New Landplane Port Terminal Building represent the results of much painstaking planning on the part of B. M. Doolin, manager of the Airport Department, L. T. McAfee, utilities engineer, and L. W. Stocker, chief civil engineer of the Bureau of Engineering, Public Utilities Commission. All architectural, structural and mechanical design and supervision were done under the direction of George D. Burr, structural engineer of the Bureau of Engineering. H. G. Chipier, also of the Bureau of Engineering, was directly responsible for the architectural work. A. J. Wehner was engineer in charge of the building construction, while Reed and Reed were the general contractors.

Artist's view of San Francisco Bay Bridge Terminal Building and approaches. Ferry Building and Market Street in right foreground.

Architect's drawing of Bay Bridge terminal through which it is expected 35,000,000 persons will pass annually.



Courtesy California Highways and Public Works

Interior of terminal, showing interurban train track floor, mezzanine concourse, main waiting room, garage and arcade to Mission Street trolley cars.

OFFICE BUILDING FOR HERRICK IRON WORKS, OAKLAND, CALIFORNIA
Miller and Warnecke, Architects

NEW BUILDING FOR GLADDING, McBEAN & COMPANY,
SAN FRANCISCO, CALIFORNIA

ARCHITECTS' BULLETIN

Issued For

THE STATE ASSOCIATION OF CALIFORNIA ARCHITECTS

Northern Section

Section Meeting in San Francisco

THE annual Advisory Council and Northern Section meeting has been set for September 17, at 5 p. m. for Advisors, and 6 p. m. for dinner, followed by general discussion, at the Dawn restaurant in the basement of the Monadnock Building, San Francisco. The Dawn is a rather unusual place, which was started (so we are told) by some cooking school ladies, and soon acquired a large clientele of local lunchers who recognized good food when they found and ate it. The place expanded to pass through a night club stage, and is now once again a convenient cafe with a large private room in which the San Francisco District Society has had several satisfactory meetings. There is a long lounge bar just outside the door of this private dining room (information for the benefit of members coming from the dry open spaces). Entrance is from the alley between the Monadnock Building and the Palace Hotel. We trust this description will enable many architects to find their way to this important pre-convention meeting.

NEW ADVISORS

A few names are filtering in to the office from outlying districts. Edward R. French, Jr., will be 1938 Advisor for the North Bay District; Arthur F. Dudman for Sacramento; Joseph Losekann and Howard G. Bissell for the Lower San Joaquin (Stockton); and meetings have been called for several other districts. Santa Clara Valley has elected Chas. S. McKenzie their new advisor; Palo Alto —Henry C. Collins; San Mateo—Leo Sharps; Oakland—Edw. O. Blodgett and Geo. P. Simonds; Berkeley—Gwynn Officer; San Francisco—Harris C. Allen, G. Fred Ashley, J. K. Ballantine, Wm. I. Garren, Wayne S. Hertzka, Conrad T. Kett, Wm. Merchant, Thomas E. Pring, Vincent Raney and Frederick H. Reimers.

UNIFICATION

Architects have been using this word to denote affiliation of state organizations with the American Institute of Architects, with the intention of uniting the profession so far as a national policy for good practice and legal security is concerned. Perhaps it was the use of this word which attracted the attention of some labor union chiefs, to such an end that they decided the field of technical labor had been overlooked. At any rate, some efforts have been made to organize draftsmen working for architects and engineers into an industrial trade union. No such organization has yet been accomplished, but the subject is probably one that will come up for discussion in the October convention. According to our by-laws, any local architectural club can become an Affiliate of the State Association of California Architects, and such a relationship would appear to be more normal and mutually satisfactory for professional activities.

CONFERENCE BOARD

Through a misunderstanding, a notice in last month's Bulletin omitted the essential words in the newly changed title of the Joint Conference Board (of San Francisco). It is now known as the **Building Industry Conference Board**, and is actively participating at present in the local efforts to stabilize labor costs and restore the progress of building activities.

1937 CONVENTION

A complete program for the convention has not yet been prepared, but the Executive Board, Southern Section, is meeting frequently to determine the various convention features. The Southern committee, under the leadership of Winsor Soule, Ralph Flewelling, et. al., (in this case not meaning Al Evers), may be counted on to provide usual and unusual attractions to make the session at Santa Barbara, October 14-15-16, interesting and enjoyable. Make a mental reservation—but not the kind that means evasion or avoidance. Santa Barbara is always worth visiting, and the Santa Barbarians are fine hosts —they keep the pot boiling.

FEDERAL CO-OPERATION

The Federal agencies which concern housing, and their member financial institutions, are showing a notable desire for architectural co-operation, and are studying ways by which architects may legitimately and safely provide service for small house construction. Some consideration and discussion of these plans may well be included in the convention program.

NEW REGULATIONS

Regulations No. 5 (New Code) which supercedes Appendix A, Temporary Regulations No. 5, is now ready for distribution by the Division of Architecture, State Building, Los Angeles. Those who will surrender their old copy may obtain the new edition without cost. Should a flexible leather binding be desired there will be a charge of 50 cents.

REPORT SERVICE

Our official service "Architects Reports" prides itself on the accuracy and timeliness of its news items. These points, together with its system of classified information, have greatly reduced the annoyance to architects of untimely salesmen's calls, and the occasional interference with building projects. Architects outside the immediate San Francisco area may not know that they can telephone advance information directly to the "Architects Reports" office, Sutter 4307, and reverse charges, thus ensuring proper and timely announcement without cost to themselves.

ARCHITECT TO BUILD HOME

Charles F. B. Roeth, 2548 Cedar Street, Berkeley, has designed and will build for himself a seven-room home at 3090 Buena Vista Avenue, Oakland, estimated to cost $9,500.

SCHOOL HALL AND CAFETERIA

An addition to consist of an assembly hall and cafeteria is planned to the Cambrian Grammar School near Campbell. The drawings have been completed by Binder & Curtis of San Jose.

STEEL BRIDGE INCASED IN CONCRETE

A steel bridge, 3,000 feet long, and 175 feet high, has been completed across the Columbia River at Grand Coulee Dam.

This bridge is unique in that within six months it will have disappeared, having been imbedded in the concrete of the growing dam and thus swallowed up by the stupendous project.

Three standard gauge railroad tracks cross the bridge, which extends from the two great concrete mixing plants located at the west and the east abutments. It is one of the busiest bridges in the world, since a relay of trains are moving back and forth across it continuously hauling concrete in 4-cubic yard buckets for placement in the dam. Already nearly 6,000,000 tons of concrete has been handled by cranes which move about on the bridge to serve the workmen far below.

The bridge contains 7,000 tons of steel and it cost more than a half million dollars. Despite the fact that burying such a structure in the concrete of the dam would appear to be a loss, it is the most efficient means devised, and less expensive than any other method proposed for placing the enormous yardage of concrete required over the foundation area 500 feet wide and 3,000 feet long.

From the high bridge cranes swing buckets loaded with eleven tons of concrete to any point within a strip 125 feet wide across the river. A second and lower bridge, which has not as yet been completed, will cover the remainder of the foundation area. The lower bridge also will be swallowed up as the dam grows.

HOW TO BUY CULVERTS

"How to Buy Culverts," recently published by the United States Steel Corporation Subsidiaries, 434 Fifth Avenue, Pittsburgh, is available to architects and engineers.

Attractively printed in green and white, the booklet describes small round, part circle and perforated culverts. The reasons why U.S.S. Copper Steel has proved to be a durable culvert material are also discussed, with questions and answers. Included in the booklet are useful tables on recommended gauges, acres drained by culverts of various diameters, capacities of corrugated culverts when running full and safe velocities of flow in various soils. The method of determining culvert sizes by the Talbot Equation is described and illustrated by a typical example. Another table helps engineers to calculate the discharge of corrugated culverts by means of the Burkli-Ziegler Formula; and an example is again provided for a case where the rate of rainfall is 1 inch per year.

SELMA GRAMMAR SCHOOL

Two new grammar schools will be erected in Fresno to replace the Garfield and Washington schools. Owner is the Selma Grammar School District and architect is W. D. Coates, Rowell Building, Fresno.

