

The AMERICAN ARCHITECT



Announcement

With this number, publication of The American Architect is resumed after an enforced suspension caused by a strike called by New York local unions in the printing trades. Until further notice, the paper will be issued from our branch in St. Louis, Mo. Back numbers will be mailed as rapidly as they can be printed.

The editorial and business offices will continue in New York as usual.

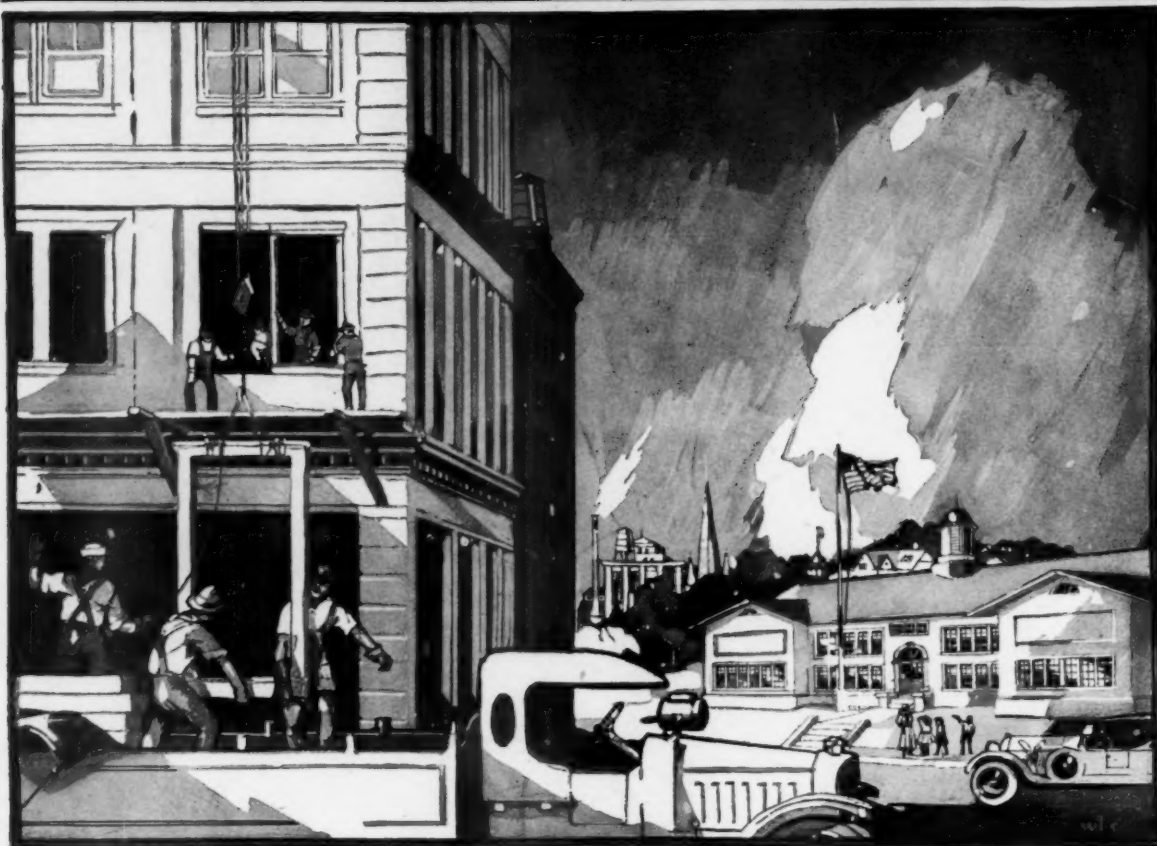
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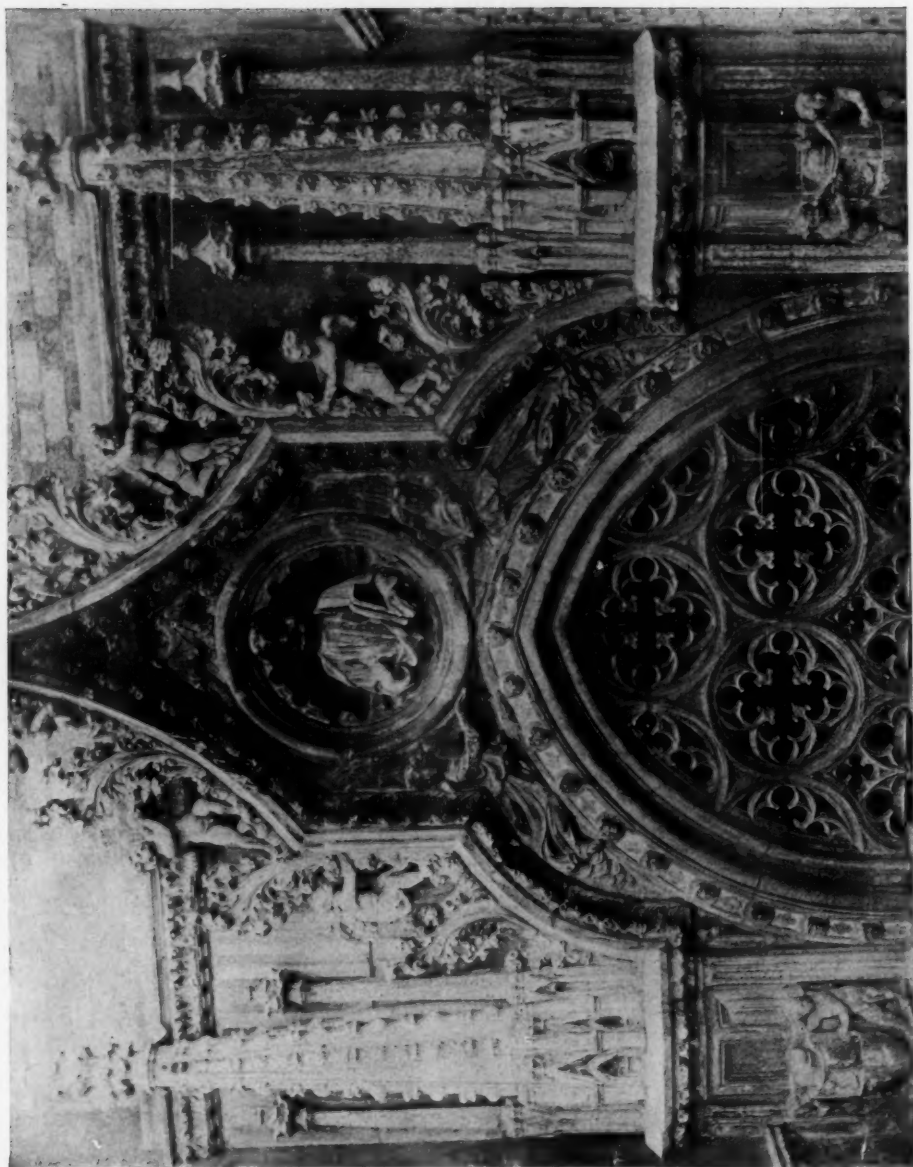


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DETAIL OF WINDOW AND GABLE, PORTA DELLA CARTA, VENICE
(Shows transitions from Italian Gothic to Renaissance)

THE AMERICAN ARCHITECT

VOL. CXVI

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NUMBER 2284



VIEW SHOWING WELL CONSIDERED GROUPING OF TYPES

Tiny Town

Experiment of Springfield, Mo., Evolves Method of Promoting
Ideals of Citizenship

By W. H. JOHNSON

THE story of Tiny Town demonstrates the theory that creative activity is contagious; that there is no more effective way of rousing the people of a community to building activity than first to get the young folks and children interested in building, even though their structures are very small models.

In the early Spring of 1919, Springfield, Missouri, a little city of 45,000 fondly christened by some forgotten toastmaster "Queen of the Ozarks", found herself stagnated. The great war had brought her small prosperity, her mechanics had long since departed for munition factories and shipyards. A thousand houses were vacant, and in the

month of March not a single building permit was issued. Labor bodies petitioned her newly organized Chamber of Commerce for action of some sort which might, they hoped, revive the building industry. A committee appointed by the Chamber of Commerce deciding to launch a Build Now Campaign raised sufficient funds for the purpose, and the writer was called upon as director of publicity.

But the people of Springfield did not enthuse. High prices of labor and material afforded strong argument for delay, and there were many vacant houses for sale at less than present building cost. It was necessary to start something, something that would interest a large number of citizens; some-

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MODEL MAKING BY HIGH SCHOOL BOYS

thing the newspapers could talk about. Whereupon the idea of Tiny Town.

Tiny Town, a Lilliputian city of miniature houses to be built, furnished and landscaped by children, was proposed upon the theory that a building boom started among children would become contagious. And so it proved. Plans for Tiny Town were submitted to Professor W. W. Thomas, Superintendent of Springfield Public Schools, with a request from the Chamber of Commerce that the entire resources of the Manual Training and Drawing Departments be turned toward its creation.

This first seemed impossible. The school year had only some weeks to run before vacation. Work was fully mapped out and could not be abandoned. Besides only the most advanced high school students were sufficiently skilled to build houses—so the instructors thought. What could sixth and seventh and eighth grade students, little fellows from ten to thirteen, know about constructing a building? It was not to be thought of!

Said the Build Now Committee, "It's for the good of the community; we appeal to the children to set an example. This is a matter of community interest. Take the lid off. Turn the youngsters loose. We will furnish materials. Let's see what they can do."

Professor Thomas saw the opportunity. It was a chance to demonstrate in the possibilities of manual training something practical. The order went out to drop everything and build Tiny Town.

Once Tiny Town had gained the support of the public schools the rest was mere detail. Events in the brief history of Tiny Town moved rapidly, for time was limited and all too brief at best.

It was early decided that the scale

upon which Tiny Town would be built would be $\frac{1}{2}$ -inch to the foot and the place for assembling the town would be Convention Hall with its level concrete floor 100 by 142, representing on the $\frac{1}{2}$ -inch scale a tract of about 200 acres. Lots were to be 25 by 75 inches, equivalent to 50 by 150 feet, and only eighth grade and high school students were permitted to improve an entire lot; the seventh grade boys could build bungalows, and sixth grades were confined to poultry houses and garages.

The floor of Convention Hall for all intents and purposes became a field of two hundred acres and was duly platted into blocks, drives and boulevards, and a central park system was planned. Altogether the little city would have about fifty city blocks, each 150 inches square—equal to a standard 300 foot city block.

To interest the boys and hold them to their work, five hundred dollars was set aside by the Build Now Committee for prizes which were divided according to grades. Prizes were offered to each school grade separately and sweepstakes for the best result in each grade throughout the city. High schools competed separately, but a capital sweepstake brought the entire Manual Training Department into open competition.

The basis of each improvement was the lot 25 by 75 inches. This was made of $\frac{3}{4}$ -inch pine upon which the residence, garage, poultry house and other improvements were attached and driveways, sidewalks, gardens and landscape effects marked out. Lots were restricted, and a uniform house line established. There were no limitation as to ma-



A RESIDENCE SECTION

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terial. Plaster boards were most popular, but veneer, pine and oak lumber sawed very thin, concrete, stone, stucco and tin were freely used. The boys were allowed to select designs and type of structures according to their respective ideas. Some

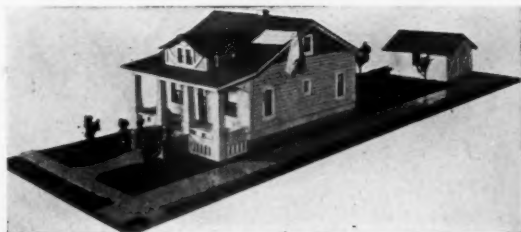


A PRIZE-WINNING MODEL

worked from pictures cut from magazines, but the older boys secured plans and elevations and worked directly from blue prints.

It might be said that Tiny Town called for advanced work not heretofore attempted in Springfield's Manual Training Departments; not even the oldest students had knowledge of house construction, and few if any had ever read a blue print. This was something new but intensely interesting, calling for original thought and ingenuity—qualities which American youth has always been shown to possess whenever occasion has demanded.

It was evident from the very beginning that Tiny Town would be a city of artistic houses. They proved an ever-increasing surprise to the instructors, who had not suspected the latent ability in heretofore indifferent pupils. Boys who rebelled at spending months in fashioning a joint or setting a hinge



A PRIZE-WINNING MODEL

now clamored for material and a chance to build a pretentious residence for Tiny Town.

As time was limited there could be few set rules. Boys were allowed and encouraged to work overtime or take their work home. They were not required to do everything by schoolroom theories. They could use their own ingenuity just as long as they would conform to the scale and comply with the lot restrictions.

A veritable building boom swept the schools of Springfield. Nine hundred and eighty-five boys and two girls entered upon the contest and the

sound of hammer and saw was heard in wood sheds, basements and back yards of nearly a thousand homes.

Of course the family circle quickly became interested. Liberal cash prizes together with the honor of making the best house in his or her grade, with the chance of winning one of the sweepstake prizes, spurred young contestants and aroused active support of the home circle.

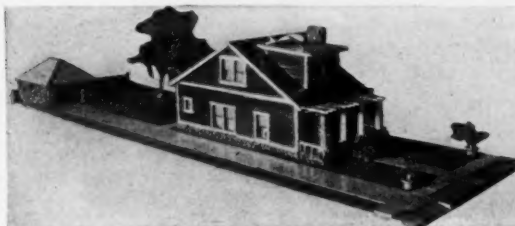
First the serious question of type and design of structure, then material to be used, landscaping the lot, planning the garage, gardens and poultry houses were matters of vital concern and much family argument; later, the combination of colors to be used in painting the completed structures was a further subject for serious consideration.

The constructing of Tiny Town naturally fell to the Manual Training Department, composed almost



A PRIZE-WINNING MODEL

entirely of boys. Something had to be found for the girls, for Tiny Town was not intended as an exhibition of Manual Training merely, but was to be a means to an end. The end was to arouse the building fever among parents. Therefore ways and means were devised to interest girls and students not engaged in Manual Training. Through the Drawing Department girls of the high school were encouraged to work at interiors. Plaster board was used for modeling the floor and the walls of rooms to be reproduced. Wall paper, tapestries, window draperies, rugs, floor coverings and furniture was worked out on the same scale as adopted for the



A PRIZE-WINNING MODEL

houses and many beautiful and artistic results were obtained.

Poster contests tending to advertise the Build Now idea were conducted among the girls of the

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seventh and eighth grades, cards 14 by 22 were decorated with cut-out designs or drawn cartoons, some of these green cards which read, "A Prize for Tiny Town", "Save Money—Build Now", were placed in the show windows of merchants, together with some valuable objects out of stock or cash donations which were turned over to the committee on prizes to be later awarded to winners in the numerous contests. Yellow posters were used to advertise Tiny Town Exhibition and were entirely done by the seventh grade girls who astonished everyone with original cartoons and mottos, excellent lettering and beautiful designs.

A Cut-Out Scrapbook was originated for the sixth and seventh grade boys and girls. Nearly

paper men were importuned for advertising folders illustrating interiors; the town was turned upside down for scrapbook material. In the end many hundred wonderful scrapbooks were completed from which one could select almost any design or combination of designs desired. Some of this work was wonderfully artistic.

But Tiny Town was not to be merely an aggregation of houses, interiors, cut-out books and posters; it was to be a going concern with a real government patterned after the Commission Form under which Springfield is governed.

First a suffrage election was held among the boys of the sixth and upper grades to ascertain whether the girls were to be intrusted with the



VIEW OF TINY TOWN, SHOWING UNDEVELOPED AREA IN FOREGROUND

two thousand sixteen page blank books were prepared and distributed. The first cover page had printed "My House for Tiny," with space arranged for a cut-out picture of the house thought most attractive. At the top of each inside page was printed the name of some room or portion of the house, beginning with "My entrance", "My hall", "My drawing room", and so on through twelve features, ending with "My porch". Many prizes were offered to the grades and also sweepstakes.

This was a happy idea, since the cut-out books had to be done at home; youngsters who naturally liked to make scrap books soon got the entire family into the game. Magazines were dug up and searched carefully for interiors. Furniture dealers were solicited for catalogues; paint and wall

franchise. It is with sorrow that we record an adverse vote. A primary election was next held and candidates selected two for six elective offices. Many boys entered this campaign. Announcements were made in the city papers and through posters urging the candidates' particular fitness and were displayed at all the schools and many prominent places. Candidates were permitted to go from school to school extolling their virtues and particular fitness for the positions sought. After the primaries, successful candidates canvassed their constituency, electioneering for a week, making numerous speeches. No city election engaged greater rivalry among grown-up voters than did Tiny Town's first municipal campaign. A hard fight and a close vote resulted in the election of a fine

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set of commissioners who, with their appointees, consisting of a Chief of Police and patrolmen and a Chief of Fire Department and firemen, took over the management of Tiny Town from the moment of its first assembly on the floor of Convention Hall until the exhibition was over.

Since everything was built to a scale and after well-worked out plans there was no confusion in assembling Tiny Town. The lot units fitted into blocks, while individual houses, garages and poultry houses were set upon blocks of soil built on the concrete floor of Convention Hall. These earth blocks were shallow frames filled with prepared earth in which grass was sown and showed green in 48 hours, growing two inches tall within the week. A park system was designed with drives and walk-ways and a system of lakes and water-ways also made part of the scheme. Ferns and small plants were used for shrubbery.

Tiny Town was all ready to the minute when the doors of Convention Hall were opened to the public June 25th, block after block of exquisite little houses artistically painted and landscaped. Hundreds of them, and no two alike, gave the spectators the sensation of viewing a real community from great height, the same sensation that we imagine Gulliver must have had when he visited Lilliput. The exhibition was a financial success. Many thousands of people visited Tiny Town; a charge of five cents for children and ten cents for adults was made which netted a sufficient fund to carry all expenses and left a small surplus to the good.

Never before had any local movement created so much interest. Newspapers carried column upon column of publicity. Tiny Town got completely away from the Build Now Committee. It became a community matter in which every one felt an interest. Thousands of boys and girls worked on some features of Tiny Town and their parents became as deeply enthused as were the children. More than three hundred prizes were awarded aggregating in value more than a thousand dollars, and to cap the climax, enthusiastic business firms made up a fund and sent fourteen of the leading officials of Tiny Town to Milwaukee, where a section of Tiny Town was exhibited before the National Educators' Association.

To-day Springfield is building as it has not done for many years. More than a million dollars of improvements is under way. There is not a vacant house. Everybody is on tip-toe and going strong. It may be that Tiny Town is not entitled to all the credit but it certainly is one of the main reasons for the city's prosperity and can be recommended as an effective plan for livening up a stale community.

Early Connecticut Architecture

As an example of early American architecture, the beautiful entrance porch to the Bristol House, New Haven, Conn., a gift to the Metropolitan Museum of Art by Cass Gilbert, has been placed on exhibition in the Recent Accessions Room of the Museum, where it will remain for the present. The Bristol House, from which the porch was taken, was built by David Hoadley, of whose work many examples are to be found in New Haven and Middlesex Counties. The architect was born in Waterbury in 1774 and died there in 1839. The house was built in 1800-1803.

The porch is a large one, broad and high, with a pointed roof and two columns at the front, each with twenty-four flutes, surmounted by simple, delicately carved Scamozzi capitals.

Hoadley entered his profession by way of the crafts, being a carpenter and builder. Nothing is known of his education, but his work shows his understanding of the canons of architectural design.

Three different woods are used in the porch, probably from convenience—ash for the columns, pine for the entablature and black walnut for the framework for the door. It was painted, probably white, in its early days.

In the Bristol House porch, states the bulletin of the Museum, we have an example of Hoadley's work which is representative of his use of classic motives. The delicate columns, with their twenty-four flutes, form the basis of the unit of proportion for the order. The bases made up of two tori and scotia are in height equal to one half of the bottom diameter of the column, the only place where Vignola's rules are strictly applied. The shaft is crowned by a delicately carved Scamozzi capital with four volutes springing from an echinus treated with the egg and dart. A pine cone replaces the usual flower form on the center faces of each capital. The entablature is complete in its three members, with the architrave enlarged at the expense of the frieze, while the cornice is made up of a delicate line of dentils, a bed-mold and modillions below the narrow fascia and its crowning cymatium.

In order to accommodate the semicircular transom and panel treatment above it, the pediment has been omitted and only the raking cornice has been utilized. All the freedom of this use of classic motives has tended to emphasize the lightness and grace of the whole design to which the consistent refinement of the detail is largely contributory.

This porch alone, continues the bulletin, would tell us that David Hoadley was thoroughly familiar with Vignola's orders or the orders of Vignola's interpreters. He has, in fact, been familiar enough with such book material freely to utilize and vary

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the elements. The various members of the order are included in all correctness, but as in much of the work of this period, the column is attenuated, the entablature lightened in its relation to the total height, and the cornice members refined to the last degree. The cyma has disappeared from the cornice and its place has been taken by the simple echinus molding used frequently in American wooden architecture.

The porch is an interesting and valuable addition to the collection of American woodwork, and a pleasing record of the fact disappearing architecture of the early nineteenth century.

A Book of Old House Mottoes

A PAMPHLET that will appeal to every architect and gladden the heart of every home builder has been compiled and published by the Western Brick Co. of Danville, Ill. It is a collection of old house mottoes. The literature of the English language has been carefully searched to supply an appropriate inscription to adorn the house and add to its aspect of cheerfulness.

For centuries and in every country hospitable man has placed on the lintel of his door, on the sill, or over the wide opening of his fireplace, an appropriate inscription to serve as a welcome to the honored guest or as admonition to the members of his family.

Poets and prose writers have sung the praise of the gentle joys of domestic life and have provided beautifully expressed sentiments that extol the domestic virtues or dwell in harmony of words on the respective duties of host and guest.

Many of these through frequent use have become trite, even commonplace. Naturally these will be found in this pamphlet, but it is interesting to note that many of them have become garbled and robbed of their full meaning by incorrect quotation. These errors are pointed out and corrected. What is of greater interest, however, is the large number of quotations that have novelty from the fact that they are until now almost unknown.

The often used motto, "East, West, Home's Best," may serve for brevity, but the original form is more to our liking. It runs:

"Travel East, travel West,
A man's own house is still the best,
Within whose walls to take his rest.
To read his book, to cheer his guest."

Selecting specific mottoes for specific places or to express some accented idea, we find the following:

To welcome the guest:

"This is the welcome I'm to tell:
Ye are well-come, ye are come-well,
So share what bountee Fortune sends,
All here that's mine, is yours, my friends."

And to speed the parting guest:

"A blithe farewell, 'tis mine to bear,
Or, Fare ye well, well may ye fare;
God speed ye, lords and gentlemen,
And hither bring ye soon again."

The following counsel of a cheerful Scot to his guests is worth heeding:

"Ha' done ha' done wi' grievin'
Till the light is fled!
Be happy while ye're leevin'
Ye're a lang time dead."

A Kentish house with a rose above the hearth bears this legend:

"Speak without fear;
This Rose is a token
That all that's said here
Under the rose is spoken."

We are advised by the Western Brick Co. that they will send this book, free, to architects upon request.

Book Review

SMOLEY'S PARALLEL TABLES OF SLOPES AND RISES in combination with DIAGRAMS OF SLOPES AND RISES AND OTHER TABLES.

By CONSTANTINE K. SMOLEY

350 pages, 4¾ x 7, 32 illustrations and 9 charts, flexible leather, gilt edges, \$3.00. C. K. Smoley & Sons, Publishers, Scranton, Pa.

Perhaps no book has helped to save the time of those making detailed calculations in bridge and structural work as greatly as "Smoley's Tables." The first edition published in 1901, proved of such advantage to its many users that the author was led to gradually widen the scope covered by the book, until in the latest edition the Tables cover many fields of technical work not previously included.

In this edition comprehensive tables for solving the right triangle, when the bevel is known are given. These tables are preceded by a very thorough explanation of their application in the solving of problems, and directions for using the diagrams of slopes are also given. In addition tables of logarithms and squares, a multiplication table of rivet spacing and other helpful data are included. The value of this book as a time saver cannot be appreciated until it has been used in the solution of problems otherwise requiring tedious mathematical computations.

