

THE AMERICAN ARCHITECT

FOUNDED 1876

CATALAN ARTS AND CRAFTS

By RALPH ADAMS CRAM, F.A.I.A., Lit.D., LL.D.

NO GREAT architecture ever stands alone. I mean as an art isolated by itself. Without many if not all the other arts, linked with it in close co-operation, it is nothing, or at least it is no more than the pyramids of Egypt, the aqueducts of Rome and the Washington Monument. All the greatest architecture in the world, whether of the East or the West, has been that which effected a synthesis of the greatest number of arts—which is one reason why a Gothic cathedral in the days of its glory was probably the highest point in the architectural progression since it combined the greatest number of arts, all of them without exception, while its creators invented one or two quite new arts for full measure. The churches of France, England and Germany give no idea whatever of what they once were, for every one has been devastated by the Reformation, the eighteenth century, revolutions of all sorts and finally by restoration. As a matter of fact, they give a quite false idea of a Gothic church since much of their sculpture has been knocked to pieces, their painting obliterated, their altars, shrines and chancel fittings destroyed, their glass, except in a few cases, beaten out of the windows, their vestments and sacred vessels stolen, while today the services which once were the triumph of the two arts of music and the drama are now, as a general thing, tawdry and barren to a degree. It is only in Spain and Italy that churches are measurably what they were, and since there is no Gothic in Italy, to Spain one must go to get some idea of what once was universal over Western Europe.

Of course France has done pretty well from time to time to make up for Spain's immunity from the common curses of the rest of Europe, and by invasion and spoliation has done her best to devastate the great works of Christian art, but though she plundered brutally, the store was so great and her time so short that she never succeeded in equaling the wreck made elsewhere by the other preda-

tory agencies, so but for vestments the churches are still opulent, except in the case of the monastic treasure-houses which were nearly all plundered and burned by the fool "republicans" of the early nineteenth century.

Cataluña was as rich as any part of Spain in the arts allied with architecture, richer than most except in sculpture, richest of all in painting. Her great monasteries have been destroyed, Montserrat by the French, Poblet, Santas Creus and the Dominican foundation in Palma by the raw mobs of the revolutionary era of the nineteenth century, and God knows how much there was lost, but the cathedrals and great churches are pretty much intact, except for the excesses of the Renaissance which substituted the vast masses of gilded Baroque and Rococo for the fine gold of Gothic perfection. Much of the treasure from desecrated churches is now in the museums of Barcelona and Vich, much has gone into private collections, mostly American, but a sufficiency remains to make the churches fairly complete.

I think the greatest revelation was in the line of painting, the myriad retablos of intricate and exquisite carved wood, all done in burnished gold, with their pictured panels of periods ranging from the fourteenth to the sixteenth centuries. As I think I said before, it seems to me that this painting of Cataluña and Roussillon is the real expression of Mediaevalism in painting, far more complete and significant than is offered by Italy, Germany or even Flanders. There the Renaissance came so suddenly and completely that the transition from the primitive to the modern was almost instantaneous so that there really is nothing in the field of art that corresponds to Gothic in architecture. This Catalan painting impresses one as essentially Gothic. In any case it is a school of individuality and distinction, and it is surely time that it was rediscovered and treated with the respect it deserves. Painting in Spain does not mean simply Velasquez, Goya, Murillo and

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El Greco; it means equally the earlier periods of which I give two examples from amongst many; the St. Vincent in Prison, now in the Barcelona Museum of Art and Archaeology, so startlingly suggestive of Burne-Jones, and the almost ruined triptych by Pablo Vergas in the Provincial Museum. This last, wrecked as it is through terrible neglect (rain streamed over it for years through a broken roof), is as lovely a thing as one could find, not only in feeling but in texture, technique, drawing, composition, characterization and above all in color.

fine as Winchester or St. Albans, seems dry and inadequate. We have held too long to the sad monotonies of the ravaged and whitewashed churches of the desolated North, and it is Spain, even more than Italy, that can teach us the value of color and gold.

Of course the great sculpture of Spain is that of the eleventh and twelfth centuries in the kingdoms of Castile and Leon, the noble Romanesque work that matches, if it does not excel, that of France, but there is fine material in the South later on, while that of the Gothic period in Aragon and



(Clisé Arxiu Mas)

DETAIL OF RETABLO, PROVINCIAL MUSEUM, BARCELONA

The manner in which pictures and gilded wood are combined in the great retablos is quite marvelous. Consider especially the high altar of the church of San Felix in Gerona. The opulence of detail is amazing, as is also the richness of the color and gold. Here, as generally, there is a central statue flanked by two others, all of large size, with quantities of smaller figures worked into delicate joinery, paneled figures in high relief, canopies and pinnacles as rich as goldsmiths' work, and any number of painted panels rich and splendid in tone and color. Undoubtedly these are the finest types of reredos in existence and beside them the cold gray stone of England and France, even when it is as

Cataluña has its own distinguished and individual quality, witness the vigorous knightly figure from the palace of the Generalidad and the exquisitely decorative keystone of St. George from the Cathedral, both in Barcelona. There was a great school of architectural sculpture here in the later Middle Ages, but, as I have said, much of it has been superseded by Renaissance substitutes. In Palma, for instance, all the Gothic altars and fittings have gone, but here and there, as in the fragment of the tomb of Ramon Lull in the church of San Francisco, something remains to show what once was the common thing. The statue of Charlemagne from Gerona is a good example of the extreme individuality



(Clisé Arsru Mas)

ST. VINCENT IN PRISON

that marked this Catalan work; it takes its place in no other known school and is as personal and characteristic as it is noble and convincing. This same originality shows also in the wood carving. I already have spoken of the unique quality of the lower portion of the stalls and the terminals in Barcelona Cathedral, but I show here another view to enforce my point that here is something in a class by itself; it neither "dates" nor does it fit into any known category of wood carving. One commanding feature in Catalan churches is the great organ with its sumptuous casing. These cases are all Renaissance, of course, but treated with that freedom and spontaneity that marks all this style in Spain.

As for metal work, Andalusia rather holds the palm for wrought iron, and its vast rejas are in a class by themselves. There is a sufficiency of fine metal forging in Cataluña, however, as in the cloister chapels of Barcelona Cathedral, while now and then one finds still remaining an example of silver-smiths' work that is rather startling. Take, for example, the retablo and baldachino of the high altar in Gerona Cathedral; this is all of silver, even the columns and the spreading canopy, one of the few remaining examples (I am not sure it is not the only one) of the Mediæval treatment of an altar. The silver retablo with its three great crosses is also

unique as well as a splendid example of Mediæval craftsmanship.

One of the most remarkable collections of religious art is that of the Episcopal Museum at Vich, in the mountains not far from Gerona, where many years ago a bishop of unusual taste and foresight began the gathering of works of art at a time when this sort of thing was out of fashion. Here is a wonderful assortment of pictures, sculptures, vestments, metal work and indeed pretty much everything that goes to the fitting out of a church, and here, together with the museum of Barcelona, one can gain a good idea of the wealth of artistic genius and the wealth of artistic treasures that once characterized Cataluña in the days when real things counted and before they were bartered for the wealth and the discontent and the disorder that accompany the transformation of a community into a great, progressive, industrial and commercial state.