California to Spend Millions for State Buildings

Following is an official list of appropriations for California State Capital outlay, exclusive of highway construction and improvements, for new public buildings and miscellaneous improvements for the biennium 1937-38:

Agency	Purpose	Amount
University of California	Campus improvements and purchase of land	$ 420,500
Sixth District Agricultural Association	Construction and improvements	15,780
Veterans' Home of California	Construction and improvements	125,000
Division of Fish and Game	Purchase of game refuges and public shooting grounds, construction, improvements and equipment	128,000
Division of Parks	Construction and improvements	34,860
Reclamation Board	Reclamation and flood control	1,141,000
Board of Harbor Commissioners, San Francisco	Construction and improvements	50,000
California Polytechnic School	Permanent improvements	186,467
California Polytechnic School	Permanent improvements	166,029
University of California College of Agriculture	Permanent improvements	301,890
University of California College of Agriculture	Permanent improvements	311,495
Board of Prison Directors	Construction of first unit of Southern California prison at Chino	2,000,000
Department of Finance	Purchase California National Bank Building, Sacramento	200,000
Department of Finance	Purchase or construction of dam and water distribution system to supply state institutions in Napa County	300,030
Fresno State College	Purchase of land	48,780
Department of Finance	Construction, repairs and improvements, equipment and furnishings in State Capitol and State Office Buildings, Sacramento	50,000
Department of Public Works	Providing for a unified and centralized program of construction and improvements to State property (see itemized list of buildings below)	6,781,550
Department of Public Works	Additional appropriation for same purpose (see itemized list below)	7,206,250
Department of Agriculture	Major construction and equipment of plant quarantine border inspection stations	28,500
Secretary of State	Fireproof vault equipment	10,000
Sonoma State Home	Purchase of land	10,000
Department of Finance	Annex to State Printing plant	47,000
Department of Finance	Office accommodations—Division of Real Estate	75,000
Department of Finance	Office accommodations—Bureau Registration of Nurses	15,000
Department of Finance	Office accommodations — Detective License Bureau	15,000
Department of Finance	Office accommodations—Division of Corporations	75,000
Department of Finance	Office accommodations—Superintendent of Collection Agencies	15,000
Adjutant General	Construction and improvements and equipment of armories, arsenals and camp sites	79,000
Chico State College	Purchase of land and construction and improvement	36,500
Department of Finance	Construction and improvement at State, County and District Fairs	396,448
TOTAL		$20,280,050

In addition to the appropriations listed above there was appropriated from the General Fund $5,000,000 for a state building and exhibit at the San Francisco Exposition in 1939 and $1,500,000 for a state building and exhibit at the Los Angeles Exposition in 1940. A considerable portion of these appropriations will be spent for construcion.

Appropriations For Building Improvements

Department of Agriculture	$ 2,700
Chico State College	11,500
Fresno State College	11,500
Humboldt State College	11,500
San Diego State College	11,500
San Francisco State College	12,800
San Jose State College	12,000
Santa Barbara State College	12,500
California School for Blind	4,750
Department of Finance	35,000
Agnews State Hospital	182,990
Camarillo State Hospital	2,765,000
Mendocino State Hospital	30,400
Napa State Hospital	1,016,700
Norwalk State Hospital	18,500
Patton State Hospital	18,000
Stockton State Hospital	98,500
Pacific Colony-State Narcotic Hospital	990,500
Sonoma State Home	1,053,260
Preston School of Industry	7,750
Ventura School for Girls	7,650
Whittier State School	3,750
Industrial Home for Adult Blind	8,000
Adjutant General and California National Guard	25,000
Veterans' Home of California	324,000
Woman's Relief Corps Home	11,000
Folsom State Prison	42,300
San Quentin State Prison	45,000
California Institution for Women	7,500
California School for Blind	100,000
Agnews State Hospital	600,000
Camarillo State Hospital	1,800,000
Mendocino State Hospital	125,000
Napa State Hospital	1,000,000
Norwalk State Hospital	165,000
Patton State Hospital	250,000
Stockton State Hospital	500,000
Pacific Colony-State Narcotic Hospital	150,000
Sonoma State Home	320,000
Ventura School for Girls	165,000
Industrial Home for Adult Blind	60,000
Adjutant General and California National Guard	
Veterans' Home of California	360,000
Woman's Relief Corps Home	215,000
Folsom State Prison	105,000
San Quentin State Prison	100,000
California Institution for Women	165,000
State Fair Buildings	750,000
Capitol Electroliers	16,250
California School for the Deaf	260,000

OLD PEOPLES' HOME

A $50,000 addition to the Salem Lutheran Home on 29th Street, Oakland, is to be built from drawings now in progress in the office of Henry H. Gutterson, 526 Powell Street, San Francisco. The building will be of reinforced concrete. Mr. Gutterson has recently completed plans for a house in the Del Mesa Tract, San Anselmo, for Frank H. Allen.

Legislatures Should Regulate Hours and Wage Abuses

CORRECTION of any hours-and-wage abuses that can be made by direct legislative method should be made by state legislatures and should not be attempted in Federal legislation, a special committee of the Chamber of Commerce of the United States has proposed.

The committee report was sent to the Chamber's membership as another step in the persistent attention which the Chamber has given to hours-and-wage proposals since they first appeared in the present Congress.

The only Federal legislation which should be undertaken, the committee declared, should be in the form of Federal enactments to protect the states, in the legislation which they themselves may enact, from defeat through the use of inter-state commerce.

"The Chamber of Commerce of the United States," said the committee, "has repeatedly advocated wages to provide a decent living, and hours of work allowing adequate earnings and ample leisure for workers.

"The problem is how to assure correction of situations in which there is violation of such standards. We believe the method of Federal legislation such as is now proposed is erroneous. These are matters which so far as they are appropriate for legislative action, belong to the states. The only Federal legislation which should be attempted should be in a form, the success of which has already been demonstrated with respect to convict-made goods. This form of Federal legislation prevents the use of inter-state commerce for defeat of proper state legislation.

"There can thus be developed an appropriate and efficient system of Federal and state co-operation, the Federal government using its own powers and the states using their constitutional powers for a common purpose.

"It is the states that can prevent employment under those conditions which constitute sweatshops, and there has been state action regarding such matters. The states are nearer to these conditions than the Federal government, and can take more appropriate action.

"The pending hours and wages bill as it passed the Senate, deals with child labor in this manner and in this regard is to be commended.

"Federal legislation of such a kind as here suggested should be influential in causing state action; for action by those states which afford large markets to which producers in other states must for their welfare have access would, by virtue of this form of Federal legislation, become widely persuasive."

Both the Senate bill as passed and the House bill now pending, the committee says, show improvements over the original legislation proposed. Yet, although improvements have been made, the structure of the original bill, it is pointed out, remains unaltered.

"The national hours-and-wages bill," says the committee, "is a supplementary measure to the National Labor Relations Act. The express purpose of the Labor Relations Act is to encourage collective bargaining and experiences of two years under the Labor Relations Act have demonstrated the extremes to which the encouragement has been carried and the consequences for the public interest as well as for the interests of workers and their employers. The obvious aim of the national hours-and-wages bill is ultimately to force all concerns in an industry, however distant their location and however different their circumstances, to abide by hours and wages prescribed in an agreement reached in a part of the industry. The official title is misleading; for the measure is not a fair labor standards bill. The suggestion that the bill is necessary to protect collective agreements when made in part of an industry should not be allowed to obscure the elements of coercion which are involved as to matters in which workers and their employers should remain free.

"Attention should now be given to changes of the National Labor Relations Act rather than to making any additions to it.

"The specific provisions of the bill are based upon an assumption that abuses of long hours and low wage rates are so prevalent that there is warrant for placing upon all enterprise onerous police provisions. In fact, such abuses are so limited as in no sense to characterize American business enterprise, and to afford no reasonable justification for extremes proposed.

"Dealing with the provisions of the bill as they stand we believe the limitations on hours of work would exert restrictive effects on the volume of output.

"It would operate to increase the costs of industrial production, and higher cost would inevitably be reflected in increases in prices. Farmers and all other classes of persons to whom the bill would not directly apply would thus be placed at a disadvantage.

"The bill would affect production for foreign markets and would handicap domestic producers of goods competing with imports. To be sure, the House bill would seem to apply to imports. There would remain, however, the problem as to how the requirements of the bill could be made effective as to production in foreign countries. There is the further problem as to how to prevent any increase in domestic costs from giving an added advantage to imports of articles on which custom duties have been reduced by reciprocal trade agreements.