Housing and Race Friction

By EUGENE KINCKLE JONES, *Executive Secretary National Urban League*

THE recent great war has focused the attention of the whole civilized world on the problem of adequately housing the ever-increasing populations of the Earth. The cessation of building operations during the war period rendered it impossible last Spring to take care of the normal increase of the populations of American cities. The shortage was appalling and critical because of the abnormal influx of soldiers and industrial workers into practically all of the large cities.

Among the many groups that have found their way cityward from the country or to northern cities from the South are thousands of Negroes. It has been estimated that no less than 500,000—possibly as many as 1,000,000—Negroes came North during the past three years.

Housing for Negroes has constituted for years one of the problems of race relations in America. Certain undesirable, poorly drained, insufficiently policed sections of our cities are usually turned over for Negro occupancy when the white people move into newly built sections. With no new sections being built and the white people facing a shortage in homes one may imagine the suffering while the whites remain in their old houses which while the whites remain in their old house which in the past have been the only new source of house supply available to colored people.

Efforts have been made in many cities of the South and in border state communities to fix by law the boundaries within which Negroes may reside—ghettoes, as it were. These legal restrictions have recently been declared unconstitutional by the Supreme Court of the United States.

The moving of a Negro family into a so-called white neighborhood is invariably the occasion of much comment and often of vigorous protest on the part of the whites. In Kansas City, several years ago, and more recently in Chicago many such occasions resulted in the bombing of Negro homes; and in Philadelphia led last year to a serious race riot whose suppression taxed the vigorous efforts of the police for several days. For years following the first purchase of an apartment house in Harlem, New York City, by a Negro real estate manipulator, the approach of the black tenant was hotly contested by property owners' protective associations; there were agreements not to sell or rent to colored people signed by owners of properties bordering on houses occupied by Negroes and meetings of protest and conferences of con-

ciliation and arbitration between white and colored leaders. In fifteen years the Negro population in that section has increased from several families to seventy-five thousand persons.

The principal argument presented by those who object to Negroes occupying adjoining property is that the property of the neighborhood depreciates in value on the Negro's arrival. It has been observed by numerous investigators, however, that where in a very desirable neighborhood an old, dilapidated house remains as the only eyesore of the section there is no objection to Negroes occupying it. But if Negroes move into a house which is one of a number built alike or which is of the same general character as the others of the neighborhood there is serious objection which would lead one to consider that the objection is to the establishment of an appearance of equality between members of the two races.

From the standpoint of the Negroes the removal from a Negro section to a white neighborhood is in no way an effort to associate with white people. Negroes know that the service of the city departments in Negro sections is poor—that the streets are seldom cleaned and that street lighting is poor; that police and fire protection is a farce and that unsanitation and the neglect by landlords of property will result in a higher mortality rate than that which obtains in other sections of the city. They therefore seek a more desirable neighborhood when their pocket-books and their nerve warrant such action. They are willing to face the inconvenience of opposition and the dangers of occasional altercation to secure the benefits which they consider too numerous and valuable to forego.

With the psychology of the situation thus set, both the white property owners and the Negro purchasers are the ready prey for invidious efforts of real estate profiteers.

The recent Chicago race riots furnish a tragic illustration of such a situation. No one with intelligence would affirm that the riots were due only to the housing situation. But on the other hand no one who knows the facts can ignore the important part which housing conditions played in the regrettable affair.

Prior to the war Chicago's Negro population was around 40,000. There are now over 100,000 persons of Negro descent in that city. Most of them found their way into the south side in the narrow strip east and west of State Street for about two

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blocks and between 18th and 43rd streets. This section was far too small to accommodate so large a population and the more progressive and thrifty Negroes began to seek other quarters. Many rented or purchased homes in keeping with their incomes and continued their normal home life in a more favorable environment on Michigan Avenue and Grand Boulevard. Others were forced by the circumstances or were persuaded by real estate speculators to rent or make first payments on property far too pretentious for their meager incomes. To meet the payments they filled up the houses with lodgers or sub-let to other tenants. The property was not kept up to former standards and an excuse was thus furnished to prejudiced white property owners to form so-called protective real estate associations to repel the Negro invaders. A number of Negro houses were bombed, which caused great excitement among the colored people. Rumors began last Spring to spread rapidly among the colored people that they would be attacked and driven back into the old Negro district or frightened out of Chicago—such attacks to be fostered and financed by the group most desiring their departure.

I need not go into the details of the Chicago riots to picture the results of this feeling of mutual distrust. The Negroes in the main still occupy the houses in the forbidden zone. The white residents of the district are probably not entirely satisfied with the results. Those who have exploited the Negro and houseless Chicago are a little richer and possibly a little more cautious in their operations. A group of financiers have announced that they will build in or very near the old Negro section modern apartment houses with the help of a large fund in part already subscribed—a belated attempt at meeting a need which should have been met by those most immediately benefited by the large influx of Negroes as laborers, if not anticipated by the Government by allowing or encouraging certain building operators to house the incoming war worker doing his bit to help win the war.

Most persons who are interested in housing as

affecting race relations announce a policy of segregation of the races which immediately brings forth a just protest from thoughtful Negro leaders who object to being restricted into definite areas.

On the other hand, Negroes, if given the opportunity to decide the location for themselves, would probably select a plot in or adjacent to the district already occupied by them.

Undoubtedly, a great deal of bungling has been done in the whole question of housing the American working-man. But in the case of the Negro the neglect has been short of criminal only because of the difficulty of placing the blame on single individuals. Knowing the conditions and the psychology of the whole situation, wise employers of labor should as one of their first acts, make suitable arrangements for the housing of their employees. Any investment in this direction would pay well. Especially is this true of Negro tenants who pay well and in the main when furnished with decent quarters are not hard on property. Most landlords charge Negro tenants more than white tenants for the same property, although Negro workers are frequently forced to work at the same jobs for less money.

In the struggle between capital and labor for adjustments mutually satisfactory the Negro in the final battle is to play an important rôle. Forming one tenth of the country's population and providing one-seventh of its labor supply he may yet be in the position to swing the balance one way or the other. Housing him is—as has been pointed out—fraught with many dangers which cannot be ignored. It should be the duty of all citizens, whether of the employing or the employed class, to give him an equal break in the battle of life. In the matter of housing it is entirely unfair to throw him into a "vicious circle" which forces him out of decent neighborhoods and houses because he is a Negro and then condemns him because of the way in which he lives in districts where the whole environment—overcrowded and unfavorable—breeds vice, disease and crime.



The Classic Spirit and Tradition

ARE all civilized nations colonies of Greece? Writing on the Classic Spirit and Tradition, a contributor to *The Architects' Journal* of London quotes John Addington Symonds as follows: "The advance of the human intellect is measured by successive points of contact with the Greek spirit—in Rome before the birth of Christ; in Islam during the exhaustion of the Roman Empire; in the schools of Paris and Seville during the Middle Ages when Averrhoes and Aristotle kept alive the lamp of science; in Italy at the period of the Renaissance, when Greek philosophy and poetry and art restored life to the senses, confidence to the reason, and freedom to the soul of man. All civilized nations, in all that concerns the activity of the intellect, are colonies of Hellas."

He then states: There is a possibility besetting all traditions, that they may become merely conventions—something agreed upon. And every such agreement arrived at by the ages through whose hands tradition has passed is of the nature of a compromise, as all agreements must be, with the result that forms express less and less clearly the spirit that molded them. It is well, then, that one should from time to time go back to the source of these traditions and inquire for the true interpretations of them—the nature of that spirit which they claim to represent.

The classic tradition in architecture has persistently followed in the track of civilization, sharing her fortunes and shaping itself to her conditions. But the essentials remain the same, the essentials that are embodied in monumental architecture. The term monumental literally implies something that causes thought or reflection, and we use it in an architectural sense when we are presented with a creative effort which is itself striking, or which worthily recalls to us a memorable event. A palace may express the splendor of an Empire, a shrine the dignity of a god, a tomb the memory of a fallen hero. Whether a simple monolith, an octostyle temple, or the mausoleum of a Carian King, the element of arrest is there, the single note, the challenge to the beholder. It is this note, this singleness of purpose and the avoidance of all that is redundant in the expression of it, that characterizes the art of the Greeks, and is pre-eminently felt in their monuments.

Great nations had raised monuments previous to the Greeks. Those of Egypt, Assyria and Persia were famous. But neither did these nations possess the Greek freedom in expression nor were the ideas

they sought to express world-pervading ideas. They stand as an example of just those of whom it behooves us to beware, peoples who were mastered by convention, both in the domain of ideas and in the field of expression. It is the Nemesis of age. But the Greeks looked upon the world through the eyes of youth—"young-eyed, young-limbed immortal children." A universe whose mystery had overwhelmed their predecessors, aroused in them wonder and curiosity, and they sought to devise forms in which to express their wonder. They being children of nature, its clear, full notes filled them with joy, its deeper tones with awe. To the one their warm Ionian blood made them readily responsive, while their sterner Doric strain acknowledged life's graver issues. Piety, physical well-being, respect for law, a quick appreciation of beauty in all its forms—these were qualities desired by the individual, attainments that he held at the disposal of the State, while the State itself was a conception embodied in their religion. The act of dedication indeed may be claimed as the basis of Greek life, and a monumental incentive to have been always present, one which sought and found a range of expression that is unrivaled in architecture, sculpture and drama. Dignity of purpose, vigor and order of arrangement, and simplicity of style, these qualities were manifested in all. They were thus naturally allied, an alliance fostered and maintained by the religious festival.

The religion of the Greeks, what it included and implied, cannot here be discussed at length, yet it entered so completely into Greek art that something of its character should be understood. It forbade an organized priesthood, and it never became a co-ordinated system. The chief officer was chosen by lot from among the citizens. The gods represented the higher efforts of man; drawing their significance originally from nature, they developed in the imagination of poets and the common people. Thus Apollo, the most important of the Olympians after his father, Zeus, while he stood in the first place for the light and warmth of the sun, developed into the bestower of spiritual insight, progress and civilization. What religious feeling did for Greek art was this: It introduced emotion, a high emotion; and ideas touched by emotion underlie the expression of all great art.

If the alliance between the arts was a close one, it was particularly so in the case of architecture and sculpture. The former might claim precedence or it might but constitute the shrine which held

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something even more compelling in its claims upon the worshipper, as at Elis, where reposed the Pheidonian statue of Zeus, upon whose face when the weary man looked he forgot all his cares. One must recognize that here was the culminating effort, the supreme display of monumental genius.

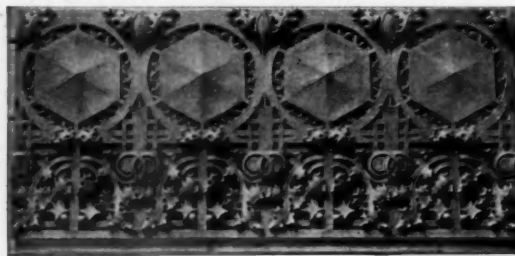
The sense of restraint and the economy of means which were so characteristic of the Greek have been and may be sufficient to render architecture independent of the assistance of sculpture. But the human interest which it introduces and its play of contour, in distinction to the formal architectural line, is an acquisition that claims consideration. Moreover, it has the means of emphasizing the monumental intention. Thus the pedimental groups of the Parthenon at once declare the subject of its dedication. Where employed, however, it was handled with a masterful knowledge of its relation to the position in which it was placed, and its display of action was subjected to definite law.

A distinction was made, and it is worth while to note it, since all the arts were affected, between the expressions of *ethos* and of *pathos*, the one denoting the supremacy of the higher ethical qualities, the other the more superficial and emotional. When the finest period of art was passed the latter characteristic became evident, and architecture suffered with it. Ionian influence became more predominant and the Doric restraint became less and less in evidence. And this continued as the center of Greek life more and more identified itself with the great cities of Asia Minor, like Miletus and Ephesus. After the conquests of Alexander, the East became the theatre of all further development, and it was from this quarter, and the Greek colonies of Southern Italy, that Rome absorbed the Greek traditions that fulfilled her needs. In the East, architecture was in touch with the old Empires of Assyria and Persia. Hitherto it was the column and architrave, trabeated construction, which the Greek genius had

developed, upon which it had chiefly relied for monumental effect. But these older civilizations had perfected the architecture of the wall, and its scientific construction in relation to stability and resistance of weather was understood and regarded.

The principles of the wall were evolved, with the consequence that architectural treatment was considered separately as a facing. The great altar at Pergamon, a masterly handling of the architectural possibilities of wall building, is among the last of the Greek efforts toward the monumental.

Augustus, it was said, found Rome a city of brick, and left it a city of marble. To all appearance this may have been so, but it was constructionally a city of concrete. Greek detail in the shape of column, pilasters, and cornices ceased in many cases to be a structural demand. Without venturing too far into the subject of architectural truth, it may be admitted that structural evidences fitly handled make for simplicity and vigor in design. This reticence and simplicity, in which the Greek excelled, was not a characteristic of the Roman manner. But what it lost was in a measure compensated for by breadth in design, to which this new freedom of its parts must have contributed. We cannot but remark the extraordinary facility in the representation of architectural detail shown by the wall painters at Pompeii, unfettered by material considerations. Sculpture was at one period influenced in exactly the same manner. It acquired breadth. And breadth of treatment learned from wall architecture—the covering of surfaces—may be claimed as the contribution Rome made toward monumental architecture, while the ever-growing requirements of its civilization, its baths, basilicas, aqueducts, and triumphal arches, offered unrivaled opportunity. Classic form was wrested from a too jealous parentage and sent forth to make its own way in the world. And it made it by its successful appeal to the imagination of mankind—an appeal that is still gathering strength.



Good and Evil of Window-Glass

WINDOW GLASS is a recent invention, a mere matter of yesterday as we count the life of the race, and it has its bad as well as good points. In fact, there is no doubt that it is affecting our health and our industrial and social conditions very powerfully. So at least says Dr. R. E. Danforth of Rutgers College, in an article on "Window Glass as a Factor in Human Evolution," contributed to *The Scientific Monthly*. Dr. Danforth points out that this action, whatever it may be, is recent. Glass is ancient, but not window glass; and the general use of glass sheets in the windows of ordinary dwellings is a thing of comparatively recent times—probably a couple of centuries. We must realize the benefits and injuries of glazed windows if we are to retain the good while mitigating the evil, as this writer advises us. His article is directed to this end. He says in substance:

"That window glass is a factor of prime importance in the evolution of man has not been sufficiently elucidated. Not that glass has had much to do with shaping his body and brain of to-day—it has not had time to do that—but that the thoughts filling his mind, that the greater part of his activities, and that the bodies and brains of generations to come are and will be greatly influenced by window glass; and that in it are serious dangers as well as boons. The thought is astonishing, yet simple of proof, and clear as the light which comes through the windows in question.

"Before window glass became a common possession of the people there came into homes and shops the air and the temperature of outdoors through the openings which admitted the light of day. The air was beneficial, but the temperature it brought with it not always so. When the outdoor temperature was not too low and the outdoor air not in too great activity, life and industries within could go merrily and well, but let either the air or its temperature be unfavorable, and at once discomfort and a cessation of certain activities ensued.

"Think of the demoralizing effect of such uncertainty upon industry. Modern inventions could not have come in such marvelous profusion before the day of this one invention of a simple device admitting daylight and excluding to a great extent the outer temperature.

"Even to-day if window glass should become one of the 'lost arts,' a large number of other inventions would at once cease to be useful or be forgotten through neglect, even despite the fact that artificial illumination has made remarkable strides.

"But someone may object: was not glass manufactured and distributed by the ancient Phoenicians?

Yes, and probably before these by the Egyptians. How then can we attribute our very recent and radical changes to window glass? It is indeed surprising to think how new is the general use of glass in windows when the substance had been known so long and used for vases and gems and, now and then, in some sort of window. The common people, however, had no such luxury in their homes and shops. Recent explosions in New Jersey, breaking windows in many hundreds of homes and other buildings, brought home to some for a few days our real dependence upon window glass to-day."

Window glass in Roman times was cast, Dr. Danforth tells. The art of casting glass seems to have been forgotten until 1688. Yet window glass was even then the prize of kings and nobility, and these had only a scant supply. In the time of Elizabeth glass windows were so rare and costly that some noble when he left his city residence had the glass windows carefully removed. In the time of Charles II, glass was not used in all of the rooms of the king's palace. He goes on:

"It seems safe to assume that while many individuals may have had scant supplies of window glass by the middle of the seventeenth century or earlier, the commodity could hardly have been common before the eighteenth century, hence its effect upon human customs, industries and mode of life could not have begun to operate appreciably before that time. The great change in home life and the change in industrial life and in the industries themselves could not begin until an abundance of cheap glass filled all homes with a flood of daylight, and all shops and offices and factories as well, keeping in the artificial heat at the same time. From that time the outdoor life rapidly lost its people while the world of indoors gained devotees, willing or unwilling, by thousands of thousands. A host of new industries sprang into being in the wake of window glass, and these begat other industries, scientific inventions and discoveries with magic rapidity. Large factories were made possible, big business began and the physical conditions of home life were completely changed. The air which all breathed, in home and shop and office, became at once far less pure, its oxygen was consumed and it became flecked with fine dust, and the pristine rigors of a temperate climate, with all that they had meant for the vigor of the northern peoples, were commuted to conditions of tropical evenness of temperature with what debilitation such brings and without the constant renewal of air which might be had in the tropics. Although this change came but yesterday, already a marked increase in physical debility in our most 'civilized' populations is a matter of common comment and concern.

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"With window glass the habits of life and liveliness are completely changed, habits of thought are revolutionized and the field and scope of thought changed. The whole environment is changed for the species, including temperature, humidity, material environment, composition of air breathed, visual and mental horizons, and a change in the relative adjustments of human beings to disease germs. Such radical changes both within and without the human organism are bound to produce physiological changes in the individuals. They also set in motion new factors in the evolution of the race.

"With window glass man leaves his outdoor or semi-outdoor activity and becomes a modern industrial worker or office server. With a sturdy foundation of outdoor health behind him he may not notice ill effects of degenerating muscles or dust-clogged respiratory tracts, and he may pass on to his offspring for two or three generations a vigorous heredity. The heritage of the ages is not lost over night, yet already we note inroads into the health and vigor of the people. Industries indeed evolved prodigiously, but 'advance in civilization' is not necessarily human evolution.

"How then is window glass a prime factor in human evolution? First, it changes man's environment and changes his field of thought. Second, it alters the temperature and humidity of his environment. Third, it gives him air of a different quality and composition to breathe. Fourth, it compels him to inhale fine dust constantly. Fifth, it removes outdoor activity from all women and most men in 'up-to-date' communities. Sixth, the germ content of the air in confined buildings is greater than normal, especially so in times when colds and other infectious diseases abound. The more frequent illnesses result in impaired health and reduced vigor. The inferior air also reduces vitality. The inhaled dust clogs minute bronchioles and alveoli of the lungs, causing thousands of cells to toil constantly to ingest foreign and insoluble particles. The muscular degeneration consequent to the changed manner of life will make its permanent change in the race of to-morrow; so will the reduced vitality resulting from the causes just mentioned. Great care should be given to the subject of window glass, that we may see to it that we reap the blessings it brings with it and avoid the bane."

Color in Modern Roofing

COLOR used in an architectural way has not met with wide approval by Americans, simply because it has been so seldom used artistically, states a writer in a recent *Touchstone*. Some architects advancing with the courage of explorers into this field of introducing color in domestic architecture have used shutters of bright colors, chimney pots equally gay, and painted the tubs in which grew decorative trees, and has even given the roof mottled tints of autumn. Bright colors on the roof give a house a sense of cheer when rightly applied.

Moss-green tile roofing on a large new house takes away from the glaring brightness and draws the house into harmony with the trees and garden. A dull red Spanish tile is the only proper roofing solution for the Spanish and Moorish type of house. It is out of place on a small English cottage. Manufacturers have become aware of the growing liking for color and have placed on the market a number of roof coverings such as tile, asbestos, wood and composition shingles in many varieties of colors. These can be ordered in groups; for instance, there are various shades of brown or of green which were stained or fired with the direct purpose of associating them. A roof all in one tone is heavy and monotonous. It lacks life and looks woefully new. Therefore many roofs of shingles nowadays are laid in different tones. If the roof is to be green in effect, three kinds of shingles are dipped in a green preservative shade; and each wood takes the stain differently, so that the roof at once shows the modulated softness generally found only in the old roof. Tile, whether flat (shingle shaped) or half round, comes in every shade of brown or red found in autumn foliage. They also may be had in all the tones of green found in spring and summer. Occasionally a blue or a yellow, or even a mauve tile is introduced when the roof is being made, just to give life.

Colored tiles set above the doorway, beneath the eaves as medallions, above or beneath windows, in the vestibule floor, in terraces, are exceedingly effective when the house is made of hollow tile, stucco or brick. In a house of wood, color is gained by staining the blinds, the roof beneath the eaves, or the ceiling of porch.

Editorial Comment

Organized Labor's Opportunity To Assert Itself

IF organized labor could be made to take the only public-spirited stand and realize the mischief that lies behind its demand for increased wages in trades where wages have increased in proportion to living costs, much more would be accomplished in checking the onrush of strikes that are now menacing the industrial world in many lines of activity. With careful handling by leaders of ability to show the men the right direction in the present crisis the unions can be brought to help not only the country but also themselves.

Wages have been largely increased in nearly all trades, thus establishing the first and main cause for high prices. These advances do not come out of the employing class as some imagine. They are simply added to the cost of goods. After everyone has had their advance and paid out their money in higher prices, they discover they are no better off. Those who have saved any money are worse off, as now their bank deposits will not buy so much as formerly. It all goes to show that much of the discontent of wage-workers has come of apprehension lest prices should outstrip their pay.

If labor can be convinced that prices have halted it should feel positive relief though its wages stop at present levels. Undoubtedly there are workers who have not shared in the advance in wages. They still have to receive advances sufficient to make the existing level of costs tolerable to them, but among the wage-earning class these have become the exception.

The sudden outburst of labor unrest is clearly traceable to the fact that when the moment drew near when the wage raise seemed to stop there came an unconquerable desire among organized workers to seize the final increase. Discretion must eventually succeed this excited grasping for a last advance. The time has come for the prudent element to assert itself. Certain of the recent wage demands have, by their radical nature and the reckless attitude of the leaders backing these demands, given an opening for a strong movement to return to a position more within the limit of reason.

Pending the restoration of sounder economic conditions, the unions so far have shown little disposition to bury the industrial hatchet. To the discredit of its demands upon the private employer and the Government, labor is indiscreetly pushing

its advantage at an unpropitious time. It is pursuing a course of extreme folly, and apparently starting a social convulsion the end of which cannot be foreseen. These are times when no person can safely demand an exorbitant return for the service he renders society. The people are tired of the illusory promises of demagogues. They want the real facts and the truth, and nothing but the truth, without reservation.

Architecture and the Movies

ELSEWHERE in this issue, mention is made of the efforts of the Bureau of Commercial Economics to popularize education by the means of moving pictures. This commendable undertaking is in keeping with the times. It is but one of several similar but smaller projects, and the result of the logical development of an important industry.

Perhaps no one medium makes so strong an appeal to the layman as the moving picture. It appeals to that most sensitive organ, his eye. It reaches him when he is most receptive. It is easily accessible and may reach him often.

With the work among industrial plants conducted by the Bureau of Commercial Economics, and with the plan for civic education so well thought out by the National Catholic War Council in Washington, two very large and comprehensive movements are going forward. In each of these the subject of art and architecture would have a fitting place, but in neither does it appear to be listed among the topics treated. There are isolated examples of the use of the motion picture for purposes of art instruction, but they have never been "played up" to their full capacity.

It is a sensible and legitimate use of the moving picture which the Garden Cities and Town Planning Association of London made some time ago in filming a number of contrasted views of good and bad housing in that city, and which on another occasion was made by M. Bonnier who ended a Town Planning Conference in Paris with a moving picture presentation of the evolution of the Paris plan.

But the use of the motion picture as an educator of popular taste has greater force in architecture than that. Not only in the labelled "educational" films may instructive and interesting buildings be shown, but in the unnoticed course of the average "feature", opportunities are unfolded for making attractive to the lay mind all the finer artistic possibilities of a home, or indeed of any other building

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or group of buildings. And by the same method, means may be availed of to cast just the right shade of disparagement upon the gaudy and poorly chosen furnishings and decorations.