Is there a moral to be extracted from this for us, here and now? From the revelation Spain offers of the absolutely indispensable unity of all the arts in a great work of architecture and the complete dependence of architecture on the contributions and the co-operation of all the rest of the major and minor arts. Some of us have been trying for very many years to rebuild Christian art after its long



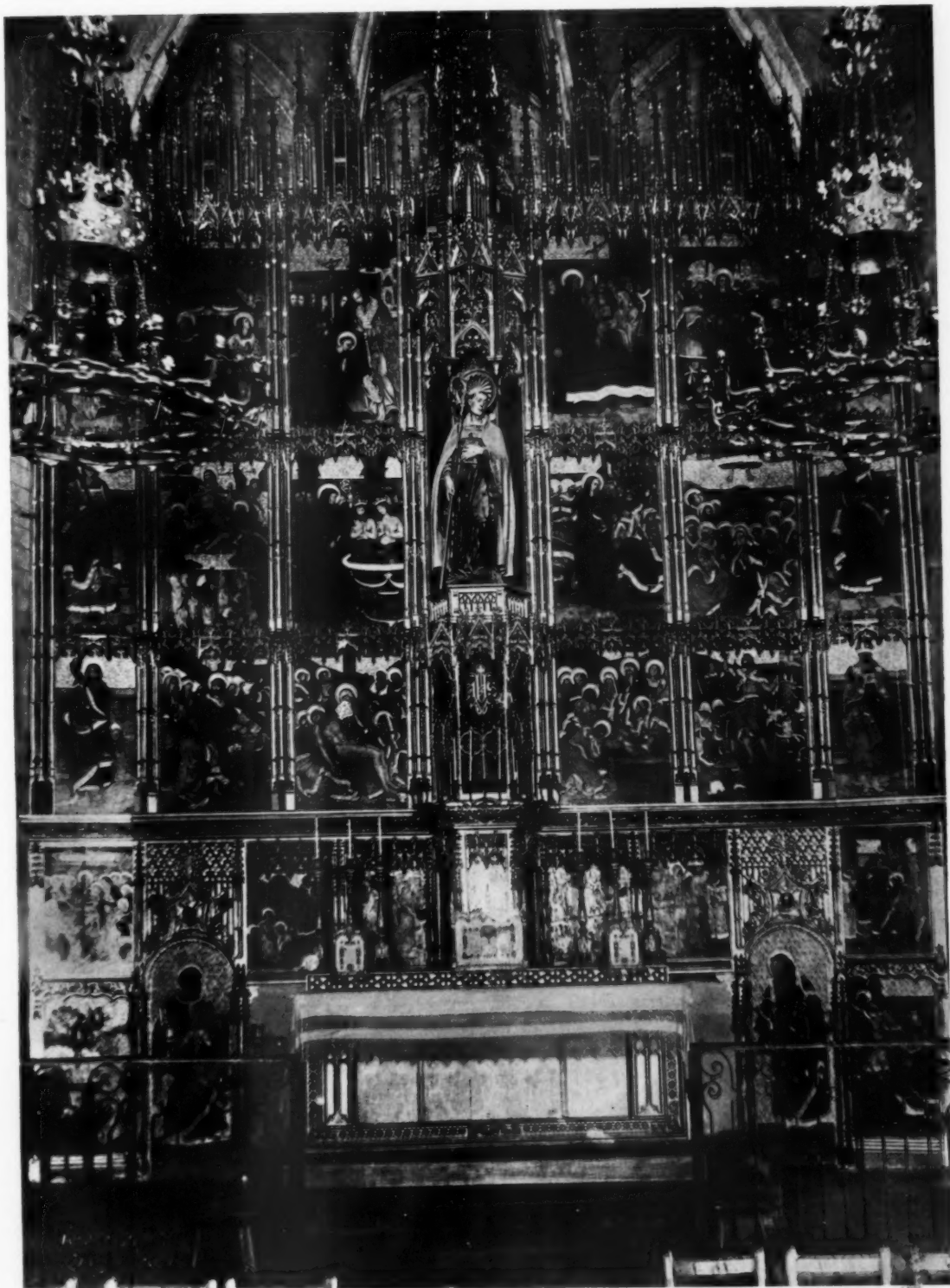
(Clisé Arxiu Mas)

DETAIL OF XVI CENTURY ALTAR, BARCELONA



(Clisé Arxiu Mas)

ALTAR PIECE, THE HOLY TRINITY, MANRESA



(Clisé Arxiu Mas)

A CATALAN RETABLO

ruin that extended over three or four centuries. One of the most valid objections to an attempt at anything of the sort is that the Christian art of the past was what it was chiefly because there were as good and sympathetic painters, sculptors and craftsmen in every field as there were architects and master-builders, whereas now no painters and sculptors have any interest in religious art, while the intelligent and competent craftsman does not exist.

There is a good deal of truth in this, and if the condition cannot be amended, then undoubtedly the work of the architect, however good it is, will fall far short of its Romanesque, Lombard, Byzantine, Gothic and Early Renaissance models. Can it be amended? That is the question, and one that is manifestly too far-reaching in its implications to be discussed here in any detail. There are, however, one or two things that may safely be said.

In the first place, while it is true that few embryo painters or sculptors have any instinctive interest in formal religion or aptitude (or even desire) for its expression, and while their training in Paris or Rome not only disregards the whole field but acts automatically against it, it does not follow that artists of such impulses and abilities cannot come into existence. Nearly all the schools of architecture in America ignore religious problems in their design courses, which are generally under French direc-

tion and therefore neither concerned with such matters nor able to handle them constructively, yet in spite of this there are probably forty or fifty architects in this country who are thorough masters of ecclesiastical design. I do not know where they got their interest or their training, certainly not from the schools, but there they are, and the miracle that is worked in architecture may be worked also in painting and sculpture.

As a matter of fact, it is showing itself already. I know a few painters and even more sculptors who have turned toward religious art as offering a finer and more sympathetic field than secularism. Two of them, I fear, have been spoiled by going to Europe on scholarships, but the others are persisting and I believe will make good. It is the moral duty of every church-building architect to find out these artists and use them.

The matter of craftsmanship is more difficult of solution. Some of the crafts—or arts if you like—have come back and are well established, stained glass, metal work and wood carving for example. If architects will use only the good craftsmen along these lines, or the firms that employ them, there is no reason why they should not continue. There are as good craftsmen in these lines as one could ask, almost as good as there ever were, the only weakness being that too often (not always)



(Clisé Arxiu Mas)

ST. GEORGE—FROM THE GENERALIDAD, BARCELONA



(Clisé Arxiu Mas)

ALTAR PIECE, MUSEUM AT VICH, BARCELONA



(Clisé Arsín Mas)

THE GREAT ORGAN, SANTA MARIA DEL MAR, BARCELONA



(Clisé Arxiu Mas)

RETABLO, CHURCH OF SAN FELIX, GERONA

the craftsmanship is severed from the design which still has to be fabricated in the architect's office. In stone carving the story is the same. The craft is there, the brilliant workmanship, but not the power to design, less even than in the case of wood and metal. Of course at present building is hampered and degraded by the interference of the least admirable elements in trades unionism, and until this can be changed there is not much hope of better things.



(Clisé Arsin Mas)

A BOSS FROM BARCELONA CATHEDRAL

The point, however, is this: in spite of the limitations of the schools and the ignorance and short-sightedness of some labor leaders, there has been an amazing change of late, and there is a real possibility that before long we may once more find ourselves in co-operation with painters, sculptors and craftsmen who have the interest as of old in religion and its art, and a good measure of the old ability. I look back over forty-five years' architectural experience, as student and practitioner, and I see an advance that is stupendous in its quality and its achievement. In 1880 it might almost be said there was no vital religious art of any kind, and no noble craftsmanship. Now look at it!

Fifty men are doing great work in ecclesiastical architecture. It is for them to realize that without the other arts theirs falls short; that the artists and craftsmen they need are to be found for the seeking, and that it is up to them to prosecute the search.