"The wage provisions of the bill are of such a nature that anything like impartial administration and adequate enforcement would not seem possible of achievement. Any action respecting minimum wages for a widely spread industry would probably impose severe handicaps upon small enterprises, and concerns located in areas where differentials have become long established. There is a necessary question whether any board would be able to arrive at proper differentials between wages in large centers and in small communities, with possible variations in different parts of the country."

With the Architects

ARCHITECTS VISIT ATELIER

A visit to the atelier of Lorentz Kleiser featured the regular monthly meeting of Southern California Chapter, the American Institute of Architects, at the Palos Verdes Golf Club, August 17. Mr. Kleiser, an honorary member of the Institute, is widely known as a designer of tapestries. There was no business transacted at the meeting, which was of an informal nature. Twenty-one members attended.

ADDITION TO OFFICE BUILDING

E. L. Norberg, architect of Burlingame, has completed drawings for alterations to the office building of the California Pacific Title and Trust Company at Redwood City. There will also be a one-story addition. A contract for the work has been awarded to the G. W. Williams Company of Burlingame for $24,000.

RACE TRACK FOR OAKLAND

G. A. Lansburgh, architect of San Francisco, has been commissioned to prepare plans for a one mile horse race track, a two and one-half mile auto speedway, with grandstands and concession building, at Tank Farm Hill, near San Pablo, for John J. Jerome, owner of the El Cerrito dog track.

RANCH STYLE SCHOOL HOUSE

Birge M. and David Clark have prepared plans for a ranch style private school at San Pedro. The Chadwick School is the name of the owner. There will be four frame buildings, including a five classroom unit, dormitory, dining room, kitchen and principal's residence.

HOTEL IMPROVEMENTS

Architect Albert R. Williams, 251 Post Street, is preparing working drawings for remodeling the ground floor, both exterior and interior, of the Somerton Hotel at 440 Geary Street, San Francisco, at a cost of $50,000. A new coffee shop, cocktail room and lounge will be added.

ADDITION TO DAVIS SCHOOL

Plans have been completed by Messrs. Starks and Flanders, Bank of America Building, Sacramento, for a new gymnasium and class room addition at the Davis Union High School. The building replaces one recently damaged by fire and will be of reinforced concrete and brick veneer. Cost of the work is estimated at $70,000.

COUNTY HOSPITAL ADDITION

Placer County, California, will spend $30,000 for a one-story reinforced concrete addition to the county hospital at Auburn. Plans for the improvement were made by W. E. Coffman, Forum Building, Sacramento.

FOUR NEW THEATERS

Four new theaters in Washington and Oregon have recently been completed from plans by Architect Bjarne H. Moe, 2318 Second Avenue, Seattle. They are the Green Lake Theater, Seattle, and one each in Ellensburg and Ritzville, Washington, and Ontario, Oregon. The four show houses have a total seating capacity of 1,450 persons, and their construction cost amounted to $160,000.

TO REMODEL FACTORY

Plans have been completed by George Travis, architect, and Norman B. Green, structural engineer, Sharon Building, San Francisco, for remodeling the factory building at 251 Fremont Street, San Francisco, owned by the Bothin Realty Company, at a cost of $15,000.

BURLINGAME RESIDENCE

W. C. F. Gillam, 1470 Broadway, Burlingame, is the architect of a $12,000 house to be built on Los Robles Drive, San Mateo County, for A. B. C. Cargill. The house will be two stories and basement with stucco exterior and shingle roof.

BAY BRIDGE VIADUCT

A contract has been awarded to Eaton and Smith of San Francisco, for constructing a reinforced concrete viaduct at the Oakland Bridge Terminal for the electric railways. The structure will cost $605,000.

SACRAMENTO RESIDENCE

Harry J. Devine, architect, Cronan Building, Sacramento, has prepared plans for an eight-room, brick veneer residence for Mrs. J. Oftoja, to be built in Sacramento, at a cost of $11,000.

APARTMENT HOUSE COURT

L. P. Heiman is owner of an apartment court of ten units to be built at Harvard Street and El Camino Real, San Mateo, from plans by Architect D. E. Jaekle, 126 Post Street, San Francisco. The building will cost $25,000.

SACRAMENTO SCHOOL BUILDING

Bonds have been voted in the amount of $109,000 for a twelve class room unit and auditorium for the Fruitridge School District, near Sacramento. Charles F. Dean has prepared preliminary plans which call for a one-story frame and stucco building.

MOJAVE GRAMMAR SCHOOL

A PWA grant has been made for a $150,000 school for the Mojave Grammar School District. Plans are being drawn in the office of A. C. Zimmerman of Los Angeles for a group of buildings.

PERSONAL

Henry C. Smith has moved his office from the Humboldt Bank Building to 3867 Sacramento Street, San Francisco.

Paul Thiry, Seattle architect associated in professional practice with Alban A. Shay, 338 Skinner Building, recently returned to his office after spending a short vacation in California. He visited Welton D. Becket, member of Plummer, Wurdemann and Becket, architectural firm of Los Angeles.

Andrew McQuaker, architect, has opened an office at Twin Falls, Idaho, where he has been retained to prepare plans for several school buildings.

Victor Steinbrueck, architectural draftsman of Seattle and graduate of the School of Architecture, U. of W., class of 1935, has been granted a Washington state license to practice architecture.

Vsevolod Prisadsky, architectural draftsman residing at 522 Harvard Avenue North, Seattle, has just joined the staff of Architect Andrew McQuaker, Twin Falls, Idaho, where he will work with Victor Steinbrueck and several other draftsmen in getting out plans for some public school projects.

Donald Dwight Williams, Seattle architect, 1302 Textile Tower, recently enjoyed a week's trip to San Francisco, where he made observations on the building situation. He found most of the architects' offices busy.

Kenneth Ripley, graduate of the School of Architecture, U. of W., class of 1933, is now employed as architectural draftsman in the office of Architect William Aitken, 408 Marion Street, Seattle.

EARTHQUAKE ZONES

Only two great earthquake zones remain in the world as the result of geologic change, and California happens to be in one of them. This is asserted by Dr. Francis X. Schaeffer, famed European geologist, who is delivering a series of lectures in the summer sessions of the University of California at Berkeley.

Professor Schaeffer offers some slight solace for the earthquake areas by stating that the movable zones are gradually disappearing as the earth grows older.

THE NEW ARCHITECTURE IN MEXICO: By Esther Born; William Morrow Company, 386 Fourth Avenue, New York; price: $3.50.

In which Mexico has waked up and has taken upon itself the solution of building problems according to twentieth century methods.

This book in diagrams, photographs and text demonstrates what has been and is being done in functional architecture along strictly modern lines. It is a log of progress and we may well be shocked that there is today in Mexico City such a quantity, likewise quality, of modern architecture.

The wide-awake American architect will find much in this book of more than vital interest. The photography is excellent and color has not been spared to make a really splendid addition to this year's architectural volumes.

DESIGNS ADOBE HOUSES

In the office of Clarence Cullimore, architect, Bakersfield, Calif., plans are being completed for the following work:

A nine-room adobe ranch house for Mr. and Mrs. Ernest Still at Cholame, San Luis Obispo County, to cost $15,000.

Eight-room adobe house for Mr. and Mrs. W. D. Griffin, Fresno, to cost $15,000.

Nine-room adobe house for Mr. and Mrs. Earl M. Houghton, Lindsay; cost $16,000.

Eight-room adobe ranch house for Mr. and Mrs. Alden M. Drury at Porterville; cost $14,000.

An adobe and frame ranch house for Mr. and Mrs. G. A. Richardson at Strathmore, Tulare County, $17,000.

Adobe house for Mr. and Mrs. Albert S. Goode, Bakersfield, $15,000.

$600,000 LIBRARY

Whitehouse & Church, Railway Exchange Building, Portland, Oregon, have been commissioned by the Oregon State Capital Reconstruction Commission to prepare plans for a $600,000 combination library and office building at Salem, Oregon.

$12,000 COLONIAL HOME

F. Frederic Amandes, 414 Dewey Boulevard, San Francisco, has completed drawings for a Colonial style, 7-room house to be erected in Forest Hills, San Francisco, for an unnamed client.