There is a distinct commercial value in this as well as a purely artistic one, so that it should provide a common basis of procedure in the artistic development of the moving picture on the part of all the interests concerned. It should be made a punishable offense to perpetrate patently poor stuff on the screen without taking some measure to let it be generally recognized as poor. Else it is misleading the public. And it is that same public whose prejudices and tastes are more dependent upon the moving picture for development than upon any other source.

IN this novelty-loving age, the almost untouched field of art and architecture might be an inspiration to many a producer. Even in a moderately technical way the importance of industrial art might be disclosed in all its ramifications. There has been noticed a certain reticence on the part of the plain man to respond to the opportunities presented by exhibitions of art, and it is of course through the plain man who typifies the general public that it is desired to elevate public taste and create a better impression of what is artistically good. Any one of several reasons might be stated as the cause for this reticence, not the least of which would be his lack of knowledge of the field of art, and the fact that no systematic effort has ever been made to bring to light the love of the beautiful that lies latent within the least of us. But whatever the reason or reasons, there can be

no doubt that the moving picture could fill this need very adequately, and could instill an appreciation of art that the plain man is to-day without.

THERE are few matters pertaining to the general welfare that have not benefited from an insistent motion picture campaign. Whether it be war propaganda, or death to flies, the moving picture has entered the field and formed opinion. But the curious feeling that not uncommonly prevails, to the effect that art is a luxury in which the plain man need not indulge, has served to augment an aloofness which prevents a more insistent application of art to every-day affairs. These things, however, are so linked together that perhaps their other and more practical aspects might serve as the introduction to a wider interest in their artistic importance.

Take the billboard, as an example. Why would not a moving picture crusade against the billboard nuisance be a good thing? When the large number of people who frequent the movies can be shown just what the billboard means as a retardant to municipal development, it should be easy to create a sentiment which if it does not result in an entire eradication of the billboard, would serve to make public opinion sufficiently strong to encourage restrictive legislation.

These things are only the high lights. There remain many applications, practical and far-reaching, which with the help of the motion picture, may be developed. They will be the justification of the increasing influence this force is exerting. It remains now to give an impulse to the undertaking that it may assume definite and conscious form.





PLATE 123

MAIN OFFICE BUILDING, SOUTHWESTERN BELL TELEPHONE CO., KANSAS CITY, MO.

HENRY F. HOIT, ARCHITECT. I. R. TIMLIN, ASSOCIATE

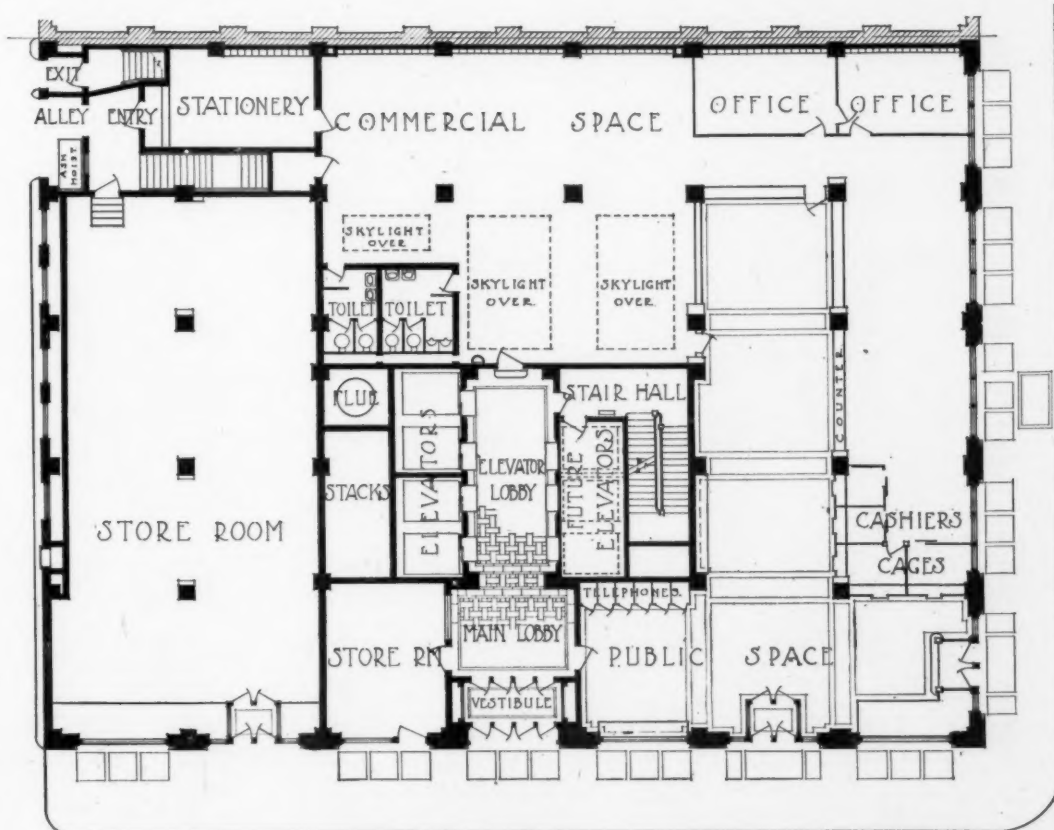
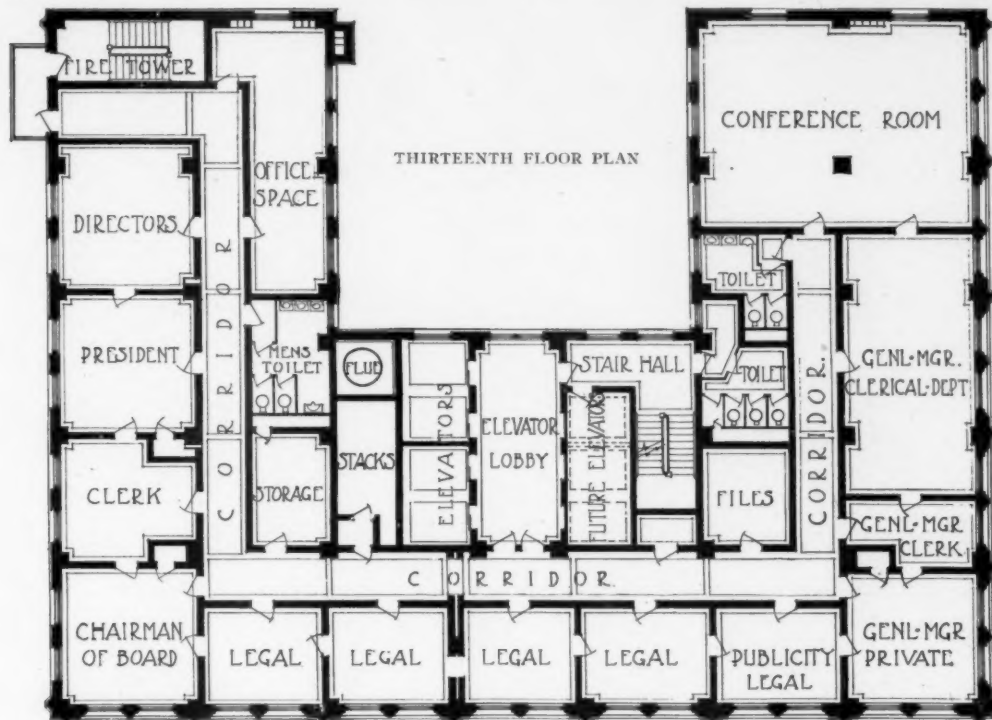


PLATE 124

FIRST FLOOR PLAN

MAIN OFFICE BUILDING, SOUTHWESTERN BELL TELEPHONE CO., KANSAS CITY, MO.

HENRY F. HOIT, ARCHITECT. I. R. TIMLIN, ASSOCIATE

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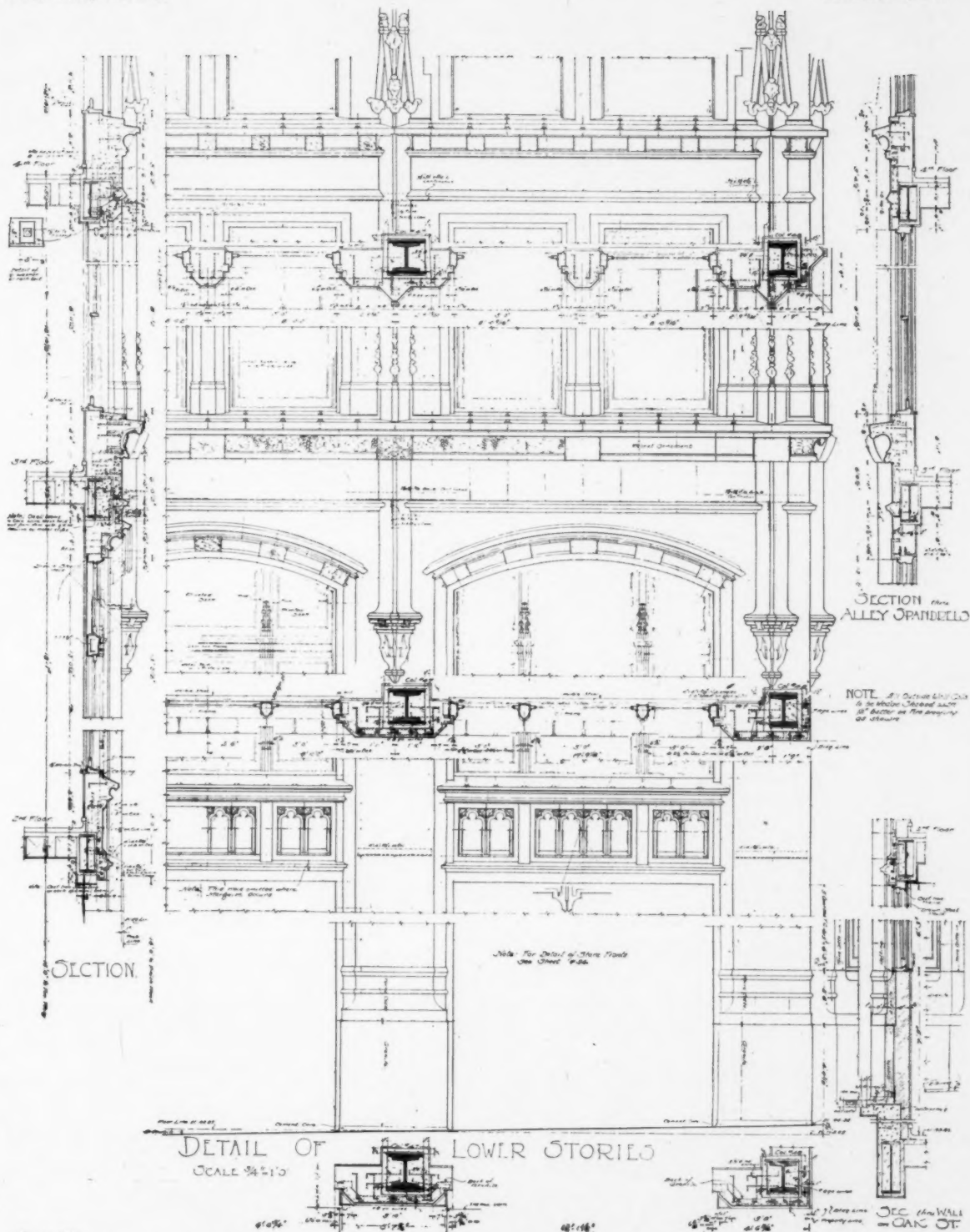


PLATE 125

MAIN OFFICE BUILDING, SOUTHWESTERN BELL TELEPHONE CO., KANSAS CITY, MO.

HENRY F. HOIT, ARCHITECT. I. R. TIMLIN, ASSOCIATE



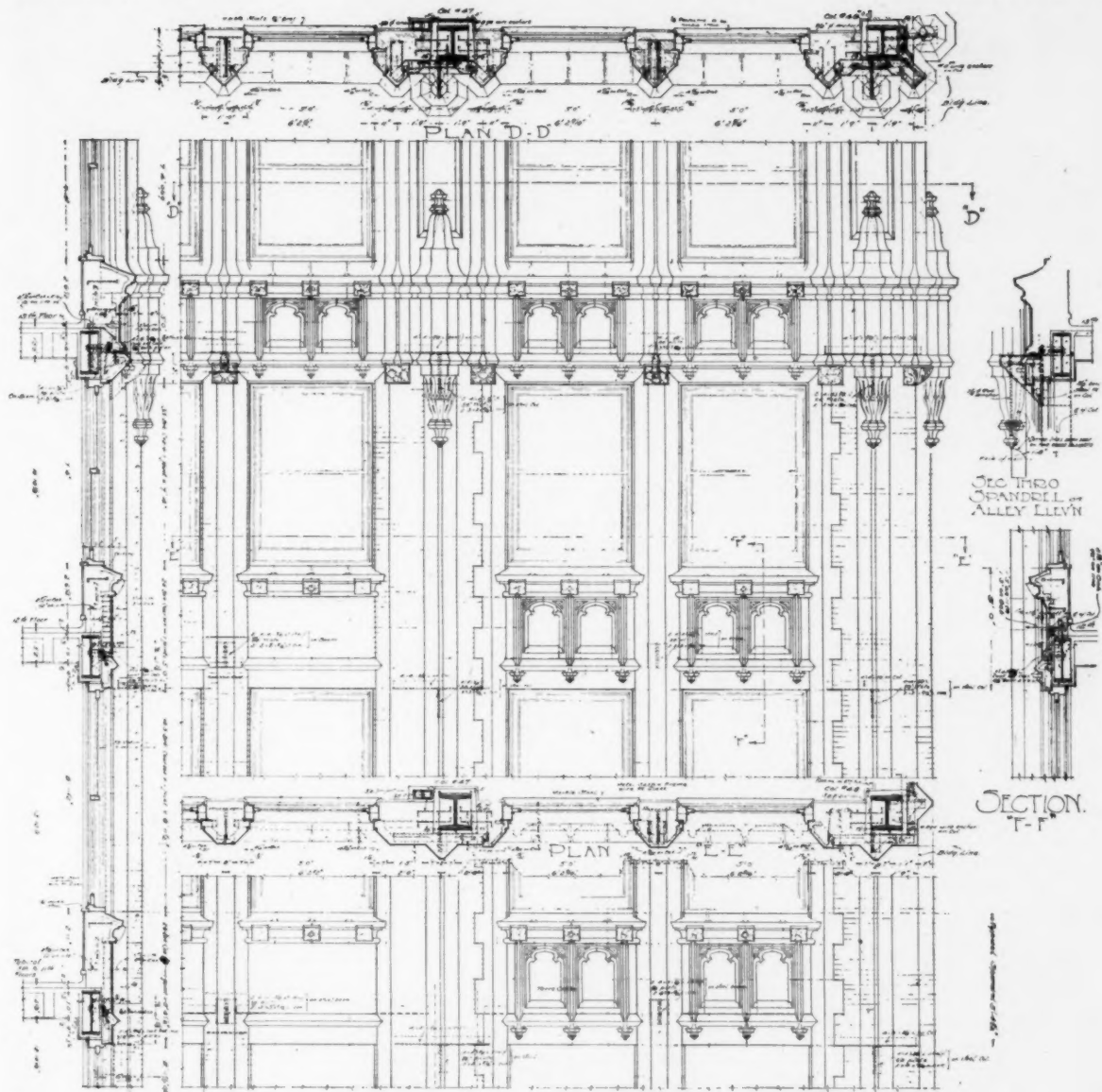
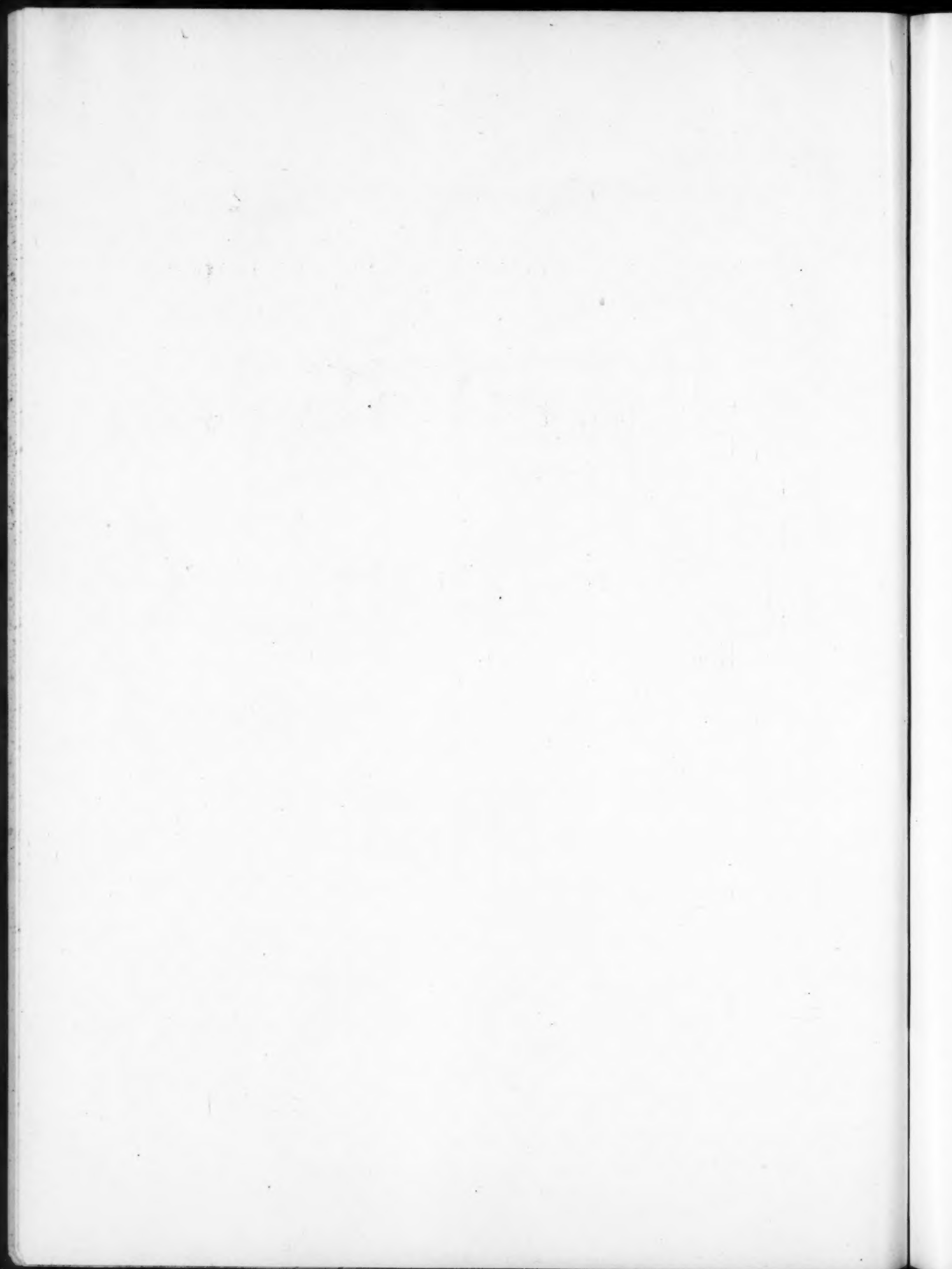


PLATE 126

DETAIL OF INTERMEDIATE STORIES

MAIN OFFICE BUILDING, SOUTHWESTERN BELL TELEPHONE CO., KANSAS CITY, MO.

HENRY F. HOIT, ARCHITECT. I. R. TIMLIN, ASSOCIATE



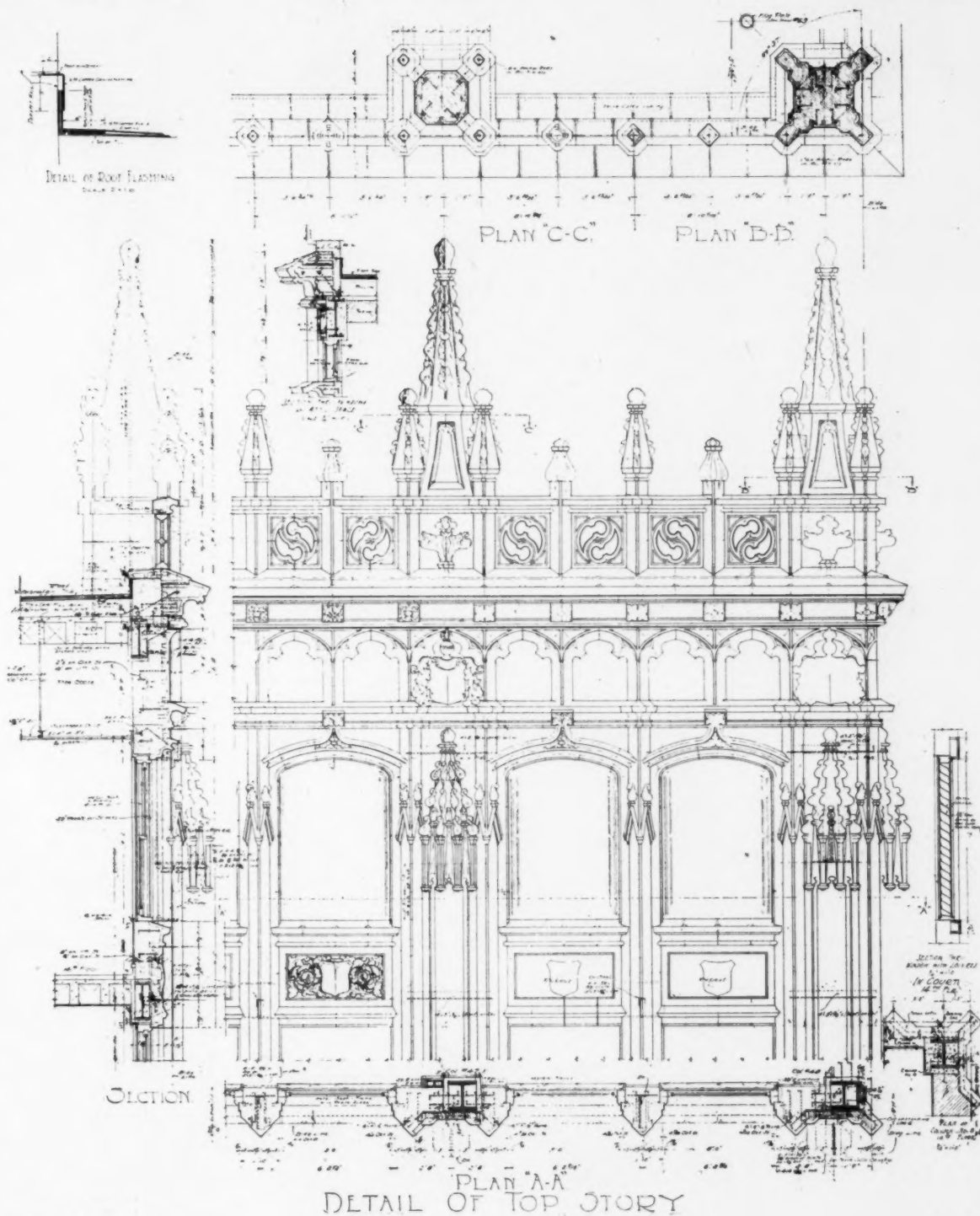
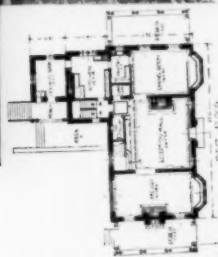


PLATE 127

MAIN OFFICE BUILDING, SOUTHWESTERN BELL TELEPHONE CO., KANSAS CITY, MO.
HENRY F. HOIT, ARCHITECT. I. R. TIMLIN, ASSOCIATE





HOUSE OF GUSTAVE C. KUEMMERLE, FORT WASHINGTON, PA.
C. E. SCHERMERHORN ARCHITECT



DETAIL IN LIVING ROOM



RECEPTION HALL

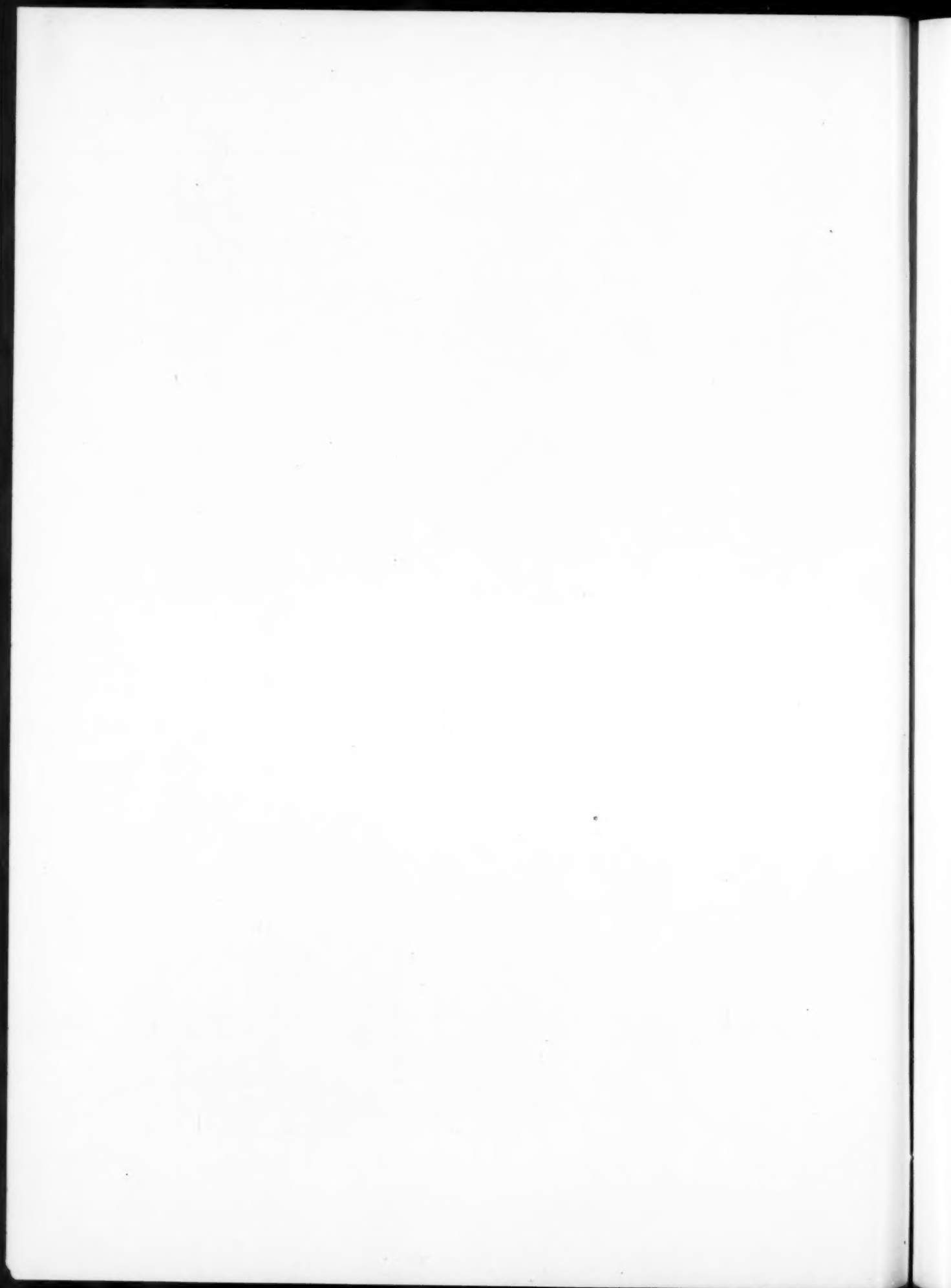
HOUSE OF GUSTAVE C. KUEMMERLE, FORT WASHINGTON, PA.