For a last word, let me say this. We are making too many poor draftsmen and not enough good craftsmen. Half the boys that go to schools of architecture will get their degrees and then never be any-

thing more than second rate draftsmen, when many of them might have made master-craftsmen. I think it the duty of heads of schools of architecture to dissuade students from continuing unless they show notable ability. I have had in my office for two years an excellent draftsman. He has now abandoned this career and will for the future devote himself to the forging of beautiful ironwork. He is wise and his course is, I think, admirable. Another instance. A well known and brilliantly able painter, of mature age, has now abandoned portraiture and secular subjects to devote himself for the rest of his life to painting for Catholic churches.

I think these two cases indicate possibilities for the future that hold hopes that sooner or later we too, here in America, may hope to produce united, consistent and inspiring religious art even as this shows itself in Cataluña, as it once showed itself in every country of Christian Europe.

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THE BEAUTY OF OLD AGE

OF COURSE youth has a beauty that belongs to itself, but old age, to those wise enough to see it, has beauty also.

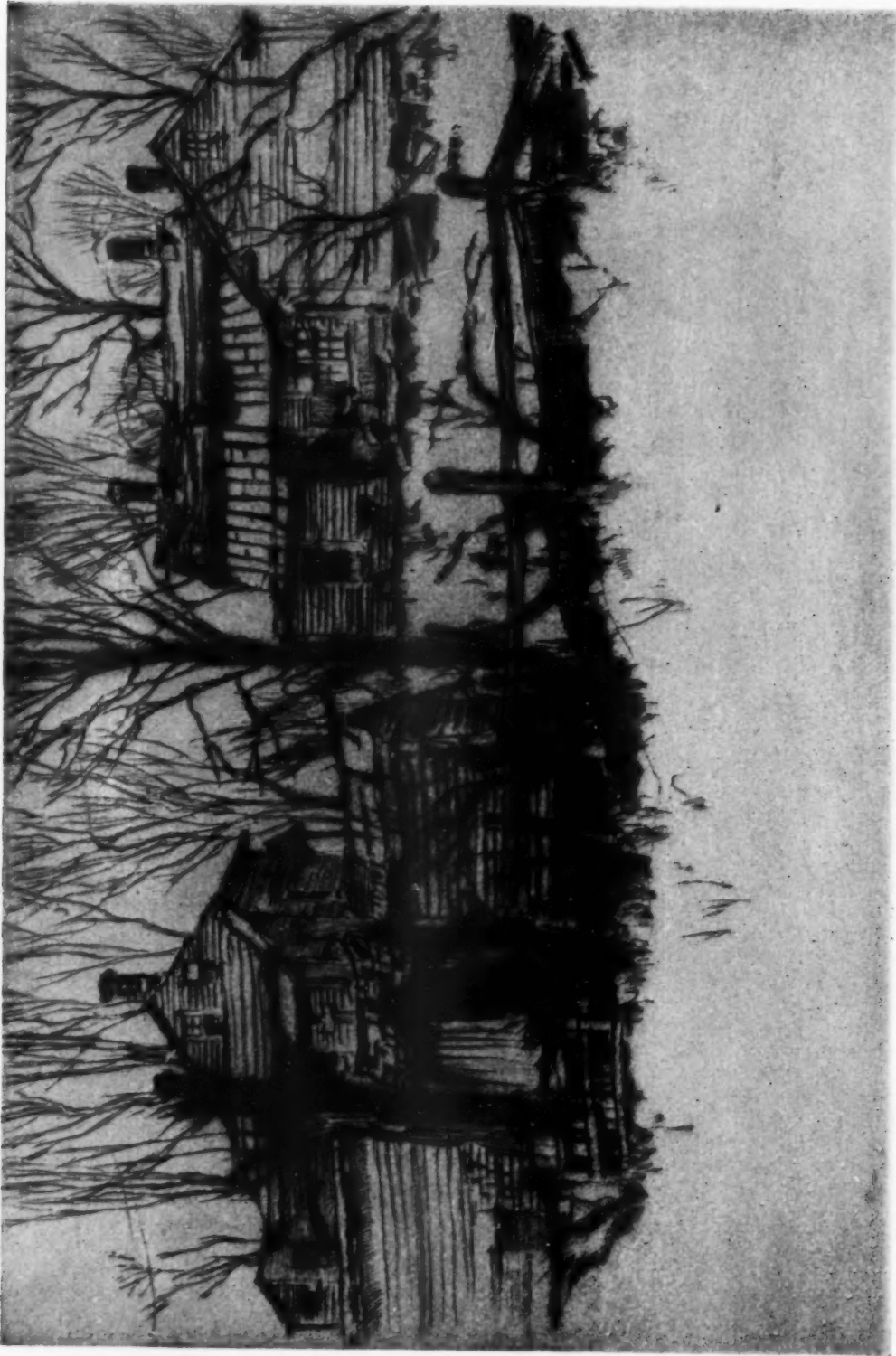
Take the new French villages built in the war area and compare them with the old villages in, say, Touraine. The architecture is much the same, yet the new villages repel and the old ones attract. The explanation is that the old buildings have been softened by the weather. They show that they have had experience. The roofs undulate. The colors are softer. One feels in looking at them that a great architect has been at work.

Travel through what is called the chateau country of France, the valley of the Loire, and you will worship the beauty that is expressed in the palaces, but you will also find your heart going out to the beauty that is expressed in the villages where the common people lived who provided the money to support the luxury of the chateaux.

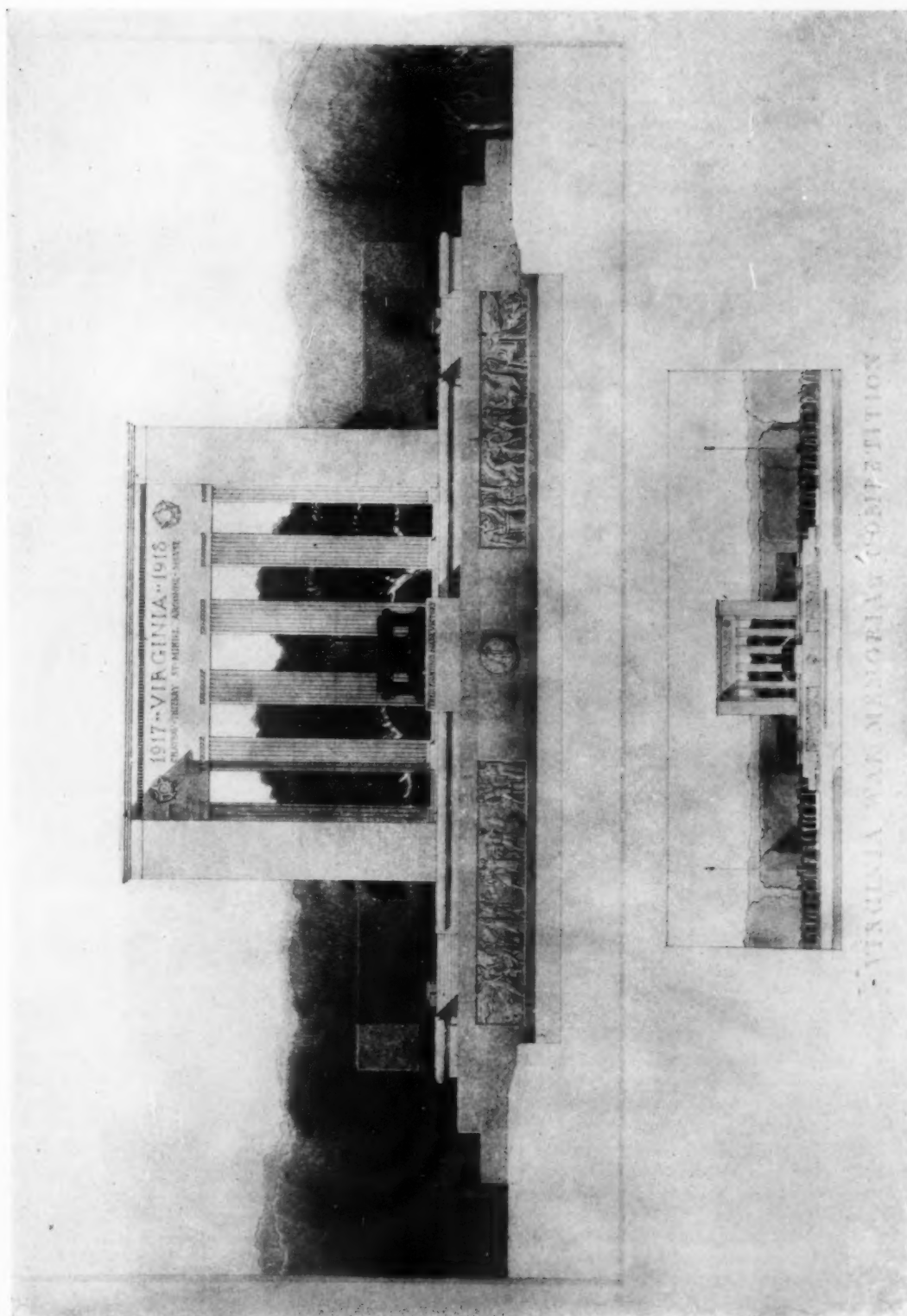
This is a country that should be visited by every architect who desires to perfect his art. Even if it is necessary to make sacrifices in order to take the trip, the sacrifices will turn out to be not sacrifices at all. The rewards of the trip will be great.