FRESNO RESIDENCE

A nine-room modern house constructed of Pumitile and frame and equipped with an air-conditioning system is to be constructed at Fresno for Benjamin Cory, from plans by W. W. Wurster, Newhall Building, San Jose.

SAN JOSE ARCHITECT BUSY

New work in the office of Charles S. McKenzie, includes a $12,000 auto sales and service building for R. M. Cuthbert, Inc., and a two-classroom frame grammar school building for the Orchard District, San Jose.

CHESTER TREICHEL BUSY

New work in the office of Chester H. Treichel, 696 Cleveland Avenue, Oakland, includes a one-story frame and stucco residence near Moraga; a seven-room $9,000 house in Oakland for Mr. Hirschfeld; and a house at Moraga Estates for Robert H. Ellis of Alameda.

FLAT BUILDING

A two-story frame flat building to contain four, 5-room flats and to cost $25,000 is to be built at Turk Street and Annapolis Terrace, San Francisco, for Mauser & Archer, from plans by H. C. Baumann, 251 Kearny Street, San Francisco.

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ENGINEERS PLAN OCTOBER GET-TOGETHER

The Sixth annual meeting of the Structural Engineers Association of California, consisting of the Structural Engineers Association of Southern California and the Structural Engineers of Northern California, will be held at Monterey Friday, October 15th, and Saturday, October 16th. Following is the program:

FRIDAY—OCTOBER 15

9:00 A.M. Registration

10:00 A.M. General Assembly
- Call to order by President A. V. Saph, Jr.
- Minutes of previous convention
- President's address
- Report of Secretary-Treasurer
- Appointment of Convention Committees
- Committee on Resolution, etc.
- Announcements

12:00 M. Dismiss—Go as you please
Committee meetings if necessary

1:30 P.M. Re-assembly
TALK ON RELATION BETWEEN ENGINEER AND PUBLIC
Miscellaneous Business
Announcements

5:00 P.M. Dismiss

7:00 P.M. Informal Dinner—Motion Picture and talk on GOLDEN GATE INTERNATIONAL EXPOSITION

SATURDAY—OCTOBER 16

9:00 A.M. Assembly
Committee Reports

9:00 A.M. Program to be furnished by the Los Angeles Association. Discussion to be lead by selected members from each Association.
Announcements
Miscellaneous Business
Report of Convention Committees

11:30 A.M. Dismiss for Lunch—Go as you please

1:30 P.M. Recreation, Golf, Tennis

7:30 P.M. Banquet—Entertainment to be arranged.

It is expected that one-hundred members will attend from the Association of Northern California and an equal number from the Southern California Association.

POINT ARENA HIGH SCHOOL

Point Arena Union High School District has received a PWA grant and bonds have been voted for an auditorium, classroom and science building to cost $50,000. Construction will be frame and stucco. C. A. Caulkins of Santa Rosa is the architect.

ENGINEERS ENJOY MOVIE PICTURES

On the evening of Tuesday, August 17th, after the regular bi-monthly dinner of the San Francisco Section of the American Society of Civil Engineers, two very interesting moving pictures were shown to the members. One, "the Empire of the West," with likeable Leo Carrillo in the title role, dealt with the quest for water by the Metropolitan Water District of Southern California. Their conquest of the desert was very vividly shown in many dramatic shots of the construction work along the 300 mile front of the aqueduct. The start of Parker Dam construction, tunnel work, open and closed conduit sections in various stages of completion, were all tied together in an interesting story.

The other moving picture, "Modern Transit," a General Electric Production, very vividly showed the tremendous strides modern electric transportation has taken in the past few years, particularly the trolley car. L. W. Brich, of the Ohio Brass Company, enlightened those present on many phases of the new developments not shown in the picture, particularly the part played by the civil engineer in this progress.

SAN FRANCISCO SECTION, CIVIL ENGINEERS

At a special luncheon held for President Hill, A. J. Cleary made a personal plea to the president to use his endeavors to secure the Engineering Convention for San Francisco in 1939.

* * *

F. E. Bonner, chairman of the committee of surveys and maps, states that during the past decade a large scale, high standard map has been completed for the entire Los Angeles Metropolitan Area, which is ideal for projecting regional improvements and other planning purposes. A similar survey is vitally needed for the San Francisco Bay Area.

* * *

On Tuesday, October 19, the sanitary committee will present A. M. Rawn, assistant chief engineer of the Los Angeles County Sanitary District, who will give an illustrated talk on the history and development of Los Angeles County's recently completed outfall sewer.

* * *

With the assistance of the excursion committee, the sanitary committee chairman, A. C. Beyer, reports that they are rapidly completing plans for a trip to the plant of the Great Western Electro-Chemical Company, September 25. The plan is to meet at Ashby and San Pablo, Berkeley, at 8 a. m. and start the inspection at the plant at 9:30 a. m., to enable the football fans to get back in time for the California-St. Mary's game or the Stanford-Santa Clara game.

OAKLAND CONTRACTORS WHO CONTRIBUTED TO THE SUCCESS OF MILLER & WARNECKE BUILDINGS

STORE BUILDING ALONG MODERN LINES, OAKLAND, CALIFORNIA
MILLER & WARNECKE, ARCHITECTS

EXTENSION COURSE ON CONCRETE

The University of California Extension Division has scheduled four courses in concrete construction, according to Professor Leon J. Richardson, Director.

The courses will be taught by Victor E. Johnson of Oakland, and will be given at the Extension Division's San Francisco center, 540 Powell Street. Titles of the courses and beginning dates are as follows:

REINFORCED CONCRETE DESIGN—for architects, engineers and draftsmen. Application of theory, practical designing and detailing stressed. Monday, September 13, 7 p. m.

REINFORCED CONCRETE: DESIGN OF FORMWORK—economical design and construction of formwork; technique and craftsmanship of form construction for architectural concrete buildings. Monday, September 13, 8 p. m.

REINFORCED CONCRETE: RIGID FRAMES—detailed analysis of rigid frame concrete bridges of one or two spans. Friday, September 17, 7 p. m.

REINFORCED CONCRETE: CONTINUOUS BEAMS—moment and shear distribution for prismatic beams and beams of varying section; and column analogy. Design of rigid frames with and without sidesway. Friday, September 17, 8 p. m.

There will be a total of fifteen meetings, for which a $6 plus $1 annual registration fee will be made. First meetings of all classes will be open to the public without charge, according to Professor Richardson.

"CLOSED SHOP" FOR ARCHITECTS

The "threat of the closed shop" for architects has been made for the first time in an American community, William Stanley Parker of Boston says, in reporting to the Board of Directors of the American Institute of Architects a movement by an affiliate of the American Federation of Labor to organize the draftsmen of the architectural offices in Seattle, Washington. This development "brings into play the policy of organized labor in its most fully developed form," the report declares.

"Most, if not all, architects and their draftsmen will find the underlying idea repugnant to their conception of the relationship that should exist between architects and their employees," according to Mr. Parker, who as chairman of the Institute's Committee on Construction Industry Relations, made an investigation of the Seattle situation.

"They will tend to ask whether a profession can function as it should if the relation between employer and employee is not also on the basis of professional ethics rather than industrial trades union relationships.

"Draftsmen may appropriately ask whether they should be denied the protection of such organized bargaining if the professional relationship fails to secure for them what they consider to be fair conditions of employment. If they ask such a question, as they appear to be asking in Seattle, the architects and their draftsmen as a group must answer it. The answer may lie in a new form of relationship between draftsmen and the Institute which, after all, is their national professional organization."

Draftsmen may join the Chapters of the American Institute of Architects as junior associates, but they have no right to hold office or vote on Chapter business, Mr. Parker explains. Such a draftsman when deemed qualified by the Chapter may be advanced to full associateship, but as such has no power to vote on Institute affairs nor can he hold office in the Chapter.

"The present membership qualifications do not permit any such relationship of a draftsman to the Institute that appears to carry much significance to him, until he arrives at the point where he aims to start practice as an architect in his own name," Mr. Parker points out. 'Many draftsmen never arrive at this point and never expect to from the early years of their drafting careers. Under the present program they can become members of state societies where they exist. This does not appear to be entirely satisfactory.

"The present situation suggests a fresh analysis of the relationship of draftsmen to the Institute in an effort to find a formula that will be satisfactory to the draftsmen and will bring about the affiliation with the Institute of a very substantial proportion of draftsmen. If this can be accomplished, it will be the soundest answer to those draftsmen who feel they need the protection of an outside unionized organization with national uniform affiliations.