C. E. SCHERMERHORN, ARCHITECT



PLATE 130

HOUSE OF C. B. BUTTERFIELD, MARION, MASS.
COOLIDGE & CARLSON, ARCHITECTS





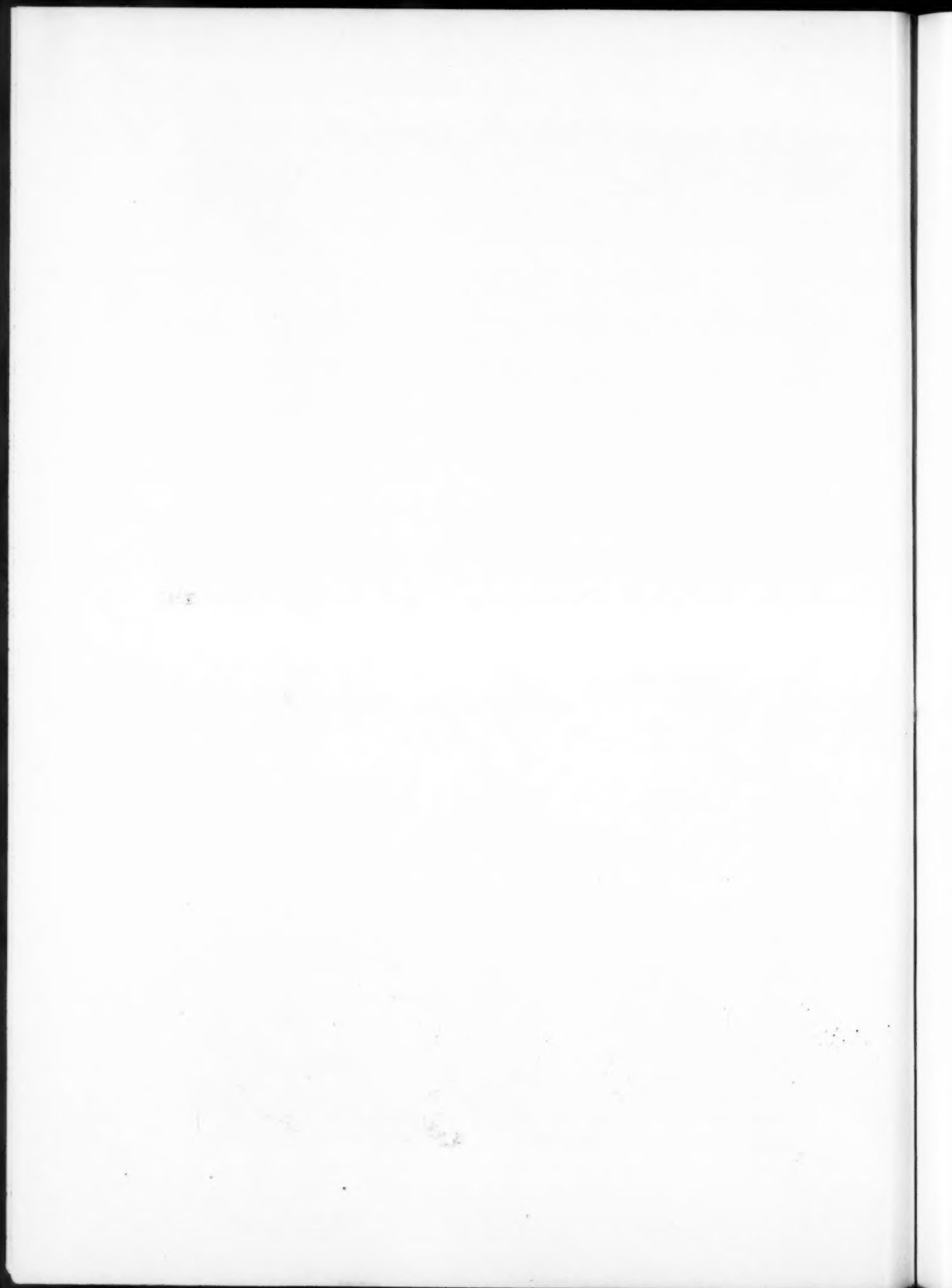
GARDEN VIEW



LAWN VIEW

PLATE 131

HOUSE OF C. B. BUTTERFIELD, MARION, MASS.
COOLIDGE & CARLSON, ARCHITECTS





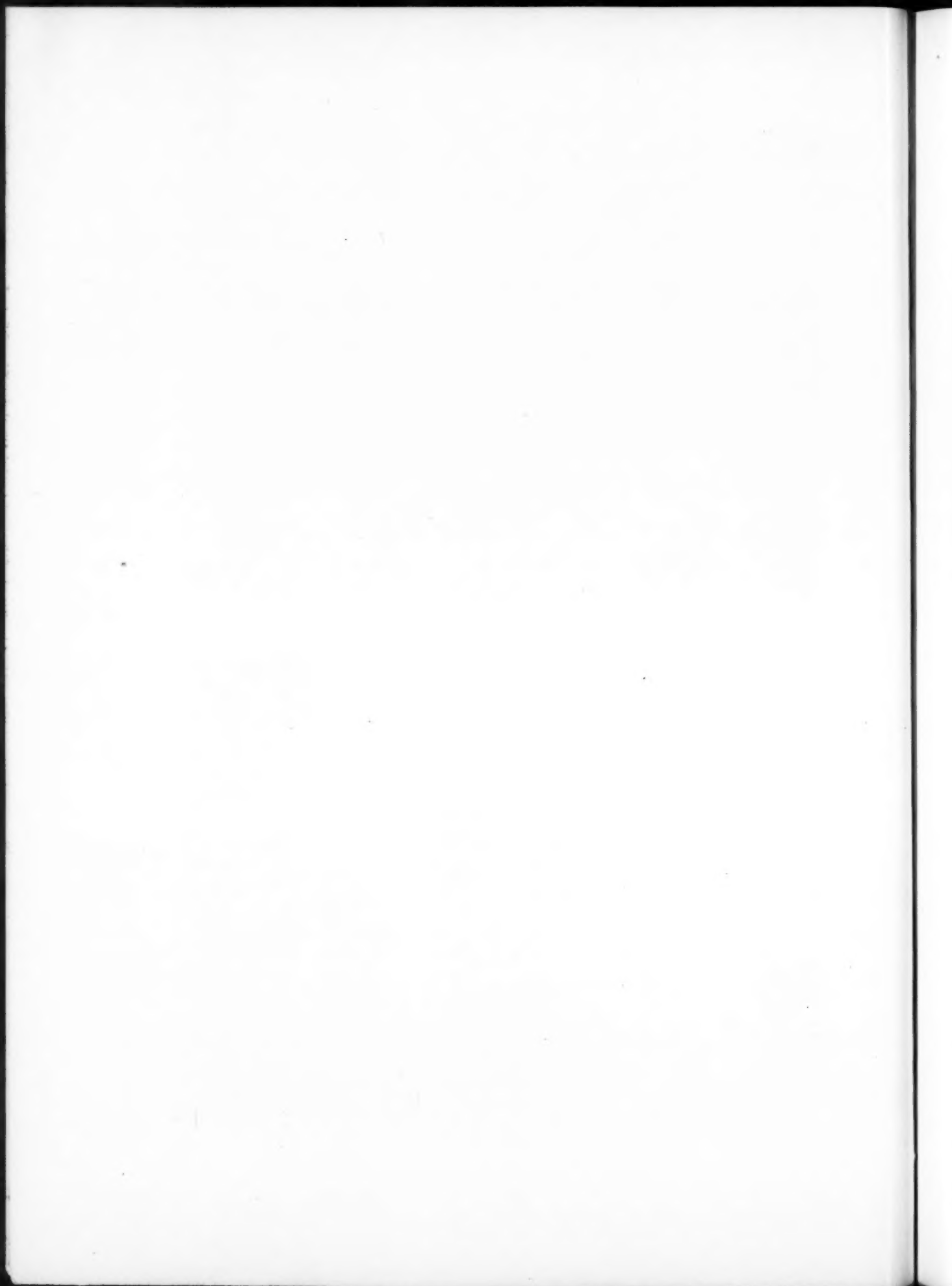
DINING ROOM



PLATE 132

LIVING ROOM

HOUSE OF C. B. BUTTERFIELD, MARION, MASS.
COOLIDGE & CARLSON, ARCHITECTS



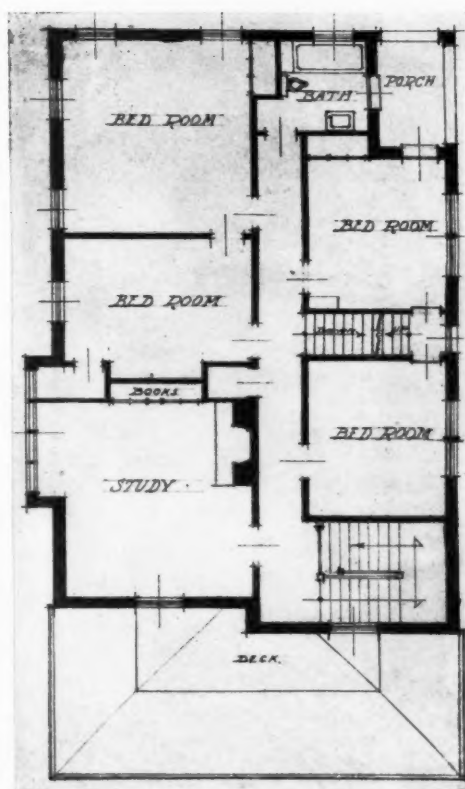
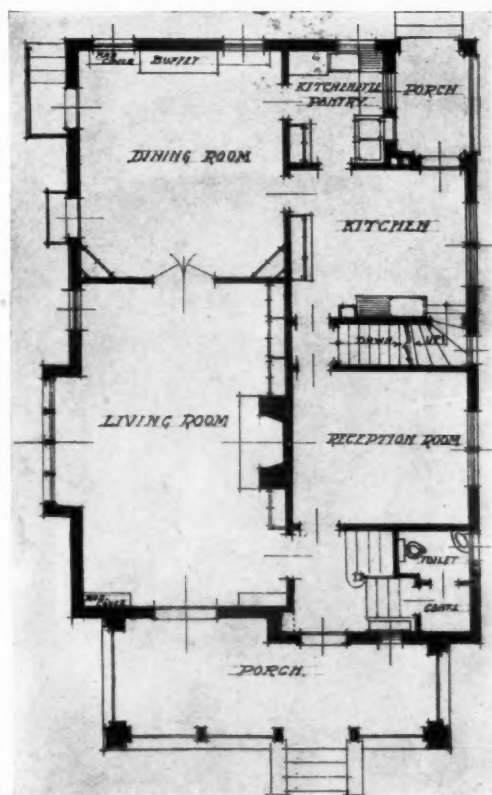
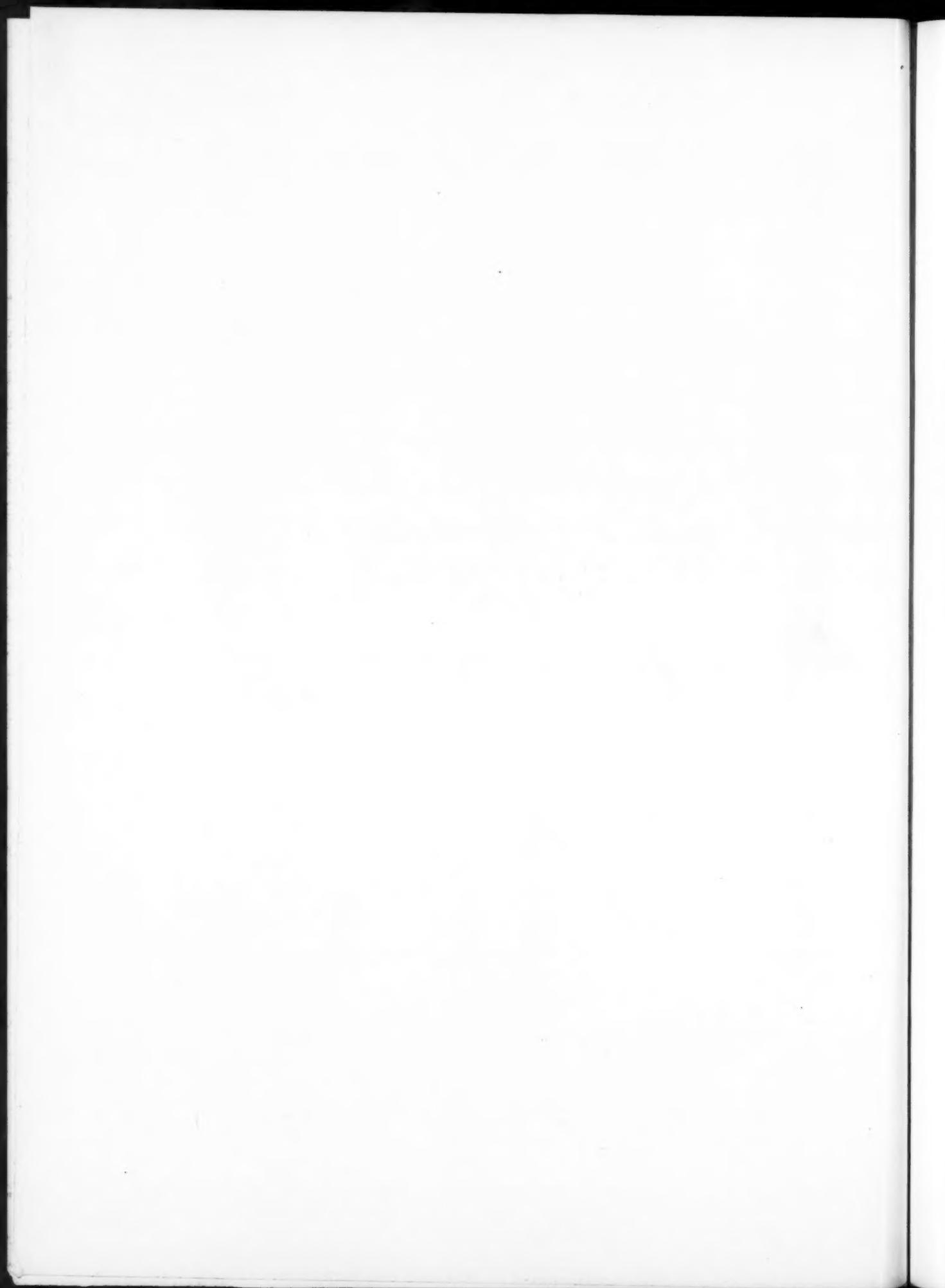


PLATE 133

HOUSE OF REV. J. G. MUELLER, DAYTON, O.
LOUIS LOTT, ARCHITECT



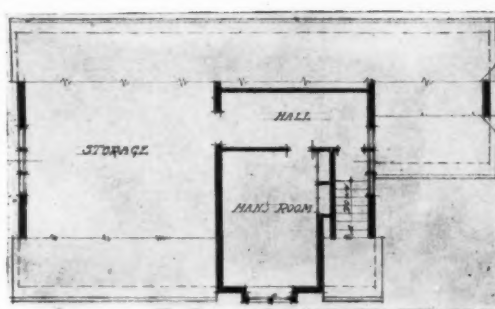
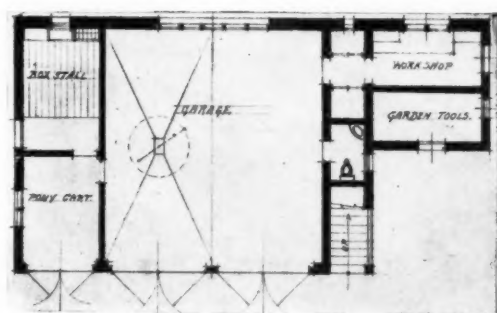
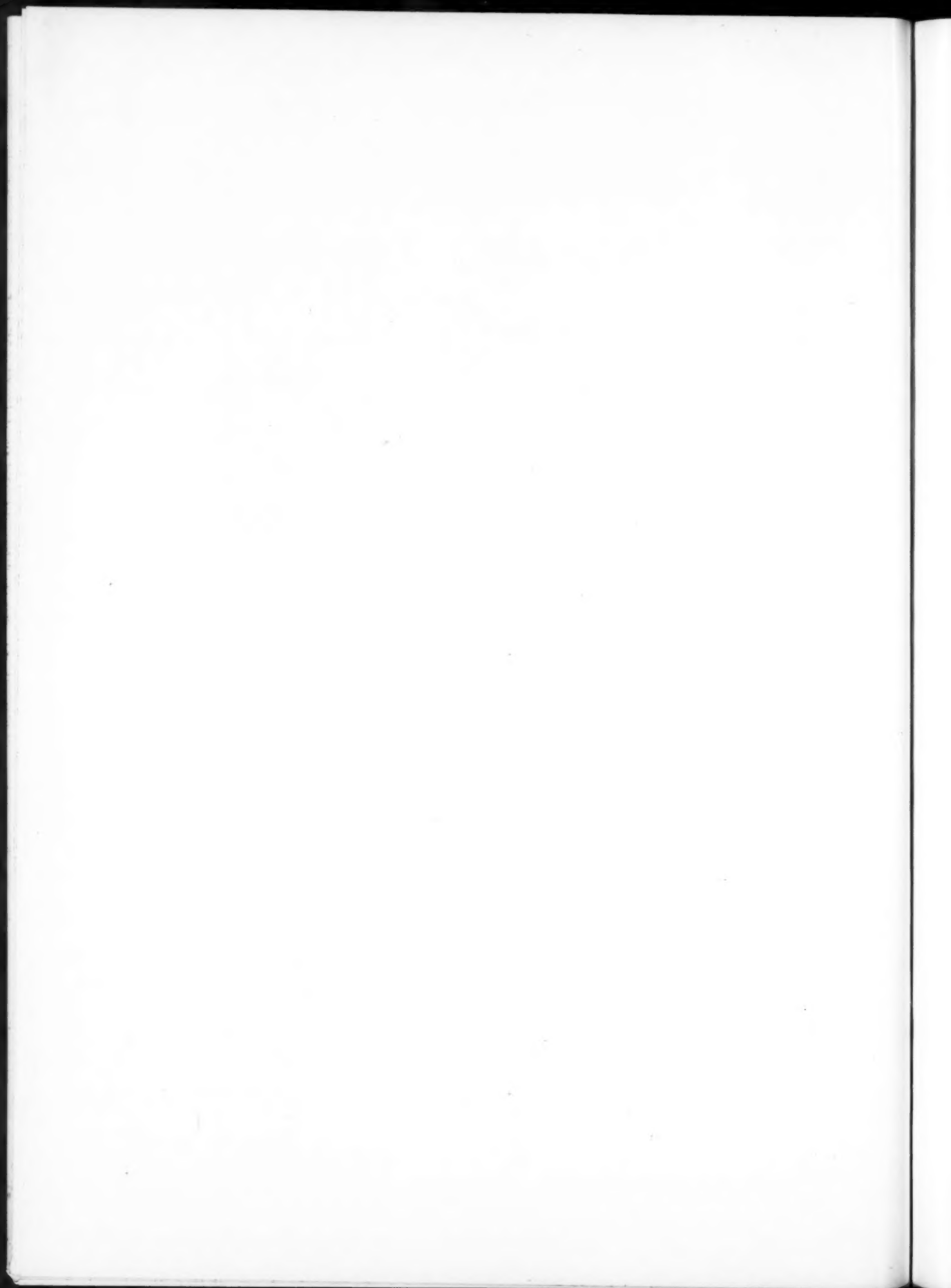


PLATE 134

GARAGE FOR ADAM SCHANTZ, DAYTON, O.

LOUIS LOTT, ARCHITECT



Current News

Late Happenings and Comment in the Fields of Architecture and the Allied Arts

Popularizing Education

The Bureau of Commercial Economics, an altruistic organization exhibiting educational films all over the world, has started a nation-wide campaign to get free motion picture theatres into factories, department stores, mining towns, country crossroad centers, lumber camps—every place where there are workers.

The bureau has the largest educational motion picture library in the world—21,000,000 feet of film on almost every conceivable subject, such as government, economics, industry, history, travel, nature, science, health, commerce, agriculture. All these pictures will be loaned without charge to those who will exhibit them free to audiences.

In order that thousands instead of hundreds of business men and organizations will become borrowers of these films the bureau is sending out questionnaires, the answering of which will enable the bureau's engineer to advise as to the equipment most suitable under the circumstances, how best to adapt the workshop, church, hall or factory lunchroom for motion picture exhibitions; and any other questions the individual case requires.

One big reason for the social unrest is the narrowness of lives of many of the workers. Educational pictures will enable them to step out of the rut of a life bounded by factory, home and corner coffee club, and begin to live in the wide world.