Here you will find palaces where expense was no object, and right near them will be small houses built by poor people, for poor people, which have their own special beauty, and are every bit as charming as the homes of the rich.

One knowing something of the histories of the people who lived in chateaux wonders if, after all, the dwellers in the little homes did not have the better life.—*The Engineer*.



AN ANN ARBOR BACKYARD
FROM THE ORIGINAL DRYPOINT BY SAMUEL CHAMBERLAIN



DESIGN PLACED FIRST

VIRGINIA WAR MEMORIAL COMPETITION

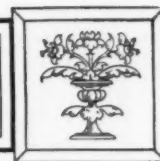
MARCELLUS WRIGHT AND PAUL P. CRET, ASSOCIATED ARCHITECTS



DESIGN PLACED FIRST
VIRGINIA WAR MEMORIAL COMPETITION
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EDITORIAL COMMENT



WE learn from the results of a special survey undertaken by the Committee on Education of The American Institute of Architects, and made public by the Committee on Public Information, that fewer Americans are going abroad to study architecture than ever before. So rapid has been the development of American schools, states the report of this Committee, that France, where Americans formerly went in large numbers, is now planning to send architects and students to the United States for study. The enormous advance thus shown in the education of the architect should now be extended to the masses whose taste will largely determine American standards.

It is gratifying to learn from this committee report that a national scheme of popular education in architecture is being devised. Fortunately, there is a solid basis to work from, as the architectural schools in the United States have during the past few years made great progress in methods of architectural education. As a matter of fact, they have become the best schools in the world for the training of architectural students.

The report further states:

"It is apparent that no matter how much the education of the architect may be improved and perfected, it cannot result in a corresponding improvement in the architecture of the country unless the education of the people is carried along with it, as the standard of excellence of the architecture of a nation is always determined to a large extent by the standard of taste of its people.

"The college authorities generally are beginning for the first time to regard architecture as a subject that is essential for the cultural and practical education of their students. Colleges that never had any training in the fine arts are beginning to introduce it into their curricula, and many of those which have art departments are beginning to develop and improve them.

"The great need of the colleges in connection with this work is not any longer any urge or inducement to take up art teaching, but funds and teachers properly qualified to teach the subject in college. There is a scarcity of art teachers properly trained for college work and there is at present only a very limited number of teachers being trained for this work, while the demand for those teachers is increasing."

WE are pleased to learn that the Committee on Public Information of the Institute is now so efficiently functioning. The widespread circulation, not only to the architectural press, but also to the

daily press, of matters relating to architecture will do an immense amount of good.

Of the many committee reports on special matters, that have been made by various committees, few, if any, in the past have reached the general public. After their submission to the Board of Directors and possible printing in the *Journal*, they have been practically buried. Now, due to the wide-awake methods of the committee on Public Information, these reports will be broadcast all over the country. The benefit of such a course is very great.

At the time, now more than fifteen years ago, when THE AMERICAN ARCHITECT first urged the formation of a Committee on Public Information, the idea set forth was along lines exactly similar to those the present Committee is so efficiently pursuing. We foresee the very best results accruing from that policy.

THE Committee on Education, perhaps the most important of all committees of the Institute, makes the significant and valuable statement that, while the architect may be educated to the very highest point of efficiency, it is the general public that will control the expression of taste. When this Committee urges the importance of education of the public to higher standards of excellence, it makes a demonstration in exactly the right direction. It becomes necessary to devise a means for such education. We have no doubt that having so well promoted systems for higher architectural education, it will ultimately point the way toward a similar result on the part of the general public.

These matters take time and may not be accomplished except through sustained effort. But the initiatory effort has now been made and we are confident as to the future.

These various matters were all very thoroughly discussed during the second day of the late convention. It is fine to see that they are not to remain dormant as in past years, and that thus early the work as sanctioned by the convention is being vigorously carried forward. Comment has been made in these columns as to the great value of the reports submitted at conventions and the fact that these valuable documents have been laid to rest in the archives of the Institute, and forgotten. Such comment is now no longer justified. The work of the Committee on Public Information and the Committee on Education is now very much in evidence and we are justified in the belief that other important committees will from time to time be heard from.

IT is at least ten years ago that attention was directed by THE AMERICAN ARCHITECT to the need for a national archive building in which to house all those valuable books and historical documents that are so closely related to our national growth.

Though America is the last civilized nation to erect a national archive building, there is no reason why it should not have the best structure of its kind in the world. It is now assured that an archive building will be erected in Washington, as such a structure has been sanctioned by Congress as the first step in the new Federal City building program.

No one who knows the present condition of the government papers in Washington can fail to see the enormous benefits to the government service which will be derived from having the papers systematically arranged and accessible in a modern fireproof building of approved type. Not less im-

portant, however, are the results to the study of American history which are sure to come when students shall have access under ideal conditions to the great stores of material in Washington that illustrate every aspect of the growth of the republic.

Through the activities of a committee of The American Historical Association, sketch plans for the national archive building have been so shaped in the office of the Supervising Architect of the Treasury to meet the views of American archivists and to incorporate the best features of European archive buildings. When this archive building is completed and there have been removed to safety in its vaults the many things of great value that may properly find lodgment there, we may feel a sense of security in these matters never known before.