"If this problem cannot be successfully solved, we

may, with some reason, look forward to some form of draftsmen's unions in the larger cities. It does not appear likely that they will be found needed in smaller communities in which there are no large architectural offices."

The issue arose when the Seattle Association of Technical Engineers and Architects, Local No. 17, affiliated with the American Federation of Labor, notified the architects of Seattle that it desired to organize the staffs of their offices. The Association stated its belief that "in the near future the Seattle Building Trades Council will refuse to have its craft members work on a structure on which the plans were produced after a defined date, unless the union stamp appears on the blue prints."

"Architecture is in its essence a personal professional service," Mr. Parker observes. "The documents used are merely the necessary means of expressing the judgment of the architect. Collective bargaining is permissive, not mandatory. It is obviously non-existent in one man shops or offices.

"A lay opinion would suggest that action by organized labor that interfered with an individual's practice of his profession for and by himself would be illegal and properly subject to restraint by the courts. A similar opinion would seem to hold for an architect and his employees where such employees do not desire organized collective bargaining."

HIGH LEVEL FOR BUILDING

With the July record, once again construction has established a new high level for the recovery. According to figures of F. W. Dodge Corporation, the July total for all classes of construction amounted to $321,602,700 in the 37 eastern states, topping the previous high figure of the recovery reported in June of this year in the amount of $317,842,100 and representing an increase of 8 per cent over the total of $294,734,500 reported in July, 1936.

Of the July, 1937, volume, $81,046,000 was for residential building, $138,063,500 for non-residential building, and $102,493,200 for civil engineering projects, i. e., public works and public utilities. The residential total compares with $71,993,700 for July, 1936, and $93,078,100 for June of this year. The July, 1937, non-residential total was about 44 per cent greater than the total for July of last year and exceeded the June, 1937, total of $124,837,000 by about 10 per cent. Civil engineering projects started in July fell materially below the figure of $126,615,600 shown for a year ago and were only little better than the total of $99,927,000 shown for June of this year.

For the first seven months of 1937 the total volume of construction undertaken in the 37 eastern states reached $1,815,253,900; this was an increase of 19 per cent over the total of $1,532,075,300 for the corresponding seven months of last year. Of the 1937 cumulative volume residential building amounted to $597,452,500; for the corresponding period of 1936 residential building totaled $406,838,300.

HUGE REVENUES FROM BOULDER DAM

Boulder Dam will contribute an unexpected three-quarters of a million dollars to the United States Treasury during the next three years as a result of an interim power contract approved by Secretary of the Interior Harold L. Ickes.

This sum is but one item in the revenues the dam has started to pour back into the U. S. Treasury which insures complete repayment to the Government for its investment in Boulder Dam plus 4 per cent interest in the next 50 years.

The Bureau of Reclamation has been authorized to negotiate a contract with the Nevada-California Electric Corporation, the draft of which also has been approved by the utility company, under which the company would begin purchasing Boulder Dam power immediately. The company, one of the original Boulder Dam power purchasers, was not required to take and pay for power under the contracts negotiated in 1930 until 1940. The Department of the Interior, however, managed to complete the great public work and get it on a revenue-producing basis several years ahead of schedule.

Under the interim agreement the power generated by unit A-8 in the Arizona wing of the power house would be sold to the utility company. This unit, which has a capacity of 40,000 kv.a., has been installed and is ready for operation.

Recently the company applied to the Bureau of Reclamation for permission to buy power at once for the demand for Boulder Dam's benefits exceeded estimates. The growth of the power market in Southern California, which has exceeded expectations, and the record-breaking completion of Boulder Dam ahead of the original schedule, make possible the sale of this power at this time.

The Bureau of Reclamation estimates that by shoving three years ahead, the time when the company's contract would have become effective, revenue to the government totaling $793,058 will be added to the income from Boulder Dam.

The interim agreement provides that the company will purchase 62,854,000 kilowatt hours of firm energy at the regular Boulder Dam rate of 1.63 mills and 37,146,000 kilowatt hours of secondary energy at the regular rate of half a mill during the first year; 79,833,600 kilowatt hours of firm energy and 70,166,400 of secondary energy the second year; and 96,744,450 kilowatt hours of firm energy and 78,255,550 kilowatt hours of secondary energy the third year. At the end of this three year period the same absorption period allowed under the original contracts to other power purchasers will have been exhausted under the terms of the interim agreement, and thenceforward the original schedule will prevail.

In addition to the purchase of this energy during the three year period covered by the interim agreement at a total price estimated at $483,058, the company

will be required to pay during this period $300,000 for the use of the power machinery.

Except for the interim contract, the power revenues of $483,000 would have been lost to the government and interest on the investment in the generating unit amounting to $120,000 would have been deferred.

"The water which will be used in turning the turbine to generate this power," John C. Page, Reclamation Commissioner, said, "will have to be released from Lake Mead through the Boulder Dam outlet works in any event, for it is neded by water users downstream. No water, therefore, will be wasted. That water which is at this time being released for the irrigators below will be put to work in the power house when this contract is completed."

The utility company's power line is ready for operation, having been built several years ago to supply power to Boulder Dam during the time when the dam was under construction.

The absorption schedule contained in the interim agreement is the same as that in other contracts for the purchase of power. The contractor is obliged to pay firm power rates for 55 per cent of the total amount of firm energy contracted for during the first year; 70 per cent during the second year and 85 per cent during the third. All energy used by the company in excess of the amount determined by this absorption schedule will be paid for at the secondary power rate.

ELECTRICIANS' WAGES INCREASED

Wages for journeymen electricians in the City of San Francisco were raised from $10 to $11 a day under a new agreement signed between the San Francisco Electrical Contractors Association and local No. 6, I. B. E. W. Other conditions, including the 8-hour day, remain the same although the union originally asked for a 6-hour day. Raise of wage rate to $1.37½ per hour will cause a revision of labor charges to customers. A raise of the same percentage for helpers is being negotiated.

This agreement brings the three mechanical trades, plumbing, steam-fitting and electrical, under the same scale of wages, the plumbers and steam-fitters having raised the scale previously. A uniform scale for the mechanical trades is held to be highly desirable by electrical contractors.

ESTABLISH COAST OFFICE

Offering complete service on contract floor covering, Turner Resilient Floors, Inc., of Chicago has opened an office and display room at 141 New Montgomery Street, San Francisco. New to the Pacific Coast this firm is well known in other sections of the United States, maintaining branches in principal cities, and is headed by Louis Akerstrom and Walter Smith of Chicago. Acoustical work and wall covering are also included.

Joseph A. Mancini, formerly with Armstrong Cork Company, is San Francisco district manager and invites architects, engineers and contractors to visit the new display room.

PRE-CONVENTION NUMBER

of the State Association of California Architects will be published in October, Harris C. Allen, Editor.

25 Plate Pages of Recent Work in California.

FOREIGN BUILDING MATERIAL FINDS READY SALE HERE

Over one hundred and ten million dollars' worth of foreign building material was brought into the United States during 1936, according to a statement issued by the Made in America Club.

Captain F. X. A. Eble, former United States Customs Commissioner, who heads the national movement to use only American materials for American homes and buildings, emphasized in the statement that this amount only embraces the main items of building materials. "It does not include glass, wiring, miscellaneous lumber and steel manufactures, bulbs and various articles that go into building construction," he declared. "Here is why we wish to publicize this information and it should be known to every citizen of the United States: These imports are unnecessary imports, in the sense that we make the same and better products here. They displace our products. They cause serious disturbances to builders and contractors in estimating costs unless the specifications make it mandatory which type of material be used. The most alarming feature, however, is the fact that American labor as well as American business is the loser. Over 980,000 work-weeks at $30 per week are lost to American workers. Then you can add to that the loss of American lighting, heating, coal, transportation, domestic banking, etc., and you will find one of the fundamental reasons why millions are out of work today.

"If there ever was a time when the American public should be loyal to American business and to American workers, it is today—right now—with imports increasing at the rate of over 26 per cent per year and with a larger increase showing for 1937. This is going to be more apparent and more seriously felt as soon as our big replacement boom and the world rearmament sales reach a saturation point," concluded Captain Eble.