Dr. Francis Holley, director of the bureau, believes an employee's interest in his work would be increased if he could see motion pictures showing the men on the other end of the job at work getting the raw product to the factory door, and also pictures showing the ultimate uses of the finished product.

Dr. Holley believes employers would find it a good plan to let employees feel that the picture show belongs to them. The employer could offer to provide space and equipment if employees would run the show—select programs from the bureau's catalogue, attend to the details of ordering the pictures, etc. Thus a point of co-operation would be established between employer and employees which would be worth many times the cost of providing the "theatre."

Present Status of the Building Trades

Due to the fact that the building material price situation is shaping itself for the future, rather than for immediate building conditions, architects and builders this week generally were inclined to assume a more hopeful attitude with regard to the Autumn construction. As one prominent architect this week expressed it: "There seems to be decided tendency toward stabilization of prices."

Preparation is being made for construction work on a vast scale at this level. Reports from nearly every building material producing center betray none of the uncertainty characteristic of the actual construction market at present. The unflinching barometer of building activity is to be found in the demand for draftsmen. No building,

of whatever size or type, can be erected without first a draftsman prepares the plans. The call for men in this profession to-day has never been greater, indicating that the long awaited building boom cannot be far distant.

The policy being followed with reference to building material supplies is the same as exists in the price situation, that the future rather than the present is considered of prime importance. Mills are taking advantage of a slight reaction in order placing in the consuming markets to replenish their bins and racks, and some industries, notably steel, cement, sand, gravel and plaster, are wholly devoid of the safeguarding steps as to stocks. In some cases, shipments are seen when a prolonged strike situation is considered to be imminent.

The growing scarcity of labor is also a factor that must receive serious consideration. There is a genuine shortage throughout the country and one that shows no prospect of diminution. The exodus of foreigners, notably Greeks and Italians, who perform this character of unskilled building labor, goes steadily on and there appears to be no increase of similar immigration to take their places.

The collapse of the Boston police strike with the refusal of Governor Coolidge of Massachusetts to recommend the reinstatement of the strikers has disclosed a condition in the field of labor that is one of the most disquieting elements that has now to be considered a situation more menacing economically than that of high prices. Unless some drastic action is taken to prevent the insidious propaganda of labor agitators reaching the police forces of the United States there is a greater danger to public security than any consideration of economic stabilization.

Airplane Wood Requirements

To make airplane propellers "bone dry" they are subjected to terrific tests, and a propeller has to make 1700 or more revolutions a minute to make good. Even at that, wood which has been dried to the lowest possible moisture content will "drip" sap after a test.

Whereas for ordinary commercial uses a piece of wood showing a slight defect may be safely and advantageously used, there is no "margin of safety" with airplanes. Every bit of wood that enters into its make-up must be perfect. A thousand feet of lumber may have to be taken out of a forest to secure 50 or 100 feet which will measure up to airplane requirements, or the whole lot may sometimes be rejected. This shows the need of more tree planting, of proper forest conservation and a national forest policy which will provide for the future.

Walnut is the best wood that grows for propellers, as also for gunstocks, but practically all the framework of the air machine is of spruce. Most of the parts of an airplane are of built-up or laminated wood, in which thin layers are glued together, the lamination dividing the stresses and making possible the use of small pieces which are more likely to be absolutely free of defects. The terrific pressure, the twistings and manoeuvres to which an airplane is subjected, compel the use of wood that will "give" properly under prodigious strain, without breaking.

Revolutionary Report of British Government on Housing Plans

(From our Special Correspondent)

WASHINGTON, D. C., Sept. 29.—The American Trade Commissioner at London has forwarded a report to the Department of Commerce on new housing schemes of the British government. Three hundred huts, including hostels, canteens, laundries, architects' offices, recreation and mess rooms, police barracks, schools, cabins and garages, will be utilized for dwellings where the housing shortage is pronounced. The communal housing plan has passed the experimental stage and the government is supporting many projects.

One of the principal reasons for the government's participation is to provide adequate housing facilities for former service men and their families. The Hammersmith Borough Council, London, has established a hut colony at White City, consisting of 50 huts. The Council purchased the huts, along with certain fittings, for \$42,500. It will cost approximately \$18,000 to convert them into habitable houses. The huts stand in blocks of three, with spaces between in which shrubs, flowers or vegetables can be grown. The rental is only \$3.84 plus 24 cents for electric lights, per week. A hot-water heating system provides heat for the colony, thereby saving fuel.

English architects were successful in their efforts to relieve the housing paucity in war times by designing a popular army hut. Each hut consists of a living room 15 by 11½ feet, a large bedroom 16 by 15 feet, a small bedroom 12½ by 7 feet, a scullery with a sink and a lavatory. The larder is built outside the hut, opposite the doorway and separated from the building by the width of a veranda inclosing each block. The baths are located in a separate central building. The Council has lost \$125 a week on the colony despite the seemingly high rentals.

The sale price of six-room huts has averaged \$900 to \$1,000 each. Hostels sold for \$4,250 each. Hundreds of these structures were erected near munitions plants to accommodate the thousands of workers at comparatively low cost. The annual normal demand for houses in the United Kingdom is estimated at 100,000. To this total must be added the 500,000 working-class houses, the accumulation of the four years of war.

The shortage of building materials has brought the suggestion that brick be utilized exclusively. The report of the Building Resettlement Committee has created widespread discussion. Their recommendations, if adopted, would amount to a complete revolution in the organization of the building industry, especially the provisions relating to scientific management and reduction of costs.

Shrinkage in So-Called "Compression Wood"

"Compression wood" is a term applied to wood of an abnormal growth, which is considerably heavier than normal wood and is usually further distinguished by very wide annual growth rings, a lack of contrast between the spring and summer wood, and a relatively dark color. How this abnormal growth is caused is not definitely known, although the theory is advanced that excessive leaning of the tree during growth produces it, the "compression wood" being formed on the lower or leaning side.

A structural timber containing "compression wood" was recently received for examination at the Forest Products Laboratory, Madison, Wis. The timber had failed in

tension in the "compression wood". Large cross breaks had opened up across the grain, and rendered this portion of the timber useless in withstanding further stresses. The "compression wood" was very brash and exhibited low strength in mechanical tests, except in compression parallel to the grain, in which it was about equal to the normal wood. Its specific gravity was considerably greater than that of the normal material.

The chief difference between the normal and abnormal wood, however, was in the matter of shrinkage. The "compression wood" was found to have a longitudinal or end shrinkage six times as large, and radial and tangential shrinkages less than half as large as those of the adjacent normal wood.

In the beam examined, the tendency of the "compression wood" toward excessive shrinkage had been resisted by the normal wood, with the result that the "compression wood" was actually pulled in two.

New Docks Will Aid Movement of Government Lumber

The sale of large blocks of lumber held by the Government will soon be inaugurated, according to a New York lumber authority, who states that the bids are all in and the release of many million feet of this stock will form a welcome addition to current supplies of lumber.

The contemplated building of eleven new docks by New York City on the Staten Island shore near Clifton, at an estimated cost of \$15,000,000 will assist the movement of this lumber. It is understood that the city will take over the necessary land Sept. 25, after which the work will be pushed to completion as quickly as possible. The total cost of the dock development, including buildings, approaches, etc., has been placed as high as \$75,000,000. These piers will be leased by the city at an annual rental of 7½ per cent of the cost of construction.

Portraits for the Nation

A National Art Committee has been formed by a group of public-spirited and patriotic men and women to secure portraits painted by American artists of military, civil and religious leaders in the world war, says the *American Magazine of Art*. Henry White (one of the peace commissioners) is chairman, Herbert L. Pratt of New York secretary and treasurer, and among the members are J. P. Morgan, Henry Frick, Mrs. E. H. Harriman, Robert W. de Forest, Guy Lowell and Charles D. Walcott. There will be twenty or more portraits, and the fund already underwritten is in excess of \$200,000. Among the artists who have been given commissions and are now abroad are Cecilia Beaux, Joseph de Camp, Edmund C. Tarbell, Douglas Volk, Irving R. Wiles, M. Jean McLane, John C. Johanson and Charles Hopkinson. The celebrities to be painted include Premier Lloyd George, Field Marshal Haig, Admiral Beatty, Premier Clemenceau, Marshal Foch, Marshal Joffre, Gen. Lenan, Premier Hughes of Australia, Premier Borden of Canada, Gen. Sir Arthur Currie, Premier Orlando and Gen. Diaz, Premier Venizelos, King Albert of Belgium, King Peter and Premier Rachitch of Serbia, Queen Marie and Premier Bratiano of Rumania and a Japanese statesman not yet named, besides President Wilson, Gen. Pershing and Admiral Sims. The portraits when completed will go to the National gallery at Washington and become a part of the permanent collection.

Barricades Guard Boston's Historic Buildings From Mob Attacks

In Boston, history has repeated itself much earlier than usual.

During the war the various municipalities in the zone of hostilities made careful preparation to safeguard its artistic and architectural treasures from the marauding depredation of hostile air men, or the shells of the long range "Berthas". To accomplish this protection we have seen



Chickering Building, Boston. Protected by Barricade and Soldiers from Mob Attack.

photographs of many devices of sandbags and barricades.

In Boston, during the police strike, barricades were hurriedly erected, to protect from the depredation of an uncontrolled mob, not only the many and much revered historical landmarks but also examples of good architecture.

A specific instance is shown in the accompanying illustration, which we are enabled to publish through the courtesy of *The Music Trades*. Here, it will be observed, the lower stories of the Chickering Building on Tremont Street, facing the Common, are protected by a palisade or fence that the fine stone work and delicate carving might not share the same fate of the building immediately at the right, whose entire front was wrecked by an unruly mob which looted the store of all its contents.

Germans Give Up Works of Art Under Terms of Peace Treaty

By the terms of the peace treaty Belgium and Ghent will respectively recover priceless works of art, one of which was supposed to have been destroyed after the Germans entered Louvain, while the other has long been incomplete because two important parts of it were in the Kaiser Friedrich museum, Berlin. The Louvain painting is the work of Dierick Bouts, a "Last Supper," which has been described as "certainly one of the finest examples of Flemish fifteenth century art" and was painted for the collegiate church of St. Pierre. The painting had come down the centuries as the chief adornment of the church, and disappeared after the German occupation. It was believed to have been destroyed, but is now known to have been removed and preserved by the invader, and its return is one of the stipulations of the peace treaty. The other famous painting, "The Adoration of the Lamb," has been called "the first and greatest masterpiece of the fifteenth century painting produced in Flanders." It was begun by Hubert

van Eyck, but continued and finished by Jan van Eyck. Time had separated the parts of the painting and at present the central panel remains in the chapel of St. Bavon in Ghent, another part is in Brussels, and yet another in Berlin. Brussels will probably return her part of the composition, and Germany is to give back the portions that have been in her possession, so that the painting as a whole will once more be assembled in the chapel for which it was painted.

Must Show Contract Losses Resulted from War Conditions Alone

(From our Special Correspondent)

WASHINGTON, D. C., Sept. 29.—The Office of the Supervising Architect of the Treasury Department has mailed a circular letter to all parties concerned in the settlement of war conditions claims. The letter promulgates regulations under which claims will be received and considered by the Secretary of the Treasury pursuant to the provisions of the act of Congress approved Aug. 25, 1919, entitled "An Act for the Relief of Contractors and Subcontractors for Post Offices and other buildings and work under the supervision of the Treasury Department and for other purposes".

While fixing the time limit for filing claims at a date three months from Aug. 25, the Secretary points out that no appropriation is yet available. Further Congressional action must be had before claims can be paid. Claimants must show that the losses sustained in the fulfillment of their contracts resulted from war conditions alone. Subcontractors may submit their claims directly through the contractors. This also applies to material men.

The beneficiaries under the act are limited to (1) Contractors for the construction, improvement, special repair, equipment, or furnishing of post offices and other buildings or work under the supervision of the Treasury Department (as well as the United States Courthouse in the District of Columbia, and the approaches and retaining wall to the Lincoln Memorial in the District of Columbia), whose contracts were awarded or whose bids were mailed or delivered to the proper governmental authority prior to April 6, 1917, and whose contracts were completed after that date; but claims must be only upon work performed after April 6, 1917.

(2) Subcontractors under the class of contractors described above who performed work for or supplied materials to said contractors after April 6, 1917, at prices quoted to and accepted by such contractors prior to that date.

(3) Materialmen who furnished materials for work of the character described above after April 6, 1917, at prices quoted to and accepted by the contractors or subcontractors prior to that date.

(4) Sureties on bonds of contractors referred to above that completed work of defaulting contractors after April 6, 1917, whose contracts were awarded prior to that date; or that furnished financial assistance to failing contractors after April 6, 1917, for completion of their contracts that were awarded prior to that date.

Claims submitted under this act must be for loss (exclusive of any and all profits) due directly to increased costs arising after April 6, 1917, due, either—

(1) To increased costs of labor or materials;

(2) To delay on account of the action of the United States Priority Board or other governmental activities; and,

(3) To commandeering by the United States Government of plants or materials.

THE AMERICAN ARCHITECT

New War on Landlords

It is stated in the *Brooklyn Eagle* that more strenuous methods for the prosecution of rent profiteers in cases where no statutory provision may be invoked to prevent the charging of extortionate rents, are to be adopted by the Mayor's Committee on Rent Profiteering.

The new system will involve the Mayor, the Municipal Court Justices, the Corporation Counsel, the Police Department, the Board of Aldermen and the Tenement House Department, each in an auxiliary capacity.

The procedure in cases of dispute between landlord and tenant will be to fix a fair rental guaranteeing the landlord an adequate income on the property. If the tenant is willing to pay this, but if the landlord insists upon dispossessing the tenant, the committee will request the City Marshal who has been asked to execute the warrant to desist from doing so. If he refuses, the Mayor will revoke his license.

Photographs Wanted

The Library of Congress at Washington is desirous of obtaining for its permanent collection photographs of works by American painters and sculptors, architects and craftsmen. Some such photographs reach the print division through the operation of the copyright law, not many, and some of the best are not copyrighted. The Library desires to keep as complete a pictorial record as possible of the work of American artists as a matter of historical record and for purposes of reference, and to this end solicits and will greatly appreciate the co-operation of the artists. Photographs so sent should be addressed to the print division, Library of Congress, Washington, D. C.

Personal

Paul A. Needham, formerly of Los Angeles, is now located in Berkeley.

Richard V. Gough, architect of Seattle, has decided to locate at Okanogan, Wash.

Otto Janssen is now located at Phoenix, Ariz. He will appreciate catalogues and price lists of building materials.

S. R. Fetner, architect, Westbrook Building, Albany, Ga., desires to receive manufacturers' catalogues and samples.

E. Francis Williams, architect, has moved from 435 Chamber of Commerce Building, Portland, Ore., to suite 1031 in the same building.

George W. Harding, former Los Angeles engineer, is now associated with Mr. Albert J. Mazurette of Modesto, as architectural engineer.

John Galen Howard, who recently returned from France, has moved his architectural office from 604 Mission street to the First National Bank Building, San Francisco.

Lester H. Hibbard, who closed his architectural offices to engage in war work, has returned to Los Angeles and reopened offices at 632 Metropolitan Building, Los Angeles.

Robert D. Farquhar has returned to Los Angeles and will again establish his offices and resume the practice of architecture. Mr. Farquhar entered the Red Cross service during the war.

Edward A. Miller, Pacific Coast architect, who has for the past eleven years conducted most of his business from his residence in Portland, has opened offices at 518 Henry Building, in that city.

Lieut. Charles H. Biggar, architect; who served with the U. S. Engineers overseas, has returned to Bakersfield, Cal., and will resume the practice of his profession, associated with Mr. Thomas B. Wiseman.

Mel I. Schwartz, formerly member of the firm of Heiman & Schwartz, architects has returned from France and resumed the practice of architecture, with offices in the Nevada Bank Building, San Francisco.

Walter Parker, formerly of Parker & Kenyon, architects, has returned to San Francisco after nearly two years in the service. He is temporarily in charge of the drafting force in the office of Mr. Frederick H. Meyer.

Albert R. Walker and P. A. Eisen have formed a partnership and will maintain architectural offices in suite 1402-1404 Hibernian Building, Los Angeles. Mr. Walker has been engaged in architectural practice in Los Angeles for the past ten years.

Partnership heretofore existing between Mr. H. B. Douglas and Mr. Fay R. Spangler, architects of King City, has been dissolved. Mr. Spangler has opened offices for the practice of his profession in the Jones Building, Santa Maria, and will be pleased to receive literature and samples from the building material houses.

Governor Louis F. Hart of Washington has appointed as members of the State Board of Examiners to administer the new architects' license law, Mr. Louis Baeder, secretary of the Washington State Chapter of the American Institute of Architects; Mr. A. Warren Gould, both of Seattle; and Mr. A. J. Russell of Tacoma. The law was passed by the last Washington legislature.

Licenses to practice architecture have been issued by the State Board of Architecture (Southern California Division) to the following: Messrs. Edward B. Rust, 520 Black Building, Los Angeles; Clarence E. Noerenberg, 1751 Buckingham road, Los Angeles; Clark Phillips, 3110 East Fifth avenue, Long Beach; James H. Hoose, 2105 Twenty-third street, Bakersfield; and Clarence Lee Jay, 1520 Burchett street, Glendale.

Eleven sets of plans for the proposed new court house, auditorium and museum to be erected by Santa Barbara county as a war memorial were submitted in a competition conducted in accordance with the rules of the American Institute of Architects. Four prizes were offered, the first being awarded to Edgar A. Mathews of San Francisco, the second to Wm. Mooser and Horace G. Simpson of San Francisco, the third to Bliss & Faville of San Francisco, and the fourth to F. E. Brewster of Santa Barbara.

Oregon Board of Architect Examiners has awarded certificates as follows: Messrs. Geo. M. Post, Portland; W. C. Knighton, Portland; J. E. Wicks, Astoria; W. G. Chandler, Marshfield; M. H. Whitehouse, Portland; Lee A. Thomas, Bend; D. L. Williams, Portland; E. F. Lawrence, Portland; L. L. Dougan, Portland; W. M. Whidden, Portland; Fred T. Webber, Portland; C. A. Houghtaling, Portland; W. F. Tobey, Portland; Ione Lewis, Portland; E. F. Williams, Portland; H. C. Whitney, Portland; John V. Bennes, Portland; A. Sutton, Portland; Edw. A. Miller, Portland; Chas. D. James, Portland; Edgar M. Lazarus, Portland; Fred S. Allyn, Portland; O. R. Bean, Portland; L. H. Hoffman, Portland; Ernest A. Kroner, Portland; Edmund Bergholtz, Portland; A. H. Smith, Portland; C. L. Goodrich, Portland; Folger Johnson, Portland; F. Manson White, Portland; Emil Schacht, Portland; Jos. Jacobberger, Portland; R. R. Bartlett, Astoria; R. W. Hatch, Pendleton; A. C. Jenkins, Albany; John W. Wilson, Portland; Floyd Archibald Naramore, Seattle.

THE AMERICAN ARCHITECT

The Solvency of the Allies

That the present resources and producing power of the four principal European Allies are ample to enable them not only to meet all war obligations, but regain their normal position in the world's business as well, is brought forth in an illustrated booklet, "The Solvency of the Allies," a comprehensive survey of European financial conditions just sent out by the Guaranty Trust Company of New York. The booklet presents an impartial analysis of the war debts—internal and external—of Great Britain, France, Belgium and Italy; an especially vital subject in this country, since our own Government is the largest creditor of the Allies.

In introduction the booklet says in part:

"The larger portion of the war debt of the Allies is internal. The ability to meet an internal debt is purely a fiscal problem, because there are no additions or subtractions to the national wealth and the payment of interest on the debt implies the taxation of the people as a whole, interest being paid to present holders of the bonds; which effects only a partial redistribution of the national wealth.

"The problem of meeting external debts is of vital significance to the national wealth of the country. It means the actual shipping out of products, and does not add to the wealth of the country. However, during the period of war finance the creation of an external debt is of material benefit, because it increases the power of a warring nation to obtain supplies of materials produced by other peoples, thereby adding to its war-making power. This is a burden rightly to be borne by future generations."

In closing, the booklet sets forth America's obligations in the reconstruction of Europe, saying:

"America stands in a position of peculiar responsibility respecting the work of reconstruction in Europe. The situation there, without reference to our national interests, as involved in the recent war, calls for America's help. We have a great fund of loanable wealth, and Europe has need of the credits and materials which we can supply. Our productive equipment is much greater than before the war, and its proper utilization will involve a distinct recognition of the present needs of the peoples who sacrificed more than we in winning the common victory.

"Stupendous as are Europe's financial burdens, titanic as are its economic tasks, one of its paramount problems is essentially psychological. In order to recover rapidly from the effects of the war, Europe needs, quite as urgently as it requires machinery and raw materials, a revival of *industrial will-power*. We should remember that, in the final analysis, the products of the mines, fields and factories won the war and that they alone can win the greater victory of peace. It is for the purpose of enabling Europe to obtain sufficient quantities of these vital products and to regain her industrial will-power that we must do our full duty in the present world crisis.

"The United States is abundantly equipped to perform its proper function in the peace era. This country produces 20 per cent of the world's supply of gold; 25 per cent of the world's supply of wheat; 40 per cent of the world's iron and steel; 40 per cent of the world's silver; 50 per cent of the world's zinc; 52 per cent of the world's aluminum; 60 per cent of the world's cotton; 66 per cent of the world's supply of oil, and 75 per cent of the world's corn. This country refines 80 per cent of the world's copper, and operates 40 per cent of the world's railroads.

"But most valuable of all, the stimulus which the dire necessities of war supplied to American inventiveness, resourcefulness, productiveness, courage and spirit of

adventure, constitutes a national asset which not only transcends the bounds of material computation, but challenges the boldest imagination. In brief, American genius, efficiency and common sense must aid our gallant Allies in achieving the still greater victory of peace."

News From Various Sources

Announced that an all-American exposition for purpose of promoting closer relationship between all racial strains composing citizenship of U. S. is to be held in Chicago, beginning Aug. 30, continuing until Sept. 14.

General March, chief of staff, in outlining the War Department's bill for reorganization of department before House Military Affairs Committee, indorsed universal military training and its enforcement so as not to interfere with education or work of young men eligible for service.

It is announced from Brussels that Belgium will proceed at once to the electrification of the principal railroads, in accordance with a decision recently taken by the commission having charge of the matter. The first electric line will be from Brussels to Antwerp and will cost 15,000,000 francs.

According to dispatch from Sec.-Mgr. of National Lumber Manufacturers' Association to the Phila. *Public Ledger*, with the addition of the present growth of new timber at annual rate of approximately 20,000,000,000 ft., there is now standing in U. S. enough timber to secure a supply of raw material for lumber industry for more than 150 years.

Twenty governors at recent Conference of Governors at Salt Lake City expressed willingness to sign individually, but not as Governors' Conference, a resolution prepared by Gov. Allen of Kansas, directed to Congress, asking that Fed. Gov't make an additional appropriation of \$400,000,000 for building of roads, to be expended by States within next five years.

Dispatch from Reading, Pa., to Philadelphia *Public Ledger*, Aug. 25, states that a company to demonstrate what incorporating a farm and running it like a corporation on shares, declaring dividends and doing business like a manufacturing concern, can do, has been organized there and will apply on Sept. 4 for a State charter, with a capital stock of \$25,000.

The War Department has decided to send a detachment of soldiers, made up of men who have been receiving instruction and training at Recruit Educational Center, Camp Upton, on recruiting tour intended, among other things, to stimulate recruiting of illiterate and non-English-speaking men by actually showing prospective applicants what has been and what is being accomplished in given time.

Wall Street Journal states that because officials of Columbia Graphophone Mfg. Co., despite liberal attitude toward employees in past, have been unable to induce their hands to return to work, it has been decided to remove operations from Bridgeport to another city. Company's three plants employed 6,100 men and women, or approximately 25 per cent of all people working in city. Annual payroll at plants was \$8,000,000.