TO AN ARCHITECT

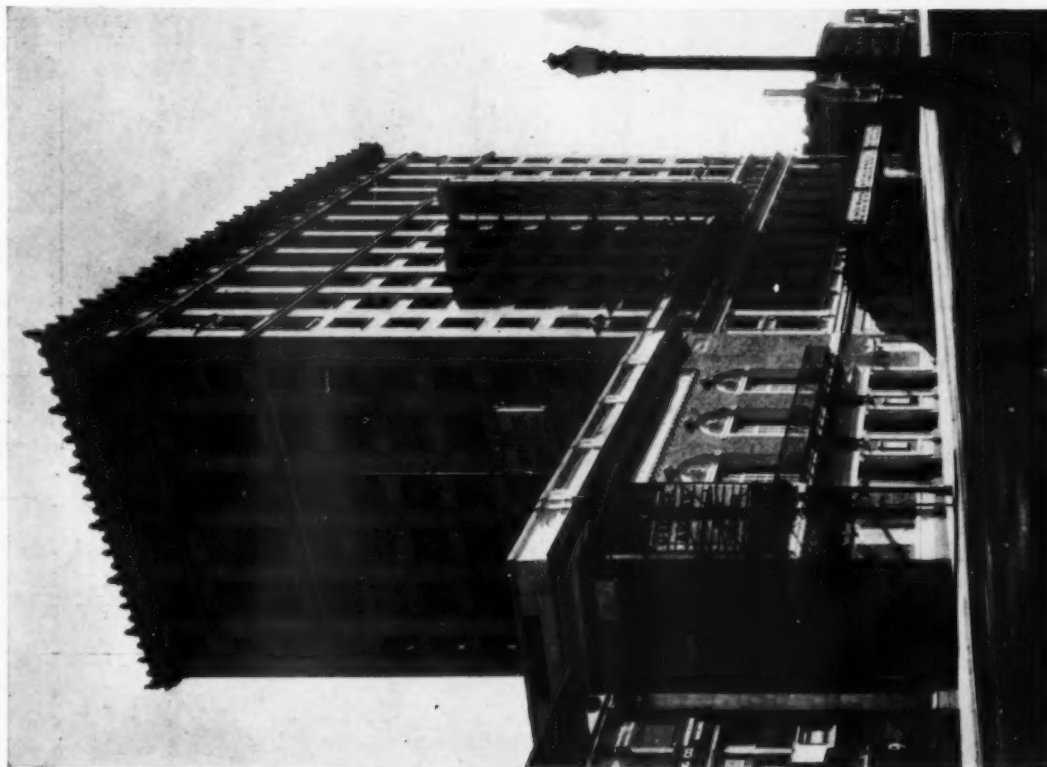
Editor's Note: Commenting on the opening of the Summer concerts at the Stadium of the College of the City of New York, the New York TIMES in a recent issue printed on its editorial page the following deserved tribute to the artistic skill of Arnold W. Brunner, the architect of the Stadium.

THERE is one who should be remembered, along with Mr. Lewisohn and those who have made possible the Stadium symphonic concerts, as the season opens. It would be fitting if one concert were given in memory of Arnold Brunner. He was the architect of this Greek theatre upon St. Nicholas Heights, and it was his mind that gave form to the vision for the realization of which Mr. Lewisohn so generously gave. His death last February removed from this community one who had done much for beautifying his own city and who had also put many other cities in his lasting debt by plans for their civic comeliness. He was pre-eminently a public-minded man and architect. He once defined architecture's missions as that of providing fitting background for human activities. His buildings usually furnished backgrounds and settings for mass activities: State buildings, hospitals, court houses and bridges. He was interested especially in the architectural problems attendant upon city growth. He was in a sense a dramatist, working out his themes in stone or steel for a public audience, whole cityfuls of people.

In his Stadium, which is more fitly called a Greek theatre, since it has the nascent shape and the diameter of Epidauros, the most beautiful of all the Greek theatres, according to Pausanias, he has given a set-

ting which deserves to be preserved in stone. Its colonnade rises in classical lines high on one of the highest crests of the island where thousands may sit and while listening to the most exquisite of music, little disturbed by the noises that come up from the never-quiet city below, look out across the miles of myriad lights and to the remoter lights and a serene universe when the skies are clear and the weather calm. All who share in the enjoyment of this mingling of the arts and nature in the very midst of the city should turn a grateful thought toward Arnold Brunner, whose art placed this Epidaurean theatre on a Manhattan hilltop.

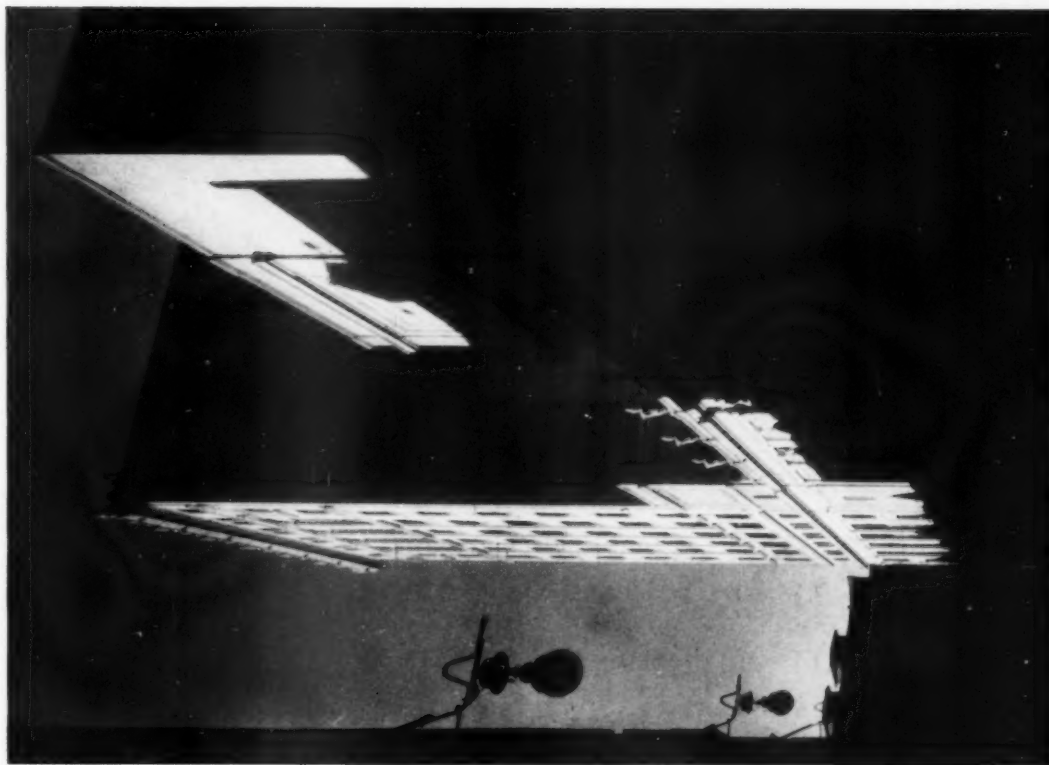
It was his dream, as it is still that of others, that the structure might be converted into a real stadium by extending the wings to St. Nicholas Terrace, so giving seats for many more thousands than can now be accommodated and providing an adequate field for games. When that is done, the columns which Mr. Brunner designed to be placed at the edge of the cliff may then be reared as a propylaeum on a New World Acropolis. For the present, it would be appropriate if in music there should be remembered this architect whose "frozen music" becomes a real part of the Stadium symphonies.