The statistics compiled by the Made in America Club on import valuations of foreign building material for 1936 is as follows:

Foreign Imports	F.O.B. Abroad	American Value
Shingles	$ 6,057,072	$15,142,680
Clapboards (siding), plywood and other sawmill products	18,138,080	45,345,200
Stone and cement	2,523,223	6,308,057
Steel mill manufactures, exclusive of steel semi-manufactures, iron ore, etc.	13,067,738	34,669,345
Total of American building materials displaced by foreign imports		$101,465,282

(The f.o.b. figures are from the United States Bureau of Foreign and Domestic Commerce. To this should be added transportation costs from factory to seaboard, ocean freight and insurance wharfage, tariff commissions, etc.)

SCHOOL DESIGN REVISED REGULATIONS

Two booklets containing the revised Rules and Regulations, including the Field Act, relating to the safety of design and construction of public school buildings in California, have just been published by the State printer and may be obtained by architects, engineers and contractors on request.

For the first time in six years, new homes built in 310 leading American cities in 1936 exceeded the requirements of estimated population increase in those cities, E. E. Crabb, executive vice-president of Investors Syndicate, of Minneapolis, revealed in a public announcement recently. The cities included in the survey contain more than one-third of the country's population.

"Residential construction in these 310 cities last year provided housing for 491,608 people, or for 1.29 per cent more than the 483,757 estimated population gain in this group of cities during 1936," said Mr. Crabb, in commenting on the survey. "These 310 cities, located in 41 states and the District of Columbia, constitute an accurate index to the national home building situation.

"However, a substantial housing deficit continues to exist in these cities, because for the six-year period, 1931 to 1936 inclusive, new residential construction was sufficient to take care of only 1,453,792 people, or 62.33 per cent of the estimated population gain of 2,332,441. There must also be taken into account a further shortage created by destruction of homes by fire, flood and normal rate of obsolescence."

The Investors Syndicate survey shows that new houses put up in 1936 in the 310 cities studied provided shelter for more people than in any year since 1930, when 519,192 people were furnished new homes. Residential construction in these cities in 1930 furnished housing for 33.4 per cent of all people provided for in the next six years, 1931-1936, combined. The extent of the increase in shelter provided during 1936 is indicated by the fact that persons housed were 94.7 per cent of the people provided with new housing in 1930. Also persons provided with new housing last year increased 106.6 per cent over the 237,896 total during 1935.

"One of the interesting features of this national housing survey," said Mr. Crabb, "was the relation of the cost of new housing per person in 1936 and in 1930. Despite the huge gain in the volume of home building

last year, and the rise in building costs for both materials and men—the latter being occasioned by pronounced shortages of skilled labor in some places—the per capita cost of new homes of $1,019 was 10.3 per cent less than the $1,135.89 figure in 1930."

Residential construction in the 310 cities during 1936 approximated $499,011,556, an increase of $277,572,522, or 125.3 per cent, over that of 1935. Value of new homes built last year was the highest in any one year since 1930, when they aggregated $589,748,458, or 15.4 per cent greater than in 1936.

The volume of home building, as measured by the number of persons provided for and the value of residential construction, fluctuated widely during the last six years. The low point in number of homes was reached in 1934, when new housing provided for only 89,896 people. Cost of new housing also reached a low point in 1934 at $78,592,821.

"After reaching a low level of $874.26 in 1934, new housing costs per person have since risen steadily," Mr. Crabb pointed out. "They were $930.82 in 1935, an increase of 6.46 per cent over those in 1934. Last year at $1,019 they were up 9.5 per cent over 1935 levels."

Home builders throughout the nation generally class 1930 as a "normal" building year. Therefore it was used as the base year for this survey.

ARCHITECT WARNS OF FEDERAL "PLANNING FACTORY"

Looking to a reorganization of Federal government departments, the architectural profession must develop a method of selection of architects for public buildings which will eliminate politics and guarantee distinguished service, Electus D. Litchfield of the New York Chapter of the American Institute of Architects declares.

Defense of architecture against its "false sons"—national and state Civil Service employees who have organized to prevent employment of the architect in private practice—is nec-

essary, according to Mr. Litchfield, who urges the Institute to prepare a "practical program" to be put into effect at the earliest opportunity. Architects should guard against the establishment of "a great planning factory" in Washington, he warns.

"What has any group of architects done for the development of a method for the selection, in a competent way, of the man or men best qualified for appointment by the government?" asks Mr. Litchfield. "Does our profession wish to have demonstrated inspiration, ability, and experience adequately rewarded, as they are in the other professions, or does he wish that in all stages of his career he shall compete—regardless of how fallible judges and juries may be—on equal terms with the beginner and the worn-out hack?

"In the City of New York an effort has been made in the last two years to separate municipal appointments as far as possible from political considerations, civic or professional, and to have them based on demonstrated ability, experience and character. Both competition and direct appointment have virtue. Sometimes and in some cases competition should be definitely in order, but generally direct appointment is more practical and in fact more fair.

"For the National government, the architect must work out a method of selection which will be just, which will be outside of politics, and which, insofar as is humanly possible, will guarantee efficient and distinguished service.

"If not now, in the not too distant future there will come a reorganization of the governmental departments. With this reorganization, it is reasonable to suppose, will come a unification of those agencies having to do with the planning and construction of the government's buildings. Shall this become a great planning factory or shall it be a supervisory agency which will collate and present the government's requirements and sit in consultations with the architect in private practice as an intelligent representative of the owner? It is for the architect to say.

"In the city and in National government we are at the turning of the ways. The public has no stomach for the extension of bureaus and bureaucratic organization.

"Membership of these bureaus has increased by leaps and bounds and these so-called architects or draughtsmen, fearful that their weekly stipend may cease, are organizing to reach out for work which for generations has been the grand prize of independent practice.

"The architect must be defended against himself. Who are these Civil Service employees who in state and nation organize to prevent the employment of the architect in private practice? They are architects—some, many perhaps, of real ability, but discouraged and disheartened by the tragic disappointments found in every profession and so characteristic of architecture that, rather than face the uncertainties of normal architectural practice regardless of how it reacts upon their fellows, they would have all public work placed with departmental bureaus rather than their salaries jeopardized.

"These, and draughtsmen with ambition dead, with no inspiring vision of future practice as architects, no hope themselves of creating great works of art, are the false sons of architecture who have united to arrogate to themselves the manufacture of what should be great works of art.

"What does the future hold for architects? They have passed through a period of depression which has tried their souls. Out of that travail there comes, perhaps, a new art. Architects look facts more clearly in the face; they come down to stark realities. Gone are the conventions which cramped style, forgot the spacious vocabulary of the ages.

"Buildings must function and design be based on function. But must ugly things be exalted because they are ugly? Must architects always speak in words of but one syllable? Are they condemned to be of those who 'have lost their illusions and wander forlorn in a wilderness of fact'? Must ideals give way to business? Is unselfishness completely out of date? Or, with renewed courage,

inspired by the greatness of their profession and the nobility of their art, may architects not go on to new standards of beauty based on truth?"

A CRUCIAL PERIOD

American architecture today is passing through a crucial period of development reflecting changed ideas particularly as to the purpose and utility of buildings and structures. In the midst of a transition from traditional influences to a new order which has not yet become sufficiently established to afford a safe guide to future trends, architects are already seeking a proper expression of the new era of social and economic advancement. In this confused situation there are some striking out boldly in the quest while others cling to traditional ideas and styles long accepted and approved. Still others, less conservative, are making a sincere and earnest effort to find what they consider a happy medium between the new and the old. As a result American architecture of today presents a wide range—from conventional styles handled with strict accuracy, to the ultra modern.

Greatest resistance to the modern trend has been encountered in residential architecture. It has found acceptance, however, in the design of commercial, institutional and public buildings. In the first mentioned class it has a strong appeal because it lends itself readily to the creation of striking and unusual effects and at the same time can be easily adapted to almost any kind of a utilitarian scheme, with the further advantage of allowing the use of a great variety of construction materials. As a matter of fact one of the greatest incentives to development of the modern trend in architecture has been the possibilities which it seemed to present of effecting economies in construction by the use of new materials and the simplification of planning and structural design.—Southwest Builder and Contractor.

FHA FORECLOSURES

The FHA still does not have any serious worries as far as foreclosures are concerned. So far, only 26 properties scattered over the entire country have been taken over. Under the FHA plan, government guaranteed debentures bearing 3 per cent interest are issued to the mortgagees. The property is then conveyed to the FHA. In 14 cases where foreclosure has occurred, the FHA has resold the houses.