Financial and Commercial Digest

As Affecting the Practice of Architecture

Conference Advocates All Efforts to Increase Production

At the "Our Country First Conference," held recently in Chicago, the meeting concluded its deliberations by passing resolutions setting forth its views on the economic problems of the day. The resolutions throughout express the opposition of the meeting to all socialistic and bolshevistic theories. The conference recommends increased production and a return to the letter and spirit of the constitution as remedies for our present problems. They demand the maintenance and protection of private property and the early reduction of the Government's activities affecting business to the smallest scope. They urge that employees and employers individually and by their duly instituted organizations pledge themselves to exert every reasonable effort for the elimination of disturbances tending to interrupt production, and for the speedy return of all industry to a normal basis. It was declared that every attempt to fix prices has been a failure and that experience shows this is a dangerous field for the Government to enter. They assert that adequate and efficient production is the basis of social well-being and progress for the individual and the community and that it is the duty of the wage-payer, the wage-earner and the general public to exert every reasonable effort for improving and increasing the quantity and quality of production. The session condemned Government ownership generally.

Referring to the question of strikes, the resolutions set forth that while the individual worker and his employer should be free to cease the individual employment relation provided no contractual obligation is violated, nevertheless employee and employer in Government and public utility services where the public service is paramount should be restrained by law from instituting by concerted action a strike or lockout, and instead effective machinery should be established in such services for prompt and fair hearing of any requests, difference or disputes touching upon the employment relation, and for adequate redress of any grievances proved to be justified.

Production Primary Need of World to Strengthen Industrial Stability

Developments of the past fortnight which have indicated a growing industrial stability in Europe are summed up in a review of foreign trade conditions issued by the Guaranty Trust Company of New York. The review, which gives in detail some of the commercial and industrial happenings in the most important countries of the world, says in part:

"Continued weakness in the foreign exchange rates prevailing in New York has served to increase the burden under which the exporter is laboring at the present time. Although the Edge Bill as amended has passed the United States Senate, it has yet to be acted upon in the other House. None of the general schemes for 'financing Europe' having yet received the complete sup-

port necessary for bringing it to complete fruition, the situation, generally speaking, remains unchanged. Until the Government has decided what form its cooperation with industry and finance shall take, conditions cannot be expected to show sudden or far-reaching improvement.

"The credit side of the account, however, is not by any means a blank. Though exports have undoubtedly fallen off, the demand is still strong and insistent, and the slow but steady increase in imports is itself a sign of that strength in Europe which must be antecedent to any final adjustment. The industrial situation in England, France and Italy, if increasing production can be called a criterion, is decidedly better than it was several months ago. The exports of Great Britain, not to the United States alone, but to all markets which were accustomed to look to England for supplies, show a definite upward tendency. None but the most pessimistic can fail to see in such a turn of affairs a gradual shaking off of the post-war lethargy which for a while had the workers of many countries in its grip. It can only mean that workers have begun to see the force of the arguments which have pointed out that production is the primary need of the world."

Chicago Contractors Organize to Promote Closer Co-operation

CHICAGO, ILL., Sept. 27.—Two hundred contractors from thirty-two cities, meeting in this city today, organized the National Association of Building Trades Employers, the purpose of which is to be closer co-operation in the matter of dealing with the demands of union labor. Frederick G. Webber of New York City presided. W. F. Hennessy of Cleveland made public a statement in which he said it is imperative that the building trades employers organize for self protection.

A constitution and by-laws were adopted, and it was the sense of the meeting that all local associations of building trade employers in the large cities become affiliated with the national body. It also was decided to organize the employers in the smaller cities. The committee on organization is composed of the following: Charles J. Kelly, New York City; E. M. Craig, Chicago; D. T. Riddle, Pittsburgh; J. D. Stoddard, Detroit; C. C. Pierson, Indianapolis, and Charles F. Waltz, Cincinnati.

Brick Industry Report Filed

A report on the brick and tile industries for 1918, prepared by the State Geologist of the New Jersey State Department of Conservation and Development, working in co-operation with the United States Geological Survey, shows a total production valued at \$8,197,962, which is \$1,795,407 less than the previous year. This falling off was due largely to a decreased demand for building materials and partly because of the curtailment of fuel imposed on clay-working industries by the Fuel Administration on April 13, 1918.

Legislation Is Needed at Once to Make Funds Available for Construction on a Wider Scale

By F. T. MILLER

LONG-TERM loan banking, experience has shown, cannot be safely conducted by institutions whose customers' deposits are subject to immediate call.

Generally speaking, long-term investment credits, real estate loans, etc., are therefore dealt in by trust companies, savings banks, insurance companies, etc., while short-term or commercial credits are supplied by banking institutions which carry customers' deposits subject to check.

The uncertainty incident to the reconstruction period, the Federal Reserve Act, the larger profits incidental to speculative investments and other influences have recently favored the growth of short-loan banking.

Much of the money which has been collected through war savings stamps, postal savings, income taxes and the sale of Government bonds, as well as from the sale of foreign securities, has been deposited in the banks and other institutions throughout the country.

John Skelton Williams, Controller of the Currency, is reported to have announced that the national bank deposits on June 30, 1919, exceeded by twenty-one million dollars the highest mark ever recorded, aggregating fifteen billion nine hundred and twenty-five million dollars, and that capital, surplus and profits of the national banks on June 30, 1919, amounted to two billion, three hundred and sixty-three million dollars, the highest figure yet reached, being an increase of 4.8 per cent over the corresponding figure of June 30, 1918.

Trust companies and other banking institutions which formerly carried long-term credits are becoming members of the Federal Reserve System.

Senate Bill 2472, introduced by Senator Edge of New Jersey, which was favorably reported on July 25, provides for Federal Reserve accommodations through the agency of member banks to corporations which are to be exclusively engaged in foreign business and which are to be empowered to "lend money on real or personal security." This may mean that in order to allow these corporations to compete with institutions abroad, the funds subscribed in the United States, as well as certain Federal Reserve accommodations, are made available for foreign real estate loans, thus, by a degree at least, making less money available for domestic real estate loans.

The use of continually accumulating funds for short-term credits may have been a factor in maintaining inflation, and even in facilitating speculation, at a time when the absorption of funds into loans based on land and construction might have healthfully retarded circulation and created permanent wealth.

From 1913 to 1918 the total loans and discounts of banks in the United States increased 54 per cent; individual bank

deposits increased 59 per cent; stocks and bonds owned by banks and insurance companies increased 68 per cent, and savings are estimated to have increased 200 per cent; while during the same period the combined real estate loans of banks, insurance companies and building and loan associations increased only 28 per cent, viz., from six billion, one hundred and seventy million to seven billion, eight hundred and ninety million.

The average amount of money loaned annually on mortgages in Manhattan, the Bronx and Brooklyn during the

ten-year period from 1905 to 1914, inclusive, was four hundred and seventy-two million. The average annual amount of mortgage loans from January 1, 1915, to February 1, 1919, was one hundred and eighty-nine million, a decrease of 60 per cent.

The request of the Lockwood Joint Committee of New York for Federal

legislation, the report of the committee of the Merchants' Association of New York and reports of committees of other governmental and civic bodies which have made special studies of the statistics of money available for building loans, indicate a widespread opinion that the supply of money for long-term credits and real estate loans has been decreasing during a period of the Nation's greatest need for permanent structures and improved tools of industry to supplement the shortage and inefficiency of labor, to increase general production and thus to lower prices.

Income taxes have so decreased the net returns from investments in mortgages that individual investors have sought securities of a more speculative character.

To partially overcome these tendencies and to make available a more ample supply of money for building purposes, Senator William M. Calder of New York has introduced Senate Bill 2094, providing for exemption from taxation of the income on mortgages on real estate, the principal of which, when held by any individual, does not exceed \$40,000.

With the same purpose in view, Representative James C. McLaughlin of Michigan has introduced House Bill 8080, adding a new Section (No. 9) to the Revenue Act of 1918, providing that:

"The amount received by an individual as interest on an aggregate principal, not to exceed \$40,000, of loans secured under mortgage or otherwise solely by real estate, and bearing interest not to exceed five per cent per annum, shall be exempted from taxation under the provisions of the Income Tax Law."

It is the belief of the proponents of these measures that the taxation yielded by the permanent wealth created through the use of such loans will more than offset the

WE should be creating new values, rather than concerning ourselves with the division of values already created. Whether this division be through barter, speculation or wage adjustment, it is dividing—not creating.

Land and industrial development, the bases of production, were held in abeyance during the war.

Legislative enactments are now necessary for their resumption. The enactment of Senate Bill 2094 or House Bill 8080 would be immediately effective.

Serious consideration must be given to a modern banking system to supply long-term credits.

—(Extracts from Mr. Miller's Remarks.)

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amount of the income tax exempted and that through such investments the general productive capacity of the Nation will be increased. The proponents of these bills hold that inasmuch as a national shortage of building construction and of money available for it has been brought about through Government measures, the remedy should come through the same channel. They also hold the measures proposed will bring immediate results throughout the Nation without the creation of administrative machinery.

Senator Calder of New York has also introduced Senate Bill 1469, and Congressman Nolan of California has introduced House Bill 7597, the purpose of both of which is to license building and loan associations to rediscount through bond issues, in order that they may make loans to intending home-owners, the mortgages which the building and loan associations now have on hand to the extent of about two billion dollars.

These bills aim to extend to the home-owner aid similar to that which the Farm Loan bill already furnishes to the farmer; but unlike the Farm Loan bill, these bills do not extend Government financial aid, as the building and loan associations already have ample assets. The problem of the building and loan associations is simply to make their assets more liquid. At present they can but loan the moneys as collected in weekly installments from the members.

While these bills do not involve the lending of money by the Government, they do contemplate Governmental supervision necessary to insure financial soundness of operations and, therefore, investment attractiveness of the securities issued.

The system of local supervision and of continued amor-

tization as practiced by the building and loan associations throughout the country has merited universal commendation. Loss in these institutions is practically unknown, although their combined operations aggregate over a billion dollars annually. It is said that these operations have been carried on at an expense of less than seven-eighths of one per cent.

Should these measures be enacted, the funds thus made available for small real estate mortgages would relieve the small home-owner, who is now quite unable to secure accommodation, from the embarrassment of continued renewals and from the expense of commissions and bonuses, and would allow him, in peace of mind, to gradually acquire his home through monthly payments little in excess of current rent charges.

Those intimately familiar with long-term investment credits and real estate mortgages loans are naturally the first to foresee the consequences of the gradual diversion of funds from the channels which have contributed to the permanent upbuilding of the country, and they urge that this matter is of sufficiently immediate national importance to warrant the appointment of a sub-committee of the Committee on Banking and Currency of the Senate, to be assigned to investigate the causes and study the consequences of the increasing shortage of money available for long-term loans secured by land and permanent improvements and to devise appropriate remedies.

It is essential that there may be made available a modern system of banking for long-term investment credits, complementing, but in no way interfering with, the Federal Reserve System, so that the nation's wealth may be more completely mobilized to the nation's advantage, both in times of peace and in times of emergency.

Late Building Material Reports

(From Our Special Correspondents)

Architects Await End of Chicago Building Trades Lockout

CHICAGO, ILL., Aug. 29.—Indications are that the union carpenters will vote to hold out for \$1.00 an hour and that the strike which has resulted in tying up building for more than two months will continue in force. The returns from five locals of the union in the referendum vote show a practically unanimous sentiment in favor of continuing the controversy. The local building material yards still are closed and refusing to sell materials to independent contractors. The dealers refuse at this time to make known what action they will take if the carpenters vote against returning to work pending settlement of the wage question by an umpire or commission.

Architects in this city report that construction work aggregating millions of dollars is now ready in the planning and they predict immediate resumption of activities at such time as the building trades strike and lockout is settled. One architect says he has plans for industrial and apartment buildings aggregating \$5,000,000 in cost, the work on which will go ahead the moment the wage controversy is settled. It is generally predicted that should

the strike continue until late in the season there will be a large amount of winter work because of the demand for small homes, flat buildings and factory structures.

It is only in Chicago and Cook County that the building strike is affecting business. All lines report continued strong demand for lumber and all building material from the outside consuming districts. Prices are holding firm and the general complaint is the inability of the wholesalers and dealers to replenish depleted stocks.

Car Shortages Interfere with Lumber Shipments from Northwest

Car shortage continues to interfere seriously with lumber shipments in the Northwest. The industry in Oregon and Washington, west of the Cascades, is receiving slightly better than 40 per cent of its normal car requirements. The situation has been serious for more than a month, and with the season's grain crop about to move is likely to get worse before it gets better.

For Building Material Price Table see page 470-A

Department of Architectural Engineering



Water side view of the Jackson Park Bathing Pavilion, Chicago, taken from the high diving platform. Planned and constructed under the supervision of the engineering forces of the South Park Commissioners.

Chicago Municipal Improvements

The Bathing Pavilion at Jackson Park—Part I

AMERICANS take great pride in the development of our natural resources along the lines of industrial production, and in new countries this is necessary in order to acquire wealth. With the accumulation of wealth due to industrial growth and the increment in the value of lands and natural resources has come the desire, in many communities, to develop other natural resources for the betterment of the living conditions of the citizens. These betterments are now considered as necessities in many of the newer parts of the country and public funds are liberally expended in keeping with the increasing values of lands and the returns of commercial efforts for such improvements.

The idea that cities should strive to make themselves fit places in which to live is more pronounced in Central and Western States than in the older eastern communities. This may be due to the competitive efforts of the first mentioned cities to hasten an increase in population. This idea is made manifest in the provision for public parks on a scale that will require several generations to develop but which add to the value of the community.

The improvement and use of water-fronts on lakes and rivers, for the benefit of the public, is a recent feature of the development of natural resources. Bathing beaches have been improved by private or commercial interests in many parts of the country and not, as a rule, for the free use of

the public. Such improvements are, generally, very cheaply and economically made. It has been the good fortune of the City of Chicago to develop its bathing beaches in a very substantial manner and with the expenditure of large sums of money. A substantial start has been made which gives promise of future developments which will eventually cause the shores of Lake Michigan to possess the finest bathing beaches in this country. Being operated for the free use of the people, the benefits accrue to those most in need of them and tend to raise the general plane of living conditions above that of less progressive communities having like natural resources but which remain undeveloped.

An extensive bathing beach improvement was completed at Jackson Park, Chicago, and opened for public use in June, 1919. This work was started in the fall of 1917 and its final completion was to have been late in 1918. Inability to secure certain materials of construction, due to wartime restrictions, caused the delay of completion until the early summer of 1919. This beach is located in the southern half of the middle third of the park frontage on Lake Michigan and faces the North-east, having a length of 800 feet.

It was necessary to construct the beach by pumping sand from the floor of the lake in front of and at either side of the beach. A very careful study of the probable effect of storms on the

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View in women's section looking toward the only exit to the beach. Dressing rooms and lockers at the right; service and store rooms to the left. Persons on upper promenade prevented from observing this section by the concrete parapet walls.

sand filling was made and the contour of the beach finally decided upon. There is every indication that the design was properly made, as the condition of the beach is gradually approaching the expected result. Breakwaters at the north, east and south of the beach afford protection from the full force of the storms. Although there are no tides to contend with there are frequent, almost daily fluctuations of water level of about one foot, due to the direction of the wind and other contributing causes. So-called tidal waves occur very frequently, causing a change of water level of as much as 4 feet, due to wind and radical changes in atmospheric pressure which had to be taken into consideration.

The water side of the bathing pavilion has a frontage of 461 feet, and from each end a wire fence extends to the 800 ft. long water line. The distance from the pavilion to the water line is about 275 ft. at the center of the pavilion. The drop in the beach from the pavilion to the water line is 7 ft. 6 in. The fence prevents access to the beach except to persons who pass through the pavilion. In this way control of the bathers is maintained at all times.

The water area is enclosed by posts and a life rope. This area is Tee shaped with a length of 800 feet and an average width of 175 feet. The central portion or stem is 400 ft. long from the water line and is 250 ft. wide, giving a total area of

about 202,500 sq. ft. A maximum water depth of 10 ft. is usually obtained at the high diving platform.

At night the water area is lighted by powerful electric light projectors placed at the top of two steel towers, one at each end of the beach. The sand beach area is lighted by electric lamps attached to four posts located in front of the pavilion.

The pavilion itself has a length of 461 ft. and a width of 147 ft., and consists principally of two enclosed yards or courts; one for men and boys, the other for women and girls. In these yards are placed the lockers and dressing rooms. These are protected by umbrella sheds and between them are gutters and drains to carry off the storm water and the water brought in by the bathers.

There are no dressing rooms provided for the men and boys. The lockers are placed in double rows and in front of these are placed fixed stools about 4 ft. on centers. In the women's section dressing rooms are provided which are 4 ft. by 4 ft. in size and placed in double rows. In front of these are placed the lockers arranged as in the men's section.

These dressing rooms are made of concrete walls, the tops of which are 6 ft. above the floor level. The bottoms of the transverse division walls are 6 in. above the floor level. The longitudinal walls extend to and rest on the floor. It has been found that 1½ in. solid plaster walls are not dense enough to serve satisfactorily and in this case a very

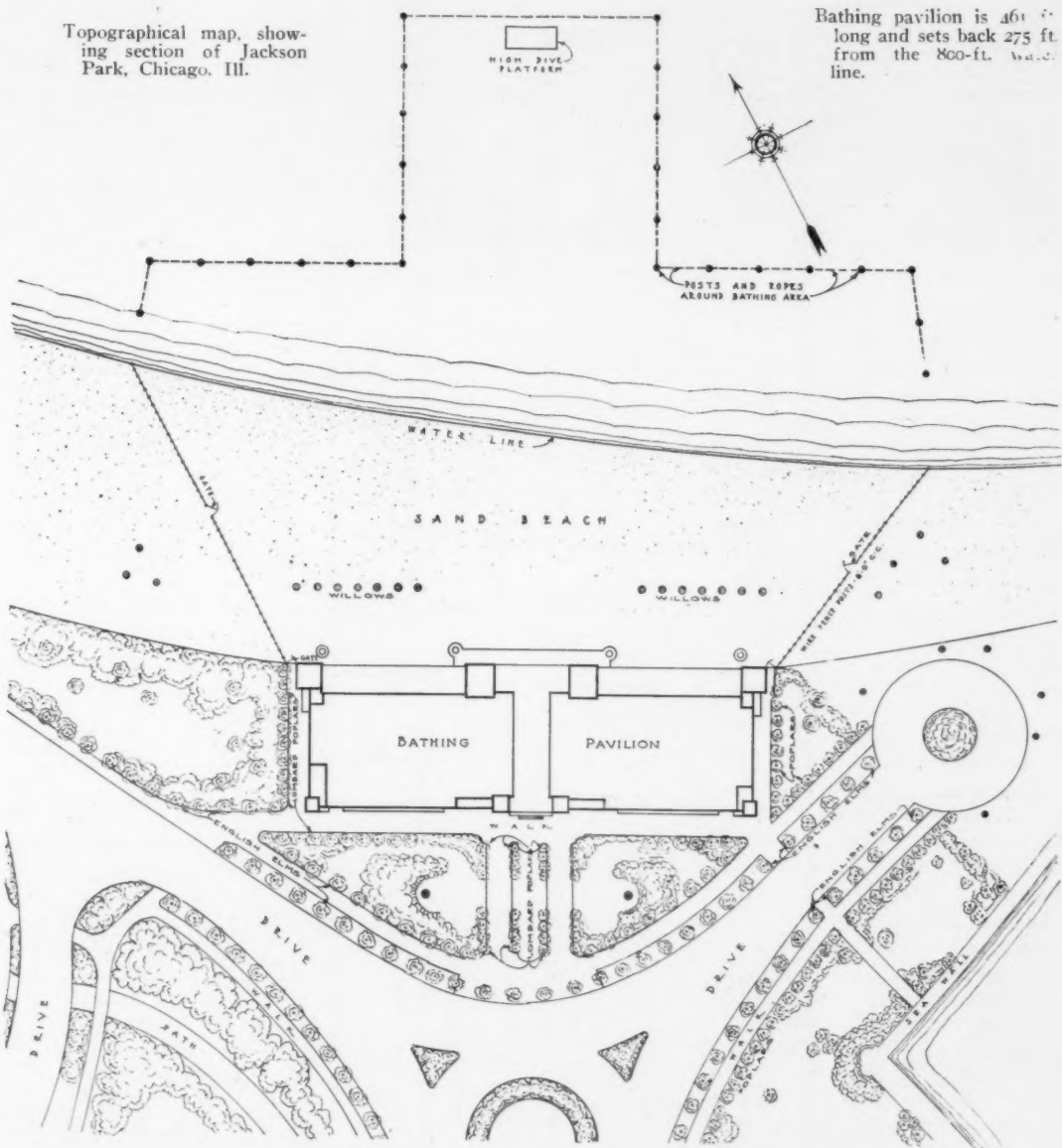


View on the upper open promenade toward the central covered pavilion. Beach to the right; women's section with dressing rooms and lockers at the left, back of, and below the concrete parapet wall. Promenade not accessible to bathers and for the use of non-bathers only.

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dense $1\frac{1}{2}$ in. reinforced slab was cast. These slabs were placed in an upright position about the $1\frac{1}{2}$ in. gas pipe posts and the slab reinforcing attached

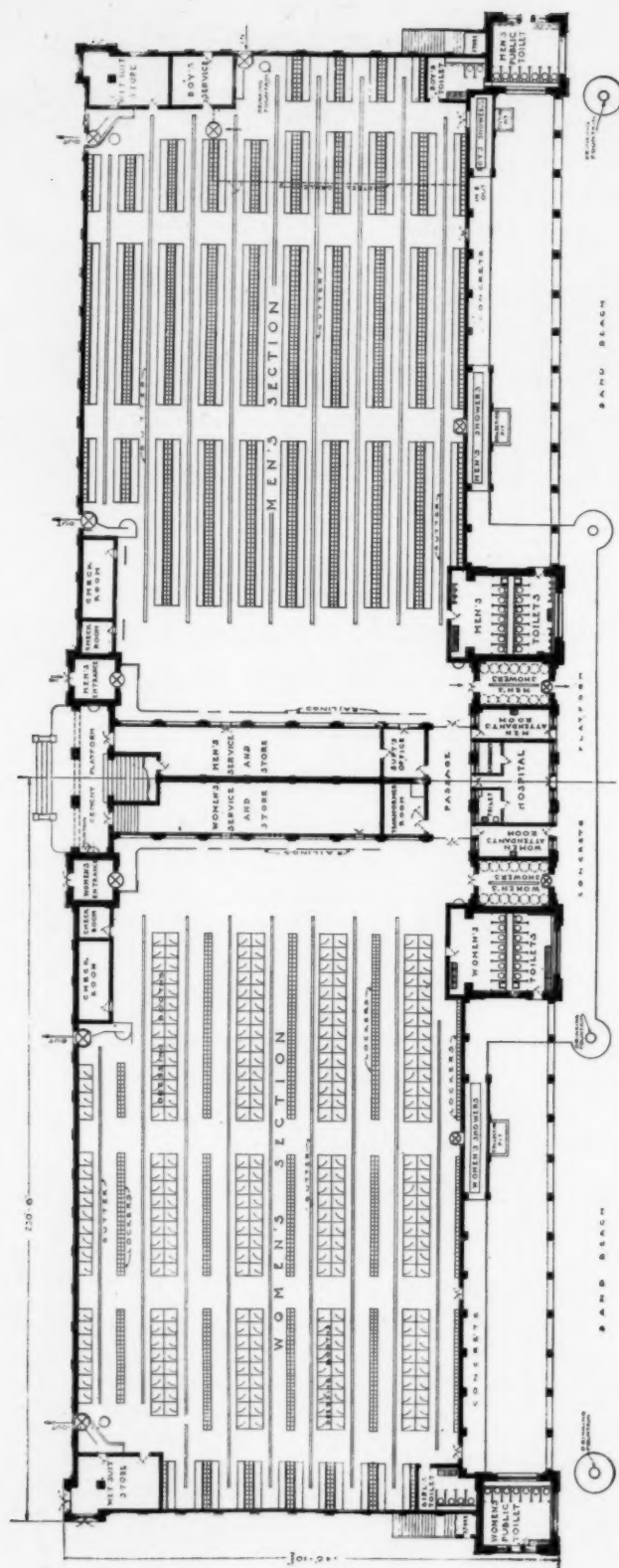
Two seats, constructed of wood, are provided for each compartment and a 5 ft. high wooden door is also provided.



thereto by wires. Concrete was then poured about the column, embedding the ends of the slabs, as shown in the detail. This has proven itself to be a very serviceable and satisfactory construction.