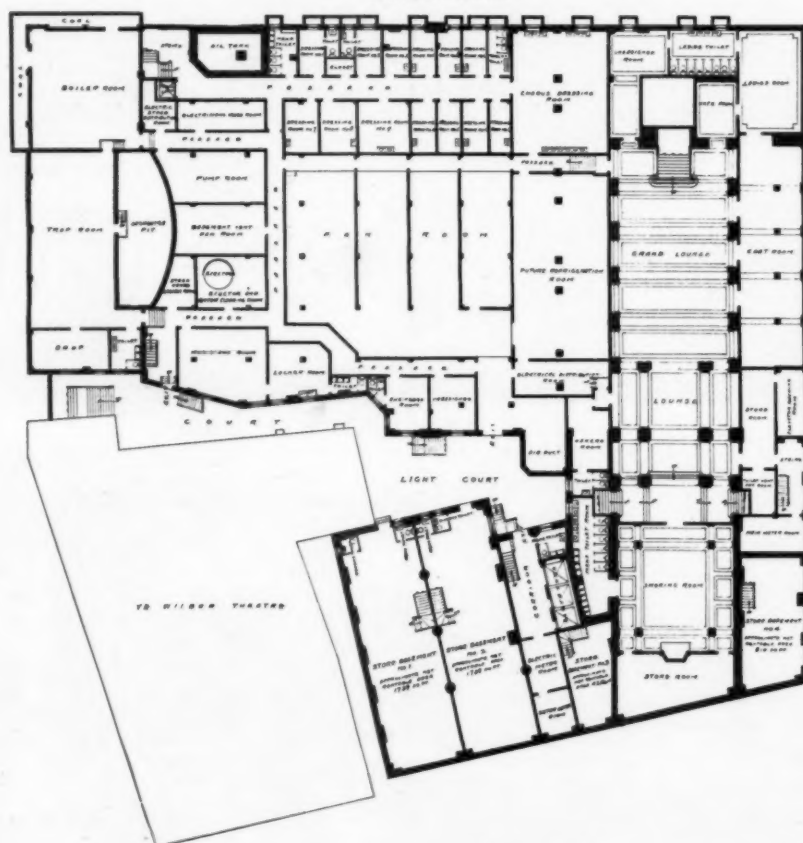
CAPITOL THEATRE AND OFFICE BUILDING, BOSTON, MASS.

BLACKALL, CLAPP & WHITTEMORE, C. HOWARD CRANE, KENNETH FRANZHEIM, GEORGE NELSON MESERVE, ARCHITECTS
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BASEMENT FLOOR PLAN
Scale of feet 1" = 10'

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GEORGE NELSON MESERVE, ARCHITECTS

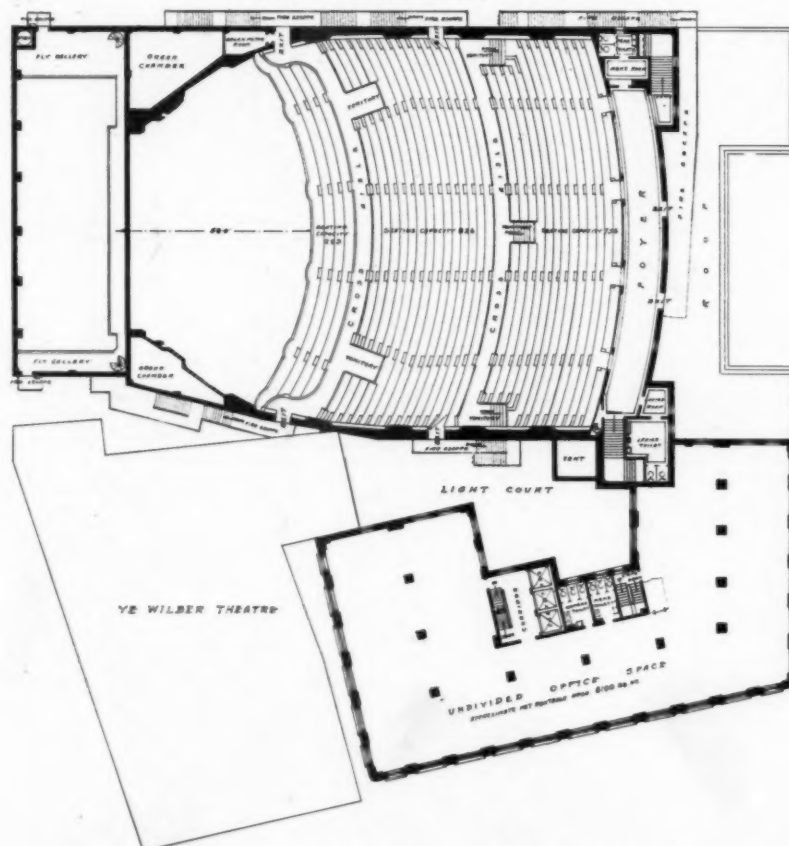


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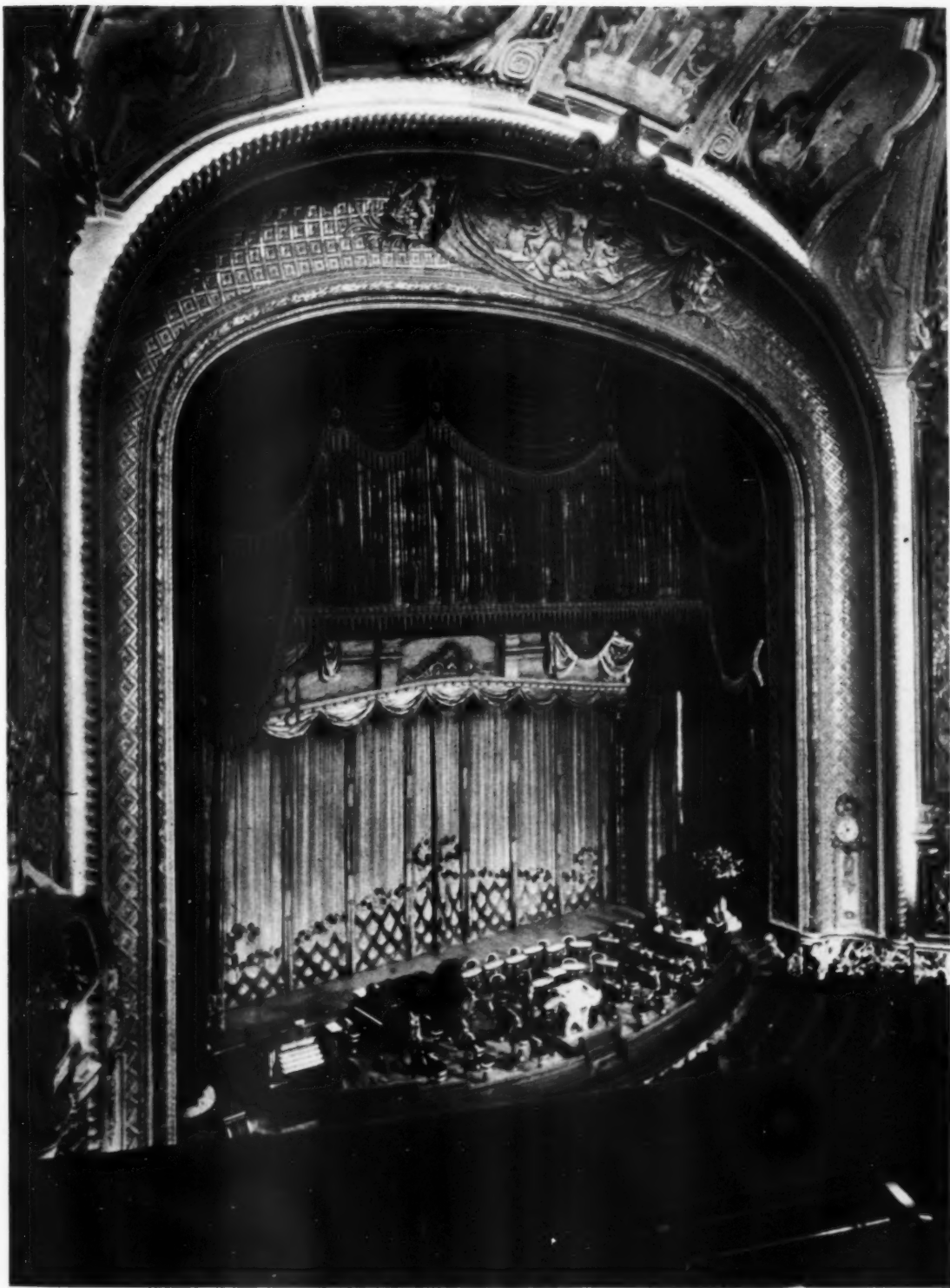
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BALCONY FLOOR PLAN AND SIXTH FLOOR PLAN
 Scale of Feet