NOTES AND COMMENTS

(Concluded from Page 2)

big period being 1929 with $163,559,000. Heating & Ventilating quotes reports in Boxoffice, a film trade journal, showing $26,120,200 spent in 1936 to increase by 286,716 seats the total 11,000,000 theater capacity, 502 new structures being credited to the past year.

* * *

THE elimination of tendencies toward boom psychology in the home building industry and home financing business of the United States was urged in a recent talk by Preston Delano, Governor of the Federal Home Loan Bank System.

"The Nation needs a steady and progressive expansion of housing facilities, entirely separated from any thoughts of new booms —and depressions," he said. His suggestion was made as reports were received from all parts of the country indicating this year would set new home building records.

"The Federal Home Loan Bank System, created in 1932 as a mortgage credit reservoir for home financing institutions, has

developed a sound, national program which strengthens and encourages home ownership structure. This system naturally is vitally interested in a safe and sane, and well ordered development in this field.

"Unfortunately, there has been an increase in spoken and printed comments about the new upward trend in home building in which reference is made to another boom. The press is playing its part in pointing out the fallacy of boom psychology, but the newspapers and magazines can do even more along this line by constantly stressing the need of permanence and steadiness in home building."

Presidents of the twelve regional Federal Home Loan Banks report the demand for home financing is running anywhere from 50 per cent to 400 per cent greater than it was a year ago.

* * *

Business ebbs and flows like the tides, changing not only in volume but in character. As its activities have become more highly organized and specialized and power and machinery have been brought into greater play, it has recruited more workers. Fewer people meet directly their own requirements. More are "employed" by others and the interchange of goods and services is constantly broadening.

This means that jobs have increased more rapidly than the population. More of the people are "gainfully employed"—that is, more people are working for wages and salaries and profits. These are paid in money and the money in turn is exchanged for the goods and services of others.

* * *

Anent the falling off of residential building in the last three months (see Architect and Engineer for July), the Family Economics Bureau of the Northwestern National Life Insurance Company, broadcasts the following from Minneapolis, over a July 23 date line:

"Faced with construction costs which in the last few months have soared close to boom-time levels, disappointed middle-class families from New York to Seattle are postponing or cancelling their home building plans in considerable number, it is indicated by an inquiry conducted by this company into conditions in 83 large and small American cities.

"Though 1937 residential construction thus far shows a substantial percentage increase over the meager levels of the past few years, activity has fallen far short of predictions, which foresaw a home building boom in 1937 generated by the combination of widespread economic revival and a tremendous housing shortage. Furthermore, the margin of improvement over 1936 is shrinking as new cost increases take effect, according to a concensus of real estate boards, mortgage loan companies and architects in 65 of the 83 cities checked in the survey.

"The identical home which could be built for $4,000 at average wage and material levels of 1936 costs $4,602 today, an increase of 15 per cent; home building costs have jumped 5½ per cent since March 1, and now stand at 94.8 per cent of 1926-29 boom levels.

"In five out of 16 major cities in which comparative costs are tabulated as of July 1, residential construction costs exceed the 1926-29 averages for those cities, namely Cincinnati, Cleveland, Minneapolis, San Francisco and Seattle.

"Prevailing opinion expressed in response to this company's inquiry is that increased costs have hit the building of small homes hardest. 'The prospective builder of a higher priced home is affected more or less temporarily—he either raises more money eventually or decides to take less house for his money,' states one observer. 'But the necessary boost of $500 to $800 in the price of a small home has the effect of putting out of the prospect class numerous families of modest income who were formerly potential buyers. Contractors in many localities report that it is already difficult to build even a small modern house for under $5,000.'

"Many speculative builders are out of the market, having cancelled earlier plans for an active building year. Many residential contractors ceased contract work in July, declaring that for the immediate future at least they will undertake new construction only on a cost-plus basis, with the buyer taking the risk of wage and material boosts.

"Architects and contractors report the loss of many jobs previously contemplated, when cost figures are presented. 'Out of 33 residential jobs figured in the last ninety days, only three are going ahead' is a typical comment from a Minneapolis building contractor.

"Rentals must increase 25 per cent generally to catch up with present building costs and encourage new construction, according to a Chicago building publisher's response. 'People are afraid to put up rental property because of the inadequate return on their investment. We must expect higher rents next fall, and another boost in the spring. Two more rent advances aggregating 25 per cent will probably make new building profitable again.'

"In 18 of the 83 cities reporting in the survey, however, home building has been affected little or none by the rise in costs. One of the bright spots of the situation is that considerable prospective new construction money has been diverted into the purchase and improvement of older houses; the floating supply of distress property left by the depression has been practically cleaned up in many cities.

"Some observers point out that sheer pressure of housing needs will eventually force resumption of building operations, regardless of higher costs."

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*SHERWIN-WILLIAMS Company, 1415 Sherwin Avenue, Oakland.

PLASTER MATERIALS

*U. S. GYPSUM Company, Architect's Building, Los Angeles.

PLASTERING CONTRACTORS

*Leonard Bosch, 280 Thirteenth Street, San Francisco.
*M. J. KING, 231 Franklin Street, San Francisco.

PAINTING, DECORATING, Etc.

THE TORMEY Co., 563 Fulton Street, San Francsico.
HEINSBERGEN DECORATING Co., 401 Russ Building, San Francisco.
*A. QUANDT & SONS, 374 Guerrero Street, San Francisco.
*RAPHAEL Company, 270 Tehama Street, San Francisco.

PARTITIONS—MOVABLE OFFICE

PACIFIC MFG. Co., 454 Montgomery Street, San Francisco; 1315 Seventh Street, Oakland; factory at Santa Clara.

PLASTER—ACOUSTICAL

CALACOUSTIC, Sound Absorbing Plaster, manufactured by Pacific Portland Cement Co., 111 Sutter Street, San Francisco, Los Angeles and San Diego.

PLATE GLASS

LIBBEY-OWENS-FORD GLASS Co., Toledo, Ohio; 633 Rialto Building, San Francisco; 1212 Architect's Building, Los Angeles; Mr. C. W. Holland, P.O. Box 3142, Seattle.

PLUMBING FIXTURES AND SUPPLIES

CRANE Co., all principal Coast cities.
TAY-HOLBROOK, Inc., San Francisco, Oakland, Sacramento, Fresno, San Jose.
*W. H. PICARD, 4166 Broadway, Oakland.
*STANDARD SANITARY Manufacturing Company, 278 Post Street, San Francisco.
*WALWORTH CALIFORNIA Company, 665 Sixth Street, San Francisco.

REFRIGERATION

BAKER ICE MACHINE Company, 941 Howard Street, San Francisco.

PLUMBING CONTRACTORS

CARL T. DOELL, 467-21st Street, Oakland.
*SCOTT Company, 243 Minna Street, San Francisco.

PRESSURE REGULATORS

VAUGHN-G. E. WITT Co., 4224-28 Hollis Street, Emeryville, Oakland.

PUMPS

SIMONDS MACHINERY Company, 816 Folsom Street, San Francisco.

REFRIGERATION

KELVINATOR ELECTRIC REFRIGERATORS, Aladdin Heating Corp., 5107 Broadway, Oakland.
*ELECTRIC KITCHEN Appliance Company, 560 Ninth Street, San Francisco.
*COLVIN-TEMPLETON CO., 871 Mission Street San Francisco.

ROOFING CONTRACTORS

*MALLOTT & PETERSON, 2412 Harrison Street, San Francisco.
*MARSHALL SHINGLE Company, 608-16th Street, Oakland.

ROOF MATERIALS

*PIONEER FLINTKOTE Company, Shell Building, San Francisco.

*PARAFFINE Company, Inc., 475 Brannan Street, San Francisco.
GLADDING, McBEAN & Co., 660 Market Street, San Francisco; 2901 Los Feliz Boulevard, Los Angeles; 1500 First Avenue South, Seattle; 79 S.E. Taylor Street, Portland; 22nd and Market Street, Oakland; 1102 N. Monroe Street, Spokane; Vancouver, B.C.
N. CLARK & SONS, 112-116 Natoma Street, San Francisco; works, West Alameda.
COPPER ROOFS Company of Northern California, 2295 San Pablo Avenue, Berkeley; San Francisco, Sacramento and Los Angeles.
*CERTAIN-TEED PRODUCTS Co., 315 Montgomery Street, San Francisco.