The parkside and ends of these yards or courts are enclosed with concrete walls which extend 8 ft. above the exterior grade and 10 ft. above the interior grade. The lower portion of these walls is 12 in.

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GROUND FLOOR PLAN, JACKSON PARK BATHING PAVILION, CHICAGO, ILL.
 PLANNED AND CONSTRUCTED UNDER THE SUPERVISION OF THE ENGINEERING FORCES OF THE SOUTH PARK COMMISSIONERS.

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thick and the upper portion is $10\frac{1}{2}$ in. thick, paneled on the exterior face and finished with a moulded coping. At intervals of about 11 ft. there are posts or pilasters. These project 4 in. beyond the face of the wall. They were cast in position with a rebate on each end to receive the wall panels which

were cast in position later to provide an expansion joint as will be shown in the detail.

Between the men's and women's sections are the service and storerooms, and on top of these there is provided a covered promenade

(To be continued)



Parkside view of the Jackson Park Bathing Pavilion, Chicago. The planting is new and undeveloped. The women's section at the right and men's section at the left are enclosed by a concrete wall.

The Nelson Form of Estimating Competition*

Rules and Methods of Procedure for Private Construction Work

1. SELECTING BIDDERS FOR PRIVATE WORK

If the buyer of the work to be figured upon is acting as a private individual, then he may choose his own method for selecting bidders, and he may select as many or as few as he may choose, or wishes to compensate.

2. AWARDED THE CONTRACT

If the buyer be a private owner, he, his architect, his engineer or other form of representative, shall reserve the right to make contract with any bidder he may choose, provided, however, that he shall fully compensate all invited bidders in accordance with Clause 3.

3. PAYING FOR THE COMPETITION

Paying for the competition in connection with work of a private character shall be done exactly as provided for in connection with public work and as shown and set forth under Clause 11, public work.

CLAUSE 11. PAYING FOR THE COMPETITION, PUBLIC WORK

After all bids have been received and opened, the buyer shall within ten days (whether or not contract has been awarded) pay to each and all bidders (who have bid in strict accordance and complied with all of the demands contained in the

plans and specifications and all forms accompanying same and whose bids do not exceed by more than 25 per cent the amount of the bid upon which the contract is awarded, or the lowest legitimate bid if contract is not awarded) in United States lawful money or equivalent a sum equal to the square root of the average of all bids received multiplied by .7 substantially as shown in table (Exhibit A), thus: If the average of all bids received shall be \$90,000.00, the square root of which is \$300, multiply \$300 by .7, which equals \$210, the amount which shall be paid to each competing bidder in payment for the labor and expense involved in estimating and as a complete waiver of all obligations. In considering the amount of each bid, the total bid, including the sums of all alternate estimates asked for by the buyer, whether they be additions or subtractions, shall be considered, and the amount to be paid the bidder shall be reckoned thereon as well as upon the total bid; as, for example, if the bidder is requested to estimate upon a brick building with alternate estimate upon stone and another alternate estimate upon frame construction, then, assuming that the bidder's figure is \$20,000 upon the brick building, \$30,000 upon the stone, and \$15,000 upon the frame building, then the sum total, or \$65,000, shall be used in determining the sum to be paid the bidder. Should certain bidders refuse or neglect to figure or bid upon alternates, they shall be paid upon the basis of their actual bids only.

*A general outline of the Nelson plan and argument in favor of its adoption was presented in the Sept. 24 issue of the American Architect. The method of application is here given.

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A certificate of payment shall upon request be given to each bidder, properly filled in, signed and sworn to by the buyer before a qualified notary public, setting forth that the competition has been conducted in accordance with this form, and that the amount credited or paid to the bidder has been reckoned and computed in strict accordance with this, the "Nelson Form of Choosing Bidders and Awarding Contracts," its true intent and meaning.

THE SUB-CONTRACTOR AND THE MATERIAL MAN

In putting this plan into actual operation, the Quad City Builders' Exchange, including the Master Builders of Davenport, Iowa, Rock Island, Moline, and East Moline, Illinois, adopted the following regulations applying to sub-contractors and material men:

* * * * *

SECOND—That this body shall recommend the following minimum factors as a basis for compensating bidders in accordance with the Nelson Form:

FACTOR	
General Building Contractors	.5 or 50% of the square root of the average of all bids.
Sub-contractors and other Principal Contractors	.2 or 20% of the square root of the average of all bids.

THIRD—That the above factors shall be used

when bids are given to owners, their representatives, or to other contractors when such other contractors are not in competition.

FOURTH—When one contractor, however, renders a bid to another contractor who is in competition, it is arbitrarily assumed that the contractor giving the bid will, on the average, give four bids on the same work which he will have to figure or estimate only once. Therefore, under such sub-bidding conditions (and only under such conditions), the compensation shall be one-fourth of the regular compensation, or as follows:

FACTOR	
General Building Contractors	.125 or 12½% of the square root of the average of all bids.
Sub-contractors and other Principal Contractors	.05 or 5% of the square root of the average of all bids.

FIFTH—Building material manufacturers or distributors shall not receive compensation for making unit prices on material. For example, if a price is quoted upon 10,000 brick at \$9.00 per thousand, or 5,000 yards of sand at 60 cents per yard, etc., such bidding shall not deserve compensation; but if such bidder is expected to estimate the material required to do the work intended and then guarantee the quantities or capacities to be suf-

EXHIBIT A

Column One	Column Two	Column Three	Column Four	Column Five
Average of All Bids or Estimated Cost of Contract	Approximate square Root of Figures in Column One	†Number of Bidders to be Selected Figure in Column Two Multiplied by .04	*Amount to be Paid Each Bidder Figure in Column Two Multiplied by .7	Total Cost of Competition Figure in Column Three Multiplied by Figure in Column Four
50,000.00	224	9	156.80	1,411.20
60,000.00	245	10	171.50	1,715.00
70,000.00	265	11	185.50	2,040.50
80,000.00	283	11	198.10	2,179.10
90,000.00	300	12	210.00	2,520.00
100,000.00	316	13	221.20	2,875.60

EXPLANATION

†Not less than two. As many more bidders may be selected as the buyer wishes to compensate.

To determine the total number of bidders, estimate the amount of the contract in dollars sufficiently high (Clause 3, Public Work); compute the square root and multiply by .04.

To determine the amount to be paid each bidder, add all bids (including any and all alternate figures asked for and received), divide the sum by the number of bids to get the average, then take the square root and multiply by 0.7. In case of fractions, the next highest whole unit number shall be used. Carefully read Clause 11, "Paying for the Competition."

*The multiplication factor .7 is not set or established. It is the intention of this form that this factor should be determined or established by the seller individually or collectively in the same manner in which he sets the price upon any merchandise or service.

Where it is necessary for the bidder to incur traveling or other incidental expenses it is the intent of this form that he shall receive remuneration for same in addition to regular compensation provided for in Exhibit A. The bidder shall, however, make arrangements with buyer for such special compensation and have same accepted before bidding.

ficient, then he shall be considered in the light of a contractor and receive compensation.

SIXTH—That when the owner, or his representative, furnishes the bidder with guaranteed "Quantity Surveys"—or in other words, with a unit

of material upon which the bidder needs only insert unit prices and is relieved of the necessity of guaranteeing the quantities to be correct—then the amount of such unit list or quantity survey shall be deducted from the amount upon which the bidder is compensated.

Improving Concrete by Rodding

By F. E. GIESECKE *

IN a series of tests made at the University of Texas to determine the physical properties of dense concrete as determined by the relative quantity of cement, described in Bulletin No. 1815, published March 10, 1918, only sufficient mixing water was used to secure a concrete of workable consistency.

For comparison, however, a few specimens were prepared with an excess of water which produced a very considerable reduction in strength as shown in Fig. 8 of that bulletin.

In practical operation it is almost absolutely necessary to use enough excess water to make the concrete sufficiently fluid to be handled in wheelbarrows, carriages, or tubes, and so that it will flow readily into the forms, and between and around the reinforcing steel.

With these facts before us—that an excess of water must be used to place the concrete correctly and economically, and that this excess water materially reduces the strength of the concrete—the question naturally arises what, if anything, can be done to repair the injury to the concrete by the excess water.

To answer this question Mr. G. A. Parkinson, Assistant Testing Engineer, University of Texas, made a number of experiments in the fall and winter of 1917 to determine the effect of removing the excess water from the concrete after the latter had been deposited in the forms.

In these experiments the excess water was removed by forcing a pointed iron rod into the concrete while the latter was still soft; the effect of running such a rod into the concrete is to permit the excess water and the entrapped air to escape upward, and to compact the aggregate as a result the density of the concrete is increased about 4 per cent.

This method of treating concrete has been

named "rodding"; it is quite similar to "spading", but differs materially from "tamping".

The results of Mr. Parkinson's early work were so very satisfactory that an extended series of tests was begun in June, 1918, and this followed by other series of tests, as new phases of this method of treating concrete developed.

Some of these tests are still incomplete; but considerable important data have been secured and the following will be of interest.

Fig. 1 shows graphically the ultimate unit comprehensive strengths of fifty-four 6" x 12" cylinders. The concrete had the following composition:

Material	Percentage
Cement	14.40
Passing 35-mesh sieve	4.35
Passing 12-mesh sieve and retained on 35-mesh sieve	9.00
Passing 1/4-inch sieve and retained on 12-mesh sieve	13.00
Passing 3/4-inch sieve and retained on 1/4-inch sieve	29.50
Passing 1 1/4-inch sieve and retained on 3/4-inch sieve	29.75
	100.00
Water	10.00

The fifty-four cylinders were divided into three groups of eighteen cylinders each. In each group one cylinder was not rodded, the remaining seventeen were rodded from one to seventeen times. In one group a 10-minute interval was allowed between roddings; in another a 20-minute interval, and in the third group a 30-minute interval. The first rodding was applied soon after the moulds were filled, i. e., without waiting for the full interval of time assigned the particular series to pass. By one rodding is to be understood the pushing of a pointed iron rod into the concrete, to the full depth of the concrete, once for every surface

*Professor of Architectural Engineering, University of Texas.

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area of about three square inches, i. e., about ten times for a 6' cylinder.

It is interesting to note:

A. That the maximum strength is about 130 per cent more than that of the unrodded specimens.

B. That all three series acquired their maximum strength when the number of roddings multiplied by the interval between roddings reached about 140.

C. That for the 30-minute interval it required 5 roddings; for the 20-minute interval, 7 roddings, and for the 10-minute interval, 14 roddings to secure the maximum strength.

It is probable that the length of time and the number of roddings necessary to secure the maximum strength vary with the temperature and with the percentage of cement and water.

Fig. 2 shows graphically by the broken lines the average ultimate unit compressive strengths of thirty-six 6 in. x 12 in. cylinders arranged in twelve groups of three cylinders each.

The intermediate group, represented by crosses within circles, was made of concrete having the same composition as that represented in Fig. 1; but the mixing water was 7 per cent for three cylinders, 8 per cent for three, 9 per cent for three, and 10 per cent for three. This concrete contains cement at the rate of about six sacks of cement per cubic yard of concrete.

The two other groups are of similar composition, but the cement content changed to about four and eight sacks, respectively, per cubic yard. The per-

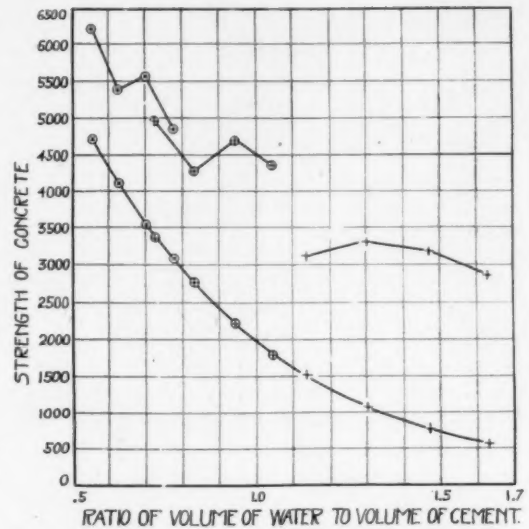


Fig. 2. Showing increase of strength of concrete due to rodding.

centages of water for the lean mixes were the same as for the intermediate, but for the rich mixes they were increased, respectively, to $7\frac{1}{2}$, $8\frac{1}{2}$, $9\frac{1}{2}$ and $10\frac{1}{2}$ per cent.

To compare these results with the strength of plain concrete, the work of the Lewis Institute of Chicago, as reported by Professor Abrams (printed in the May 21 issue of THE AMERICAN ARCHITECT) was selected as being probably the latest and most reliable, and probably also the most appropriate,

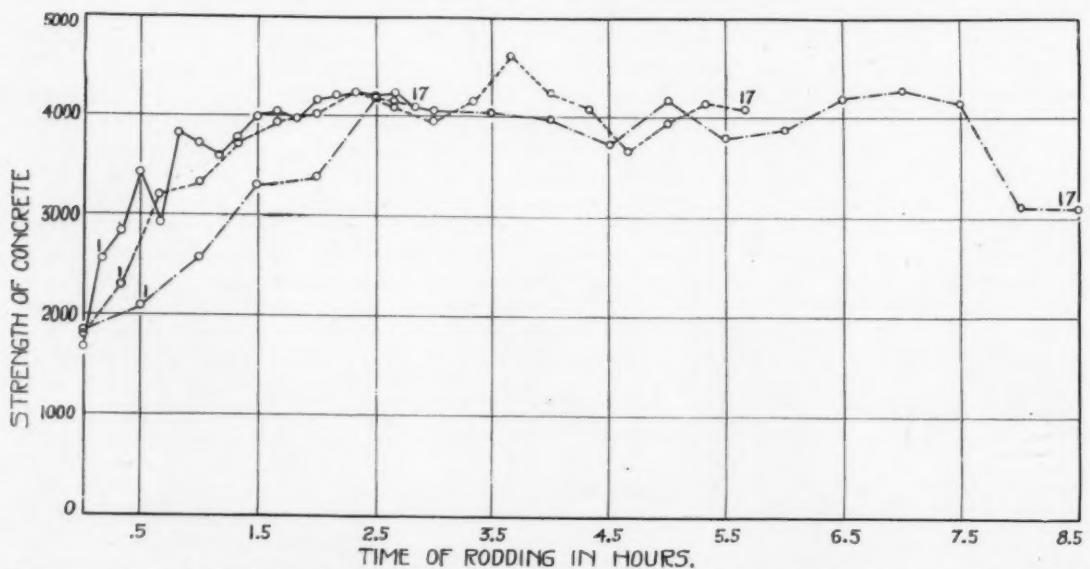


Fig. 1. Showing variation in increase of strength of concrete due to rodding. Small circles indicate number of roddings.

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since it gave special attention to the effect of excess water on the strength of the resulting concrete.

According to the Lewis Institute tests the strength of concrete is a function of the ratio of the volumes of water to that of the cement used in the production of the concrete and is $1400 \div 7x$ pounds per square inch for cement 28 days old, x being the ratio referred to and the weight of one cubic foot of cement being assumed as 94 pounds. The curved line shows the strength of the twelve groups of specimens as calculated by this formula.

An inspection of Fig. 2 shows:

A. That the effect of rodding concrete is more beneficial with lean than with rich mixes and that it is more beneficial with wet than with dry mixes.

B. That the average strength of 8-sack concrete can be increased about 45 per cent by rodding; that

of 6-sack about 60 per cent and that of 4-sack about 220 per cent.

To appreciate how well the values shown in Fig. 1 (determined by tests July 11, 1919) check with those shown by the broken line in Fig. 2 (determined by test March 19, 1919) and with those shown by the curved line in Fig. 2 (calculated from the Lewis Institute formula) notice that the average strength of the unrodded specimens shown in Fig. 1 is about 1800 pounds, and that this is almost exactly the same as that shown by the curved line in Fig. 2 for the 6-sack concrete with 10 per cent of water, also that the strength shown by Fig. 1 increases gradually with the rodding to about 4250 pounds, which is only a trifle less than that shown by the broken line in Fig. 2 for the 6-sack concrete with 10 per cent of water.

Efficient Fire Prevention Work in Cincinnati Reduces Insurance Rates

By J. J. CONWAY, *Superintendent Cincinnati Salvage Corps*

THE records of the Cincinnati Salvage Corps cover the period from 1891 to 1918 inclusive. During the first sixteen years of this period there was no concrete effort made for fire prevention progress. In 1903 we commenced a campaign of fire prevention. From 1903 to 1906 we did not make much headway in this work, principally because the majority of the people did not understand it in the start and it required time to convince them of the importance of the work. Up to 1906 the losses kept increasing and consequently every time that an insurance rate was changed it was changed upward, and this was necessary to keep up with the ever increasing fire waste of our city.

The first real concrete work that was done was to have the Council pass an ordinance providing a commission and the necessary appropriation for the drafting of a new building code. A new code was drafted, being almost an exact copy of the National Board Code. This code has from time to time been amended to meet both new and local conditions.

We had some difficulty in having this code strictly enforced, and it was also hard to get the right man. The code itself was such a radical change from the preceding antiquated code that it took time and education to bring our people to its support. However, in 1911, its effects began to show results and the building ordinances have been

strictly enforced by a thorough and competent commissioner.

In 1910 we came to the conclusion that much headway could not be made in strictly fire prevention work, as the people did not respond heartily, due largely to the false impressions that it was for the benefit of the insurance companies, while the facts in the matter were that the people themselves were to be the benefactors, and how much they benefited we will show in figures later.

Having come to the conclusion that it was necessary to add other things for the good of humanity to the fire prevention work, we succeeded in having the Cincinnati Chamber of Commerce appoint a Clean Up and Paint Up Committee, and this committee, of which the writer was chairman, started a live campaign for fire prevention, sodding and planting, cleaning and painting, cleaning of alleys and streets, and the enactment of ordinances to correct such defects as came to our notice from time to time; in fact, they took on the work of making our city more beautiful and a safer and healthier place to live in. This work was carried into the schools, the women's clubs, the improvement associations and, in fact, all organizations for the bettering of conditions in their location. The Chamber of Commerce organization furnished the speakers for the purpose of pointing out to the people the benefits that would be derived from a

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uniform effort on the part of all. In fact, they request inspections now, where at first they resented them.

In 1912 the local fire department began to do some inspection work. There was some opposition at first in the department, but as time went on those in the department changed their attitude, seeing the benefits to be derived from their efforts, and interest in the work began to manifest itself all through the department. In 1915 a separate bureau for fire prevention work was established in the Cincinnati Fire Department, and their work since has been most thorough and effective.

Now we come to the place to see what real benefits the public derived for its co-operation in this work. As we have said before, fire insurance rates were continually being increased up to 1906, at which time the Dean Schedule was put into operation, using the 60-brick table building and the 80-brick table contents. In 1910 we dropped to 50 table building and 70 table contents, making a reduction of 15 per cent on buildings and 12 per cent on contents. In 1914 we dropped to 45 table on buildings and 60 table on contents. In 1917 another reduction was made of 6 per cent on buildings and 6 per cent on contents. The total reduction from 1910 to date was 31 per cent on buildings and 32 per cent on contents on that class of risks which was written under schedule.

Frame buildings were written in 1906 under 90 table building and contents. In 1910 they were dropped to 80. In 1914 they were dropped to 75. In 1917 they were dropped to 70. In addition to the above reductions, an exposure charge of 5 cents a hundred was made for frame dwellings that stood within 20 feet of each other. This charge frequently added 15 cents to the rate, the risk being exposed on three sides, which charge has now been entirely removed. In addition to that, a charge was made for lightning clause, which charge has also been removed. The charge of 10 cents a hundred for natural gas explosion was reduced to 8 cents, then to 4 cents, and is now being granted on dwellings without any charge. These reductions mean a saving in insurance premiums to the insuring public of our city of more than \$850,000 a year, which is an amount greater than the expenditure for the maintenance of the fire department.

During the last fourteen years there were about 400 risks carrying our largest values, equipped with automatic sprinklers, which made a reduction in insurance rates on these risks of from 75 per cent to 85 per cent. Many of those written at a rate of 3 per cent and higher are now being written for 20 cents and lower. These being the facts, we think that all will agree with us that both the in-

surings public and the insurers have been greatly benefited by our fire prevention work.

We feel that the results obtained by fire prevention were largely due to the volunteer response of the public after they had realized through our educational propaganda what benefits they were to derive. Of course, there are always those who have to be forced by ordinances and penalized by rates to compel action. The Bureau of Fire Prevention of the Cincinnati Fire Department has done excellent work of this kind.

While the fire prevention work in our community was carried forward under the auspices of the Cincinnati Chamber of Commerce, too much emphasis cannot be put on the valuable work done by the Cincinnati press, which never failed to give us all the space we asked for in putting forth our educational propaganda of the Clean Up and Paint Up campaign. The teachers and the pupils of our public schools are to be highly commended for the able assistance they have given. The schools have adopted and are now using as a text book "Safeguarding the Home Against Fire," for copies of which we are indebted to the National Board of Fire Underwriters.

The Bureau of Fire Prevention of the Cincinnati Fire Department has been most earnest and never tiring in its efforts to bring about better conditions.

The building department, under the management of a highly efficient commissioner, George E. Rendigs, has enforced the building code and in some cases has even interpreted it as retroactive and compelled corrections, the benefits of which cannot be measured. During 1916 he condemned and ordered razed 320 buildings; in 1917 he condemned and ordered razed 400; in 1918 he condemned and ordered razed 177—making a total of 897 buildings condemned and ordered razed in the past three years.

As a result of the co-operation of the above departments, our number of fires was 689 less in the city for 1918 than in 1917—the smallest number of fires in the past ten years.

The population of our city at the beginning of the period 1891 was 296,908 with an area of 23.73 square miles. At the end of the period the population was 345,897 and the area had grown to 42.50 square miles. The second period, 1905 to 1918 inclusive, the population had grown from 345,897 to 418,022 and the area from 42.50 to 72 square miles.

Thus it will be seen that while the public at large assisted us in reducing the fire waste by about 20 per cent they were compensated for their efforts by a reduction in insurance rates of 31 per cent on buildings and 32 per cent on contents. This means a real saving of over \$850,000 to the insuring public who are the taxpayers of our city.



Brick Chimneys and Wall Shingles finished with Cabot's
Old Virginia White
John Russell Pope, Architect, New York

Cabot's Old Virginia White

ON BRICKWORK

The soft, brilliant "whitewash white" effect of Old Virginia White is wonderfully appropriate for brickwork, giving the flavor and texture of age combined with the cool, clean freshness of new whitewash. Also for stucco and stone.

Sample for trial sent on request.

SAMUEL CABOT, Inc., Manufacturing Chemists
BOSTON, MASS.

1133 Broadway, NEW YORK 24 West Kinzie St., CHICAGO

Cabot's Quilt, Waterproof Cement and Brick Stains, Conserve Wood
Preservative, Damp-proofing, Water-proofing

5-1

ARCHITECTURAL WOODWORK
TRIM AND CABINET WORK
CHURCH, BANK AND OFFICE
INTERIORS AND CARVINGS

SHIP AND YACHT JOINERY
PERIOD MANTELS, STAIRWAYS
SPECIAL FURNITURE AND
REPRODUCTIONS TO ORDER

THE HARRIMAN INDUSTRIAL CORPORATION

WORKS AT HARRIMAN, NEW YORK

NEW YORK OFFICE
475 FIFTH AVENUE
TELEPHONE, MURRAY HILL, 6762

HARRIMAN
QUALITY
WOODWORK

Factory Ventilation

It is now universally recognized by those who have devoted special attention to the subject of ventilation that not only an abundant supply of fresh air is essential to health, but also that without sufficient ventilation and ample daylight in buildings where large num-

bers of men are employed, it is impossible to realize the best results from their work.

For public buildings, for mills or factories, schools, theaters, hotels, wherever proper ventilation is essential to efficiency, health or enjoyment, Burt equipment will meet the need.

THE BURT MANUFACTURING CO.

77 Main Street, Akron, Ohio

Geo. W. Reed & Co., Montreal, Sole Mfgs. of Burt Ventilators for Canada



The Jones & Lamson Machine Co., Springfield, Vt., using 176 20-inch Metal Top "Burt" Ventilators.