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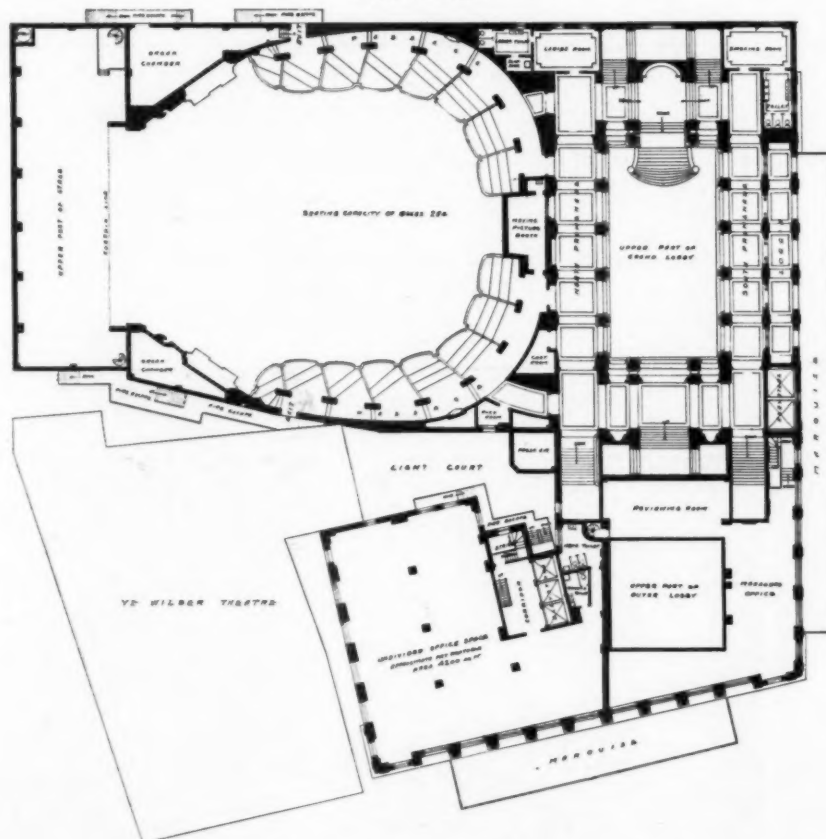
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FIRST MEZZANINE FLOOR PLAN AND SECOND FLOOR PLAN
 Scale of Feet 0 10 20

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 GEORGE NELSON MESERVE, ARCHITECTS

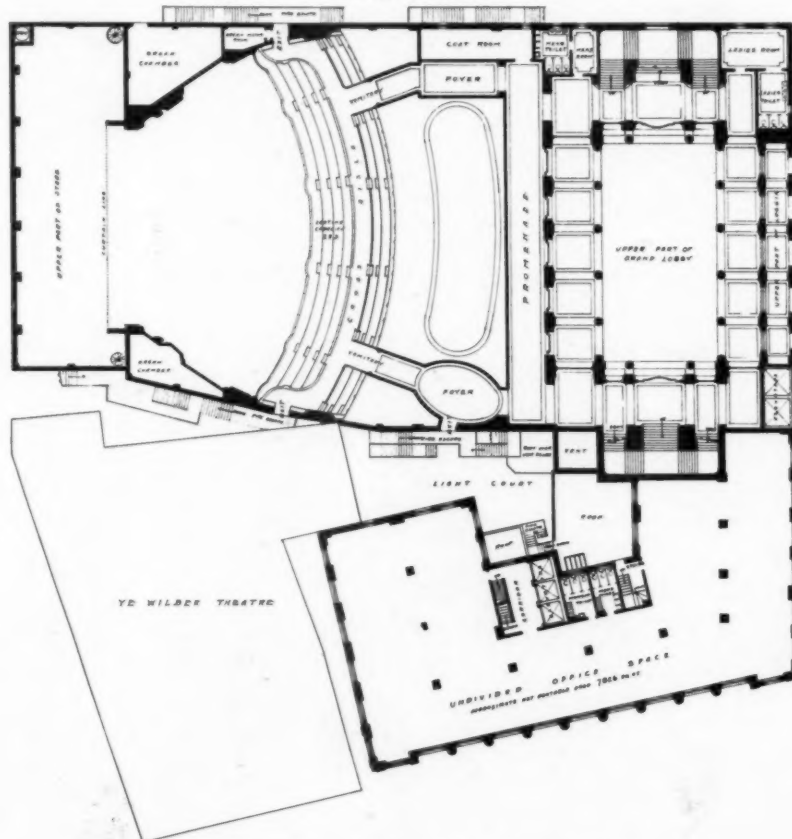


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SECOND MEZZANINE FLOOR PLAN AND THIRD FLOOR PLAN
Scale of feet 1/8" = 1'-0"

BLACKALL, CLAPP & WHITEMORE, C. HOWARD CRANE, KENNETH FRANZHEIM,
GEORGE NELSON MESERVE, ARCHITECTS



CAPITOL THEATRE AND OFFICE BUILDING, BOSTON, MASS.

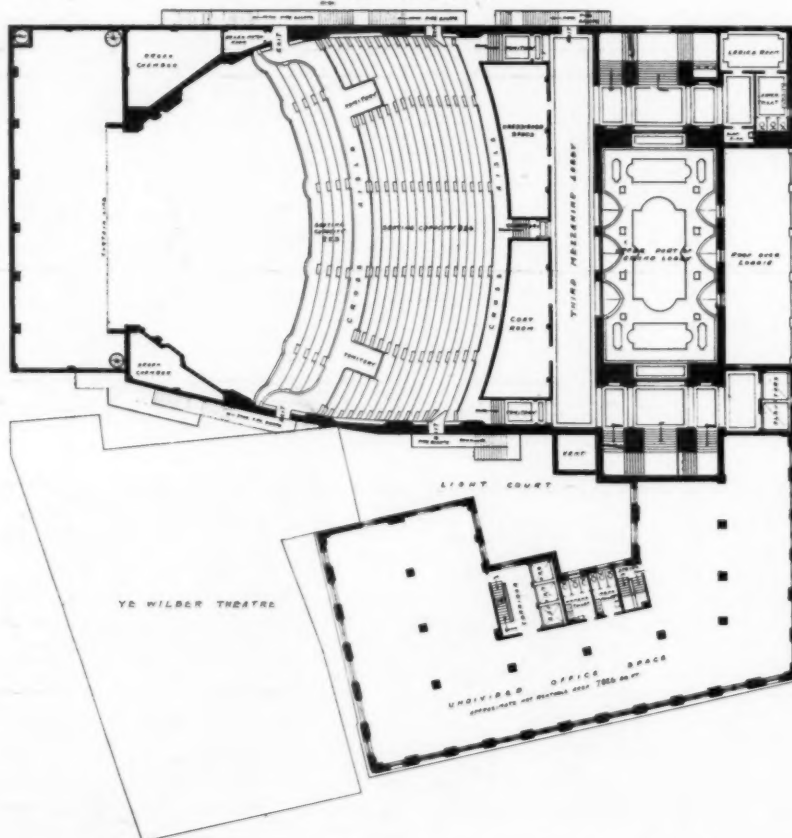
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THIRD MEZZANINE FLOOR PLAN AND FOURTH FLOOR PLAN
Scale of Feet 0 10 20 30 40

BLACKALL, CLAPP & WHITEMORE, C. HOWARD CRANE, KENNETH FRANZHEIM,
GEORGE NELSON MESERVE, ARCHITECTS



CAPITOL THEATRE AND OFFICE BUILDING, BOSTON, MASS.

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THE AMERICAN ARCHITECT

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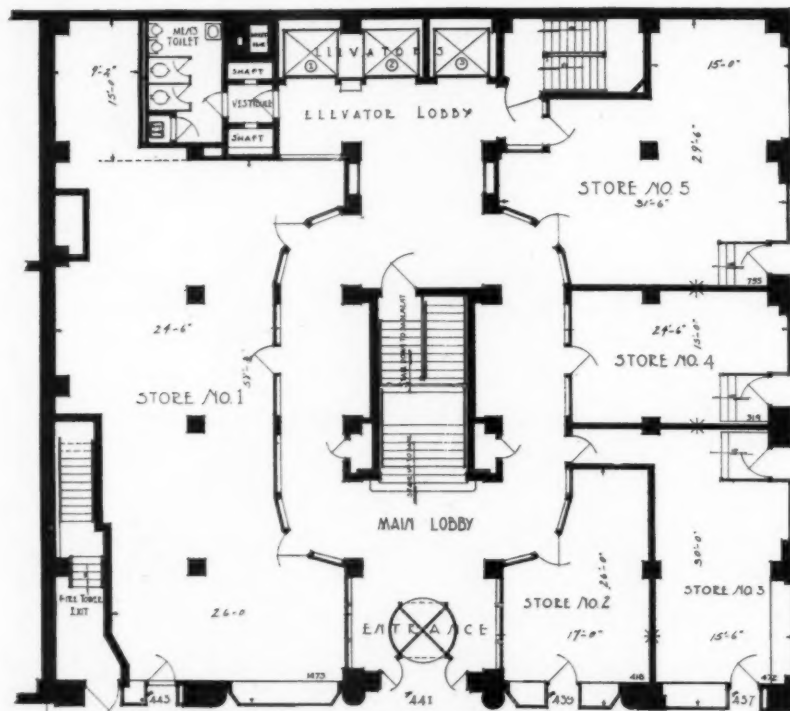
BUILDING LOAN BUILDING, 441 LEXINGTON AVENUE, NEW YORK

LUDLOW & PEABODY, ARCHITECTS; W. H. WRIGHT, ASSOCIATE

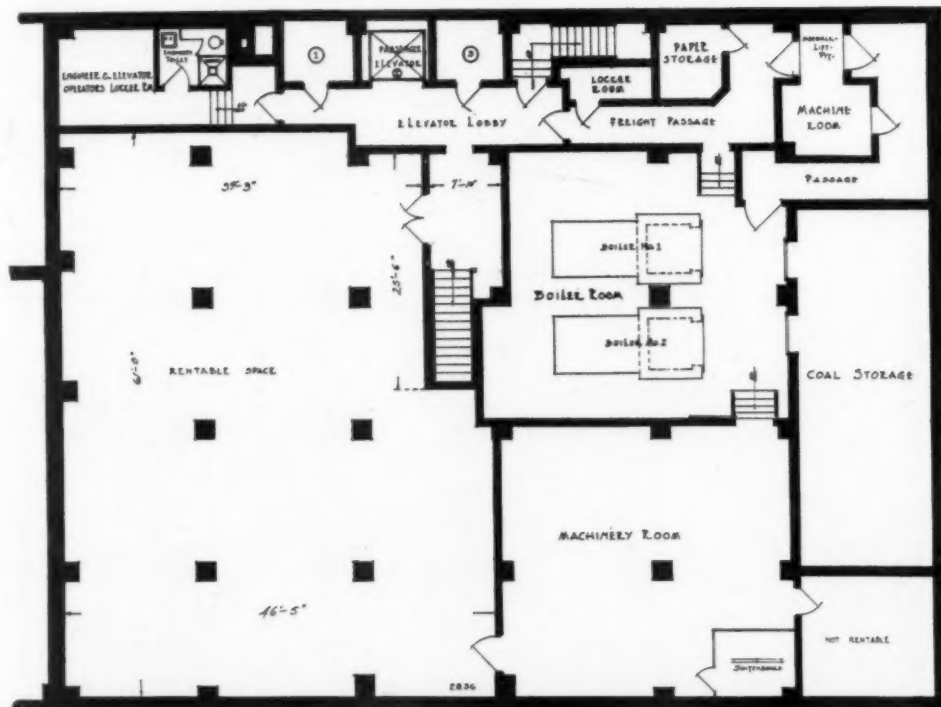
(See plans on back)

THE AMERICAN ARCHITECT

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FIRST FLOOR PLAN



BASEMENT FLOOR PLAN

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BUILDING LOAN BUILDING, 441 LEXINGTON AVENUE, NEW YORK

LUDLOW & PEABODY, ARCHITECTS; W. H. WRIGHT, ASSOCIATE

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ELEVENTH AND TWELFTH FLOOR PLAN



FOURTH TO TENTH FLOOR PLAN

BUILDING LOAN BUILDING, 441 LEXINGTON AVENUE, NEW YORK
LUDLOW & PEABODY, ARCHITECTS; W. H. WRIGHT, ASSOCIATE



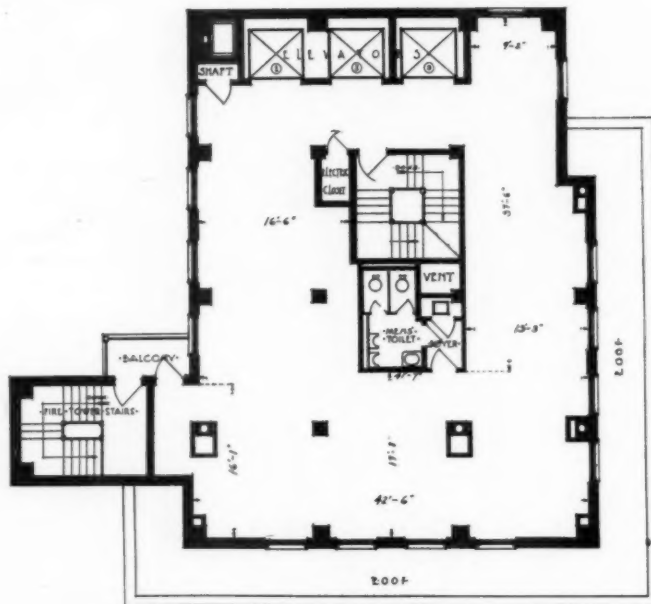
BUILDING LOAN BUILDING, 441 LEXINGTON AVENUE, NEW YORK

LUDLOW & PEABODY, ARCHITECTS; W. H. WRIGHT, ASSOCIATE

(See plans on back)

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PENTHOUSE (EIGHTEENTH FLOOR) PLAN



FOURTEENTH TO SIXTEENTH FLOOR PLAN

BUILDING LOAN BUILDING, 441 LEXINGTON AVENUE, NEW YORK