ROOFING INSULATION

THE INSULITE CO., 475 Brannan Street, San Francisco; manufacturers of Ins-light and Graylite roof insulation.
*JOHNS-MANVILLE Sales Corp., 159 New Montgomery Street, San Francisco.

SHINGLE STAINS

CABOT'S CREOSOTE STAINS, Gunn-Carle & Co., 20 Potrero Ave., San Francisco.

SIGNS—CHANGEABLE LETTERS

TABLET and TICKET Company, 407 Sansome Street, San Francisco. Exbrook 2878.

STAIRS

*J. DI CRISTINA & Son, 3150-18th Street, San Francisco.

STEEL FURNITURE

*GENERAL FIREPROOFING Company, 160 Second Street, San Francisco.

SAND, ROCK AND GRAVEL

JOHN CASSARETTO, Sixth and Channel Streets, San Francisco.
*ATLAS OLYMPIC Company, Underwood Building, San Francisco.
*KAISER PAVING Company, Latham Square Building, Oakland.

PLASTER

"EMPIRE" and "RENO HARDWARE PLASTER," manufactured by Pacific Portland Cement Co., 111 Sutter Street, San Francisco; Portland, Los Angeles and San Diego.

SCREENS

ROLL-AWAY WINDOW SCREEN Company. Eighth and Carlton Streets, Berkeley; 557 Market Street, San Francisco.

SEATING

*J. W. FRICKE & Co., 420 Market Street, San Francisco.
*HEYWOOD-WAKEFIELD Co., 180 New Montgomery Street, San Francisco.
*GENERAL SEATING Company, 160 Second Street, San Francisco.

SHADE CLOTH

CALIFORNIA SHADE CLOTH Co., 210 Bayshore Boulevard, San Francisco.

STANDARD STEEL BUILDINGS

INDEPENDENT IRON WORKS, 821 Pine Street, Oakland.

STEEL—STAINLESS

REPUBLIC STEEL Corporation, Rialto Building, San Francisco; Edison Building, Los Angeles; White-Henry-Stuart Building, Seattle.

STEEL—STRUCTURAL

BETHLEHEM STEEL Company, 20th and Illinois Streets, San Francisco; East Slauson Avenue, Los Angeles; W. Andover Street, Seattle; American Bank Building, Portland, Ore.
INDEPENDENT IRON WORKS, 821 Pine Street, Oakland.

ARCHITECTS' AND ENGINEERS' SPECIFICATION INDEX

Classified Directory of Building Material Manufacturers, Dealers and Contractors

*Denotes subscriber of ARCHITECTS' REPORTS, sponsored and endorsed by State Association of California Architects, and published daily by THE ARCHITECT AND ENGINEER.

JUDSON PACIFIC Company, C. F. Weber Building, Mission and Second Streets; San Francisco shops, San Francisco and Oakland.
HERRICK IRON WORKS, 18th and Campbell Streets, Oakland.
*MOORE DRYDOCK Company, Foot of Adeline Street, Oakland.
*WESTERN IRON WORKS, 141 Beale Street, San Francisco.
COLUMBIA STEEL Company, Russ Building, San Francisco.

STEEL—REINFORCING

BETHLEHEM STEEL Company, 20th and Illinois Streets, San Francisco; E. Slauson Avenue, Los Angeles; American Bank Building, Portland, Ore.; W. Andover Street, Seattle, Wash.
*SOULE STEEL Company, Army Street, San Francisco and Los Angeles.
GUNN-CARLE Company, Portrero Avenue San Francisco.
*CONCRETE ENGINEERING Company, 1280 Indiana Street, San Francisco.
*W. C. HAUCK & Co., 280 San Bruno Avenue, San Francisco.
*TRUSCON STEEL Company, 604 Mission Street, San Francisco.

STORE FIXTURES

MULLEN MFG. Co., 60 Rausch Street, San Francisco.

STORE FRONTS

KAWNEER MFG. Co., Eighth Street and Dwight Way, Berkeley.

STUCCO

*CALIFORNIA STUCCO Company, 64 Park Street, San Francisco.

TABLETS

TABLET & TICKET Company, 407 Sansome Street, San Francisco.

TEMPERATURE REGULATION

JOHNSON SERVICE Company, Milwaukee represented on the Pacific Coast by the following branch offices: 814 Rialto Building, San Francisco; 153 West Avenue, 34, Los Angeles; 1312 N.W. Raleigh Street, Portland, and 473 Coleman Building, Seattle.

TELEPHONES

*PACIFIC TELEPHONE and TELEGRAPH Company, 140 New Montgomery Street, San Francisco.

TERMITE CONTROL—WOOD PRESERVATIVE

E. K. WOOD LUMBER Company, No. 1 Drumm Street, San Francisco; 4701 Santa Fe Avenue, Los Angeles; Frederick and King Streets, Oakland.
AMERICAN LUMBER & TREATING Company, Rialto Building, San Francisco; 1031 S. Broadway, Los Angeles.
J. H. BAXTER & Company, 333 Montgomery Street, San Francisco.

TREE SURGERY

DAVEY TREE SURGERY Co., Ltd., Russ Building, San Francisco; Story Building, Los Angeles.

TILE—DECORATIVE, Etc.

*CAMBRIDGE TILE Mfg. Co., 1155 Harrison Street, San Francisco.
POMONA TILE MFG. Co., plant, Pomona, Cal.; Sales Rooms, 135 Tenth Street, San Francsico; 217 S. La Brea Avenue, Los Angeles; 6106 Roosevelt Way, Seattle.
GLADDING, McBEAN & Co., 660 Market Street, San Francisco; 2901 Los Feliz Boulevard, Los Angeles.
KRAFTILE Company, Niles, California.
*CALIFORNIA ART TILE Corp., Richmond. Cal.
*HANDCRAFT TILE Co., San Jose, Cal.
*ART TILE & MANTEL Co., 221 Oak Street, San Francisco.

TILE CONTRACTORS

*MEIRING TILE Company, 1701 University Avenue, Berkeley.
*CAMBRIDGE WHEATLEY Company, 1155 Harrison Street, San Francisco.

TRUSSES

*SUMMERBELL TRUSS Company, 405 Builders Exchange Building, Oakland.
*ARCH-RIB TRUSS Company, 608 Sixteenth Street, Oakland.

VALVES

SLOAN VALVE Company, Chicago, Ill.
SHAND AND JURS Co., Eighth and Carlton Streets, Berkeley.

VARNISHES

NATIONAL LEAD Company, 2240-24th Street, San Francisco. Branches and dealers in all principal Coast cities.
W. P. FULLER Company, San Francisco and principal Coast cities.
FRANK W. DUNNE Co., 41st and Linden Streets, Oakland.

VENTILATING EQUIPMENT

*THE B. F. STURTEVANT Company, 759 Monadnock Building, San Francisco.

WATER HEATERS—GAS AND ELECTRIC

*WATROLA Corporation, Ltd., 1170 Howard Street, San Francisco.
TAY-HOLBROOK, Inc., San Francisco, Oakland, Sacramento, Fresno, San Jose.
*PITTSBURG WATER HEATER Co., 898 Van Ness Avenue, San Francisco.
*RUUD HEATER Company, 437 Sutter Street, San Francisco.
WESIX ELECTRIC HEATER Company, 380 First Street, San Francisco.

WALL BOARD

THE INSULITE CO., 475 Brannan Street, San Francisco; Insulite Interior Finish Products.
*WESTERN BUILDERS SUPPLY Company, 401 Fourth Street, San Francisco.

WINDOW SASH AND FIXTURES

KAWNEER MFG. Company, Dwight Way and Eighth Street, Berkeley.
DALMO SALES Company Corporation, 511 Harrison Street, San Francisco.
*DETROIT STEEL PRODUCTS Co., 111 Sutter Street, San Francisco.

WINDOW SHADES

AEROSHADE Company, represented by W. R. Knight, 557 Market Street, San Francisco.
CALIFORNIA SHADE CLOTH Co., 210 Bayshore Boulevard, San Francisco.

WIRE AND CABLE

*JOHN A. ROEBLING SONS Co., 646 Mission Street, San Francisco.