Late Quotations in Building Material Markets

(Price quotations now current on building materials and supplies as quoted by dealers and jobbers for delivery in New York and Chicago follow. The quotations set forth are placed before readers of THE AMERICAN ARCHITECT to afford an accurate review of market conditions rather than for use as a basis for actual purchase. They will not only provide knowledge of the exact state of the market as to items quoted, but will also present a basis to judge conditions as affecting correlating materials. Items marked (*) indicate an advance over last week, while those marked (†) record a decline. Other prices did not fluctuate during the week.)

BRICK		New York	Chicago
Face brick (delivered on job):			
Common (Delivered at job in Borough of Manhattan only), per thousand.....	\$17.85	\$12.00	
Rough red	37.00	40.00	
Smooth red	38.00	40.00	
Rough buff	42.00	40.00	
Smooth buff	42.00	40.00	
Rough gray	45.00	42.00	
Smooth gray	47.00	42.00	
Colonials	26.00	30.00	

BROKEN STONE		New York	Chicago
(Delivered on job):			
1½ in. per cu. yd.....	\$2.75	\$2.50	
¾ in. per cu. yd.....	2.75	2.50	

BUILDING PAPER		New York	Chicago
Ros'n sized sheathing, 500 sq. ft. rolls, 36 in. wide:			
25 lbs. to roll.....	\$0.85	\$0.88	
30 lbs. to roll.....	1.00	1.05	
40 lbs. to roll.....	1.35	1.40	
Deadening felt, 50 sq. yd. rolls, 36 in. wide:			
Per ton	85.00	105.00	

BUILDING STONE		New York	Chicago
Indiana limestone, per cu. ft.....	\$1.23	.83	
Kentucky limestone, per cu. ft.....	1.35		
Brier Hill sandstone, per cu. ft.....	1.50		
Gray Canyon sandstone, per cu. ft.....	.95		
Buff Wakeman, per cu. ft.....	1.50		
Buff Mountain, per cu. ft.....	1.50		
North River bluestone, per cu. ft.....	1.05		
Seam-face granite, per sq. ft.....	1.00		
South Dover marble (promiscuous mill block), per cu. ft.....	2.25		
White Vermont marble (sawed), New York, per cu. ft.....	3.00		

BURNED CLAY		New York	Chicago
(Delivered on job)			
Block partition:			
3 in., per sq. ft.....	.13	.10	
4 in., per sq. ft.....	.15	.11	
Chimney tops:			
12 x 12 for 8 x 8 flues.....	\$3.50	\$2.25	
Flue lining:			
4½ ft. x 13 ft., per lin. ft.....	.24	.12	
4½ x 8½, per lin. ft.....	.18	.16	
8½ x 8½, per ft.....	.24	.16	
8½ x 13, per ft.....	.35	.20	
13 x 13, per ft.....	.60	.45	
8½ x 18, per ft.....	.60	.50	
13 x 18, per ft.....	.95	.75	
18 x 18, per ft.....	1.25	.85	
Wall coping (double slant):			
8 in., per lin. ft.....	.18	.14	
12 in., per ft.....	.33	.26	
18 in., per ft.....	.54	.30	
Wall coping (single slant):			
8 in., per lin. ft.....	.16	.14	
12 in., per ft.....	.26½	.30	
18 in., per ft.....	.54	.30	
(Corners and angles four times the price of one foot of coping the same size.)			

Hollow Tile		New York	Chicago
(Delivered at job, in New York below 72nd St.):			
2 x 8 x 12 partitions, per 1,000 sq. ft.....	\$70.15		
3 x 12 x 12 partitions, per 1,000 sq. ft.....	102.00	\$67.90	
4 x 12 x 12 partitions, per 1,000 sq. ft.....	114.75	72.50	
6 x 12 x 12 partitions, per 1,000 sq. ft.....	153.00	99.60	
8 x 12 x 12 partitions, per 1,000 sq. ft.....		135.80	
10 x 12 x 12 partitions, per 1,000 sq. ft.....		167.50	
12 x 12 x 12 partitions, per 1,000 sq. ft.....		194.60	
2 x 12 x 12 split furring, per 1,000 sq. ft.....	63.75	45.30	

CHIMNEY TOPS		New York	Chicago
Revolving	40%	40%	

CEMENT		New York	Chicago
Per bbl. in 15 cent bags (Rebate 60c. per bbl. for bags in New York), 15 cent bags in Chicago (Rebate 60c. per bbl.):			
	\$3.25	\$3.00	

CONDUCTOR PIPE		New York	Chicago
Galvanized steel	5 & 10 & 5%		
Galvanized charcoal iron.....	44½%		
Copper	40%		
Elbows (all sizes to 6-in.):			
Galvanized steel	70%	70%	
Squares	60%	60%	
Copper	30%	30%	

COPPER SHEETS		New York	Chicago
At the mill, hot rolled, 16 oz. base-price, per lb..33½c.			
(From jobber's warehouse add 2 to 3 cents.)			
Cold rolled per lb.....	35c.	36c.	

New York		Chicago
From stock in 100 lb. lots and over....	35½c. to 37½c.	37½c.
For less than 100 lb. lots 2c. per lb. advance.		
Polished, 20 in. wide and under, 1c. per sq. ft. extra; over 20 in. wide, 2c. per sq. ft. extra. Planished, 1c. per sq. ft. more than polished.		

Bottom, pits and flats, 1 oz. and heavier, per lb.....	44c.	44c.
Tinning one side, per sq. ft.....	.06c.	.06c.

CORNER BEAD		New York	Chicago
Per foot	.05	.05	

EAVES TROUGH		New York	Chicago
(Discounts from list):			
Galvanized steel	60 & 10%	60 & 10%	
Galvanized charcoal iron.....	55½%	55½%	
Copper	40 %	40 %	
(Also note Conductor Pipe).			

FIBRE		New York	Chicago
Per bushel	.36	.30	

FINISHED IRON AND STEEL		New York	Chicago
(Mill Shipments)			
Bar iron, renned grade.....	2.77c.	2.62c.	
Bar iron, double refined.....	3.77c.		
Soft steel bars.....	2.62c.	2.62c.	
Shapes	2.72c.		
Plates	2.77c.	2.65c.	

GALVANIZED SHEETS		New York	Chicago
Nos. 12 and 14 gauge, per lb.....	6.60c.*	6.20c.	
No. 16	6.75c.*	6.30c.	
Nos. 18 and 20.....	6.90c.*	6.62c.	
Nos. 22 and 24.....	7.05c.*	6.75c.	
No. 26	7.20c.*	6.92c.	
No. 27	7.35c.*	7.07c.	
No. 28	7.50c.*	7.23c.	
No. 30	8.00c.*	7.60c.	
(No. 28 and lighter, 36 in. wide, 20c. higher.)			
Corrugated Roofing, Galvanized:			
2½ in. corrugations, per 100 lbs., over flat sheets.....	10.00c.		

GLASS		New York	Chicago
(Discounts from manufacturers' price lists)			
Single strength, A quality, first three brackets.....	.78%†	77%	
Single strength, B quality.....	.78%†	77%	
Double strength, A quality.....	.78%†	79%	
Double strength, B quality.....	.80%†	81%	
Plate—up to 5 sq. ft.....	.81%†	80%	
Plate—over 5 sq. ft.....	.83%†	80%	
Plate—up to 10 sq. ft.....		80%	
Plate—over 10 sq. ft.....		80%	
Polished plate glass (commercial run of thickness and quality) sizes to 5 sq. ft., inclusive.....	80%		
Sizes over 5 sq. ft.....	82%		

GRAVEL		New York	Chicago
1½ in. (Borough of Manhattan only), per cu. yd.....	\$3.25	\$2.50	
¾ in. (Borough of Manhattan), per cu. yd.....	3.50	2.50	

GRIT		New York	Chicago
Delivered at job in Borough of Manhattan.....	\$2.25	\$2.00	
Delivered in the Bronx.....	2.50	2.25	

GYPSUM		New York	Chicago
Plaster Board:			
Delivered at job, Boroughs of Manhattan and Bronx.			
27 x 28 x 1.....	37c.		
27 x 48 x ½.....	34c.		
32 x 36 x ¼.....	22c.	20c.	
32 x 36 x ¾.....	22c.	21½c.	
32 x 36 x ½.....	24½c.		
Plaster Blocks:			
Delivered at job, Boroughs of Manhattan and Bronx.			
2 in. solid, 12 x 30, per sq. ft.....	.11c.	10c.	
3 in. hollow, 12 x 30, per sq. ft.....	.11c.	10c.	
4 in. hollow, 12 x 30, per sq. ft.....	.12½c.	11c.	
6 in. hollow, 12 x 30, per sq. ft.....	.18c.	13c.	

LATH		New York	Chicago
Eastern spruce, per thousand.....	\$8.50		
No. 1 white pine, per thousand.....	8.25	\$8.00	
No. 1 hemlock, per thousand.....	7.50	7.00	
No. 1 yellow pine, per thousand.....	8.25	6.00	

LEAD		New York	Chicago
American pig, per lb.....	7 to 7½c.	6¼ to 6½c.	
Bar, per lb.....	9 to 10c.	6½ to 6¾c.	

LIME		New York	Chicago
Common, 200 lb. bbls., per bbl.....	\$2.50	\$1.50	
Finishing, 300 lb. bbls., per bbl.....	3.70		
Hydrated, in paper bags, per ton.....	18.50	17.50	
Hydrated, in cloth bags, per ton (Rebate per bag 10c.).....	22.60	24.00	

LUMBER		New York	Chicago
(Retail prices per M. delivered.)			
Yellow pine, 2 x 4.....	\$70.00	\$55.00	
Yellow pine, 2 x 6.....	70.00	55.00	
Yellow pine, 4 x 4.....	75.00	56.00	
Yellow pine, 8 x 8.....	72.00	56.00	
Yellow pine, 12 x 12.....	85.00	65.00	
Yellow pine, No. 1 boards, 1 x 6.....	100.00	70.00	
Yellow pine, No. 1 boards, 1 x 12.....	110.00	75.00	
Yellow pine, B and better flooring (plain).....	110.00*	90.00	
Yellow pine, B and better flooring (quartered).....	135.00*	110.00	
North Carolina pine, flat flooring, No. 2 and better.....	115.00*	85.00	
North Carolina pine, flat flooring, No. 3.....	100.00*	75.00	
North Carolina pine, rift flooring.....	137.50*	110.00	
Norway pine, 2 x 4.....	72.00	65.00	
Norway pine, 2 x 12.....	85.00	76.00	
Douglas fir, 6 x 6 to 12 x 12.....	75.00	67.50	
Douglas fir, 12 x 12 to 14 x 14.....	85.00	78.00	
Hemlock, 2 x 4.....	63.00	55.00	
Hemlock, 2 x 12.....	65.00	58.00	
Oak, quartered, 1 in., F. A. S.....	250.00	235.00	

(Continued on page 470-B)

Barrett Specification Roofs

Your Roof is not Finished Unless it has a Wearing Surface—

When planning to cover any flat-roofed building, remember this—

No matter how good the roofing is, unless it has a wearing top surface, such as gravel, slag or tile, it is like a book without a cover—it isn't finished.

That is why, when The Barrett Specification was worked out years ago, the engineers insisted not only that it should be built up of the two most serviceable roofing materials in the world—pitch and felt in alternate layers—but that it should have a top-wearing-surface of gravel, slag or tile.

It is imperative that every flat roof have such a wearing surface—

To protect the roofing materials from the direct destructive action of rain, snow, ice and sun.

To form a wearing-surface to protect the roofing materials from scuffing feet and the dragging of heavy objects over the roof.

To make the roof highly fire resistant so as to secure the base rate of fire insurance.

Guaranteed for 20 Years

It is because Barrett Specification Roofs are built up thus carefully, with a foundation of Specification Felt and Pitch in five alternate layers,

protected by a substantial wearing-surface of gravel, slag or tile, that we offer to guarantee them for 20 years.

The guarantee is in the form of a Surety Bond, which we offer on all roofs of fifty squares or more in towns of 25,000 population or over, and in smaller places where our Inspection Service is available. Our only requirement is that the roofing contractor shall be approved by us.

How to make sure of the Right Kind of Roof

To make certain that your roof will be built according to the best scientific roofing principles, *with 20 years of service guaranteed*, you have only to insert in your building specifications this paragraph:

"The roof shall be laid according to The Barrett Specification, dated May 1, 1916, and the roofing contractor shall secure for me (or us) the 20-Year Guaranty Bond therein mentioned."

Copies of The Barrett Specification, with roofing diagrams, will be mailed free upon request.

The **Barrett Company** 

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati
Pittsburgh Detroit New Orleans Birmingham Kansas City Minneapolis
Nashville Salt Lake City Seattle Peoria Atlanta Duluth Milwaukee
Dallas Lebanon Hanger Washington Johnston
Youngstown Toledo Columbus Richmond Latrobe
Bethlehem Elizabeth Buffalo Baltimore
THE BARRETT COMPANY, Limited
Montreal Toronto Winnipeg Vancouver St. John, N. B.
Halifax, N. S. Sydney, N. S.



Barrett Specification Roof on Pierce-Arrow Motor Car Company's Building, Elmwood Ave., Buffalo, N. Y. This building was constructed from plans drawn by the Pierce-Arrow Motor Car Co. General Contractors: Abernethy Construction Company, Boston, Mass. Roofers: Jameson Roofing Company, Buffalo, N. Y. The area of this roof is 24,200 sq. ft. over concrete roof deck.

THE AMERICAN ARCHITECT

Building Material Market Reports

(Continued from page 470-A)

	New York	Chicago
Oak, plain, 1 in., F. A. S.	\$175.00	\$160.00
Oak flooring, 13/16, quartered (white)	280.00*	238.00
Oak flooring, 13/16, quartered (red)	275.00	225.00
Oak flooring, 13/16, plain (white)	205.00*	175.00
Oak flooring, 13 x 16, plain (red)	210.00*	178.00
Maple, 1 in., F. A. S.	100.00	95.00
Maple flooring, 13/16, clear	190.00	140.00
Maple flooring, 13/16, select	140.00	135.00
Maple flooring, 13/16, No. 1 factory	110.00	100.00*
Basswood, 1 in., F. A. S.	120.00	100.00
Mahogany, 1 in., F. A. S.	320.00	315.00
Sap gum, 1 in., F. A. S.	87.50*	75.00
Red gum, 1 in., F. A. S.	125.00	115.00
Chestnut, 1 in., F. A. S.	110.00	105.00
Birch, 1 in., F. A. S.	150.00	130.00*
Spruce, random, 2 in.	70.00	65.00
Spruce, wide, 8 in.	75.00	70.00
Spruce, 10 in.	75.00	70.00
Spruce, 12 in.	80.00*	70.00
Cypress, 1 in., F. A. S.	105.00	90.00

METAL LATH

Under 100 sq. yd., per sq. yd.	40c.	35c.
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MORTAR COLORS

Red, per lb.	.05	.05
Brown, per lb.	.05	.05
Buff, per lb.	.05	.05
Chocolate, per lb.	.05	.05
Black, per lb.	.06	.05
Pompeian buff, per lb.	.07	.07
Moss green, per lb.	.07	.07
Colonial drab, per lb.	.07	.07
French gray, per lb.	.07	.07
Royal purple, per lb.	.07	.07
Yellow, per lb.	.07	.07

(These prices are for mortar colors in bbls. or kegs of more than 200 lbs. each. In kegs of less than 200 lbs. each add 1c. per lb. In 25 lb. cans add 2c. and 12 1/2 lb. cans add 2 1/2c. per lb.)

NAILS

Wire nails and brass, miscellaneous	75%	75%
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OILS

Linseed, city, raw	\$2.15	\$2.47
Linseed, boiled, advance, per gal.	.01	.02
Out of town, American seed, at	2.15	2.47

PAINTS

Leads:		
American white, in oil, kegs; lots over 100 lbs.	13c.	13c.
White, in oil, 25-lb. tin pails; add to keg price.	14c.	14c.
Red, bbl., 1/2 bbl. and kegs; lots over 100 lbs.	13c.	14 1/2c.*

Dry Colors:

Red Venetian, American, per 100 lbs.	\$2.00 to \$4.50	\$2.00 to \$4.00
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Metallic Paints:

Brown, per ton	35.00 to 40.00	35.00 to 40.00
Red, per ton	35.00 to 40.00	35.00 to 40.00

PIPE

Cast Iron:		
6 in. and heavier	\$54.30	\$53.80
4 in.	57.30	56.30
3 in.	62.30	68.80

(and \$2.00* additional for Class A and gas pipe.)
(Discounts to jobbers for carload lots on the Pittsburgh basing card; freight rates from Pittsburgh to New York, and also from Pittsburgh to Chicago, in carloads, per 100 lbs., are 27c. An additional 5 per cent discount is allowed to large jobbing interests over those listed below.)

Wrought:

	F.O.B. Pittsburgh	F.O.B. Chicago
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Steel:

Black, 1/4 to 3 in.	50 1/2 to 57 1/2 %	42.6 to 49.6 %
Galv., 1/4 to 3 in.	24 to 44 %	14.6 to 34.6 %

Iron:

Black, 1/4 to 1 1/2 in.	29 1/2 to 34 1/2 %	19.6 to 29.6 %
Galv., 1/4 to 1 1/2 in.	2 1/2 to 23 1/2 %	9.4 to 11.6 %

Steel:

Black, 2 1/2 to 6 in.	53 1/2 %	45.6 %
Galv., 2 1/2 to 6 in.	41 %	31.6 %

Iron:

Black, 2 1/2 to 6 in.	34 1/2 %	24.6 %
Galv., 2 1/2 to 6 in.	21 1/2 %	9.6 %

Steel:

Black, 1/4 to 3 in.	46 1/2 to 56 1/2 %	33 to 43 %
Galv., 1/4 to 3 in.	29 to 44 %	10.6 to 18 %

Iron:

Black, 1/4 to 1 1/2 in.	28 1/2 to 39 1/2 %	
Galv., 1/4 to 1 1/2 in.	11 1/2 to 24 1/2 %	

Steel:

Black, 2 to 6 in.	48 1/2 to 50 1/2 %	35 to 37 %
Galv., 2 to 6 in.	37 to 39 %	10 to 12 %

Iron:

Black, 1 1/4 to 6 in.	25 1/2 to 34 1/2 %	
Galv., 1 1/4 to 6 in.	10 1/2 to 22 1/2 %	

PIPE-VITRIFIED SEWER

(Standard pipe and fittings, F.O.B., carload):

	New York	Chicago
1 to 24 in.	67%	67%
27 to 30 in.	66%	66%

PLASTER

Rebate for bags 15c.		
Neat wall cement in 15 cent bags, per ton	\$21.30	\$19.00
Finishing plaster	24.00	19.00
Lath mortar, in cloth bags, per ton	15.05	12.50
Brown mortar, in bags	15.05	14.00
Finishing plaster, per bbl. (250 lbs.)	3.50	3.00
Finishing plaster, per bbl. (320 lb. bbl.)	4.35	

PUTTY

	New York	Chicago
In bladders, per 100 lb.	\$6.25	\$6.25
In 1-lb. tins, per 100 lb.	6.75	6.75
In 5-lb. tins, per 100 lb.	6.25	6.25

RADIATION

New York reports a 45% discount on standard heights.
Chicago reports a 53% discount on standard heights.

REGISTERS

Cast iron semi-steel or steel, in black or white japan or electro plate and small faces and borders	30%	30%
Wall frames	30%	30%
Large faced, 14 x 14 in. and larger	50%	50%
Base board registers	30%	30%
Base board intakes	30%	30%
White enameled goods	5%	5%
Solid brass or bronze goods, except grilles	net	net
Grilles in black and white japan or electroplate in cast iron, plain lattice design—smaller than 14 x 14 in.	30%	30%
—Larger than 14 x 14 in.	50%	50%

REINFORCING BARS

High carbon steel from mill	\$48.50	\$49.50
Medium steel from mill	48.50	49.50

ROOFING MATERIAL

Tarred Felt Paper:		
No. 1—25 lbs. to 100 sq. ft., per ton	\$62.00	\$75.00
No. 2—16 lbs. to 100 sq. ft., per ton	63.00	75.00
No. 3—12 lbs. to 100 sq. ft., per ton	64.00	75.00
Rosin sized sheathing, per ton	65.00	70.00
Corrugated roofing, galvanized, 2 1/2 in. corrugation, over flat sheets, 30c. per 100 lbs.		

Rubber, 108 sq. ft. rolls, 32 in. wide, per roll:

First Quality:		
1 ply—35 lb. rolls	\$1.90	\$2.00
2 ply—45 lb. rolls	2.30	2.40
3 ply—55 lb. rolls	2.85	2.80
Second Quality:		
1 ply—35 lb. rolls	1.45	1.60
2 ply—45 lb. rolls	1.75	1.90
3 ply—55 lb. rolls	2.20	2.20

ROSIN

Common to good, strained (wholesale), 80 lb., per gal.	\$17.25	
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SAND

Mason, per cu. yd.	\$1.80	\$2.50
Torpedo, per cu. yd.	1.80	2.50
White sand, per cu. yd.	4.00	

SHINGLES

Red cedar, 6 to 2, clear, per thousand	\$10.00	\$6.50
Red cedar, 5 to 2, clear, per thousand	12.00	7.50
White cedar, extra star, A star, per thousand	11.00	7.00
Cypress, 6 x 18, No. 1 hearts per M.	17.00	14.00
Cypress, 6 x 18, No. 1 prime per M.	15.00	12.00

SLATE ROOFING

	F.O.B. cars, Quarry Station	F.O.B. Chicago
Pennsylvania:		
Best Bangor	\$7.75 to \$9.00	\$10.20 to \$11.45
No. 1 Bangor Ribbon	6.75 to 7.00	9.20 to 9.70
Pen Argyl	6.50 to 7.25	9.70 to 10.45
Peach Bottom	10.50 to 12.50	12.45 to 14.45
No. 1 Chapman	6.25 to 7.25	8.70 to 9.95
Vermont:		
No. 1 Sea Green	4.25 to 6.75	5.95 to 9.00
Unfading Green	9.00 to 10.50	9.40 to 12.56
Mottled Green Purple	9.00 to 10.50	17.00
Red	12.00 to 20.00	14.80 to 22.80
Maine:		
Brownsville, U'Pg Black, No. 1 12.00		14.10 to 15.10
Slaters felt, 30 lb. roll	.92	
Slaters felt, 40 lb. roll	1.22	

SPIRITS TURPENTINE

	New York	Chicago
Per gal. in machine bbl.	\$1.73	\$1.73

STONE SCREENINGS

Lime, per cu. yd.	\$2.35	\$2.50
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STRUCTURAL STEEL

Beams and channel, 3 to 15 in., per lb.	2.72c.	3.47c.
Beams and channel, over 15 in., per lb.	2.72c.	3.57c.
Angles, 3 to 6 in.	2.72c.	3.47c.
Zees	2.72c.	3.47c.
Tees	2.77c.	3.52c.
Steel bars, half extras, from mill	2.35c.	3.37c.

STUCCO

In cloth, per ton (white, mixed)	\$22.50	\$19.50
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STUCCO BOARD

Medium weight stucco board, plain, per M sq. ft.	\$42.50	\$45.00
Medium weight stucco board, creosoted, per M sq. ft.	50.00	50.00
Heavy weight stucco board, plain, per M sq. ft.	55.00	55.00
Heavy weight stucco board, creosoted, per M sq. ft.	60.00	60.00
Medium weight stucco board, plain, narrow key, per M sq. ft.	50.00	50.00
Medium weight stucco board, narrow key, creosoted, per M sq. ft.	55.00	55.00
Insulating board, heavy felt background, per M sq. ft.	50.00	50.00

SHEATHING BOARD

Heavy weight sheathing board, per M sq. ft.	\$50.00	\$50.00
Medium weight sheathing board, per M sq. ft.	46.00	45.00
Stucco or plaster board, sheathing board and insulating board are in rolls containing one sheet 25 ft. long and 4 ft. wide (100 sq. ft.)		

WALL BOARD

Wall board, shipped any length, 4 ft. wide, per M.	\$45.00	\$40.00
Packed flat in cars if ordered in less than car lots. Add \$5.00 per M ft. for crating.		

ZINC SHEETS

Western slabs	8 1/2 to 9 1/4c.	
Sheets, No. 9, base casks	12c.	
Open, per lb.	12 1/4c.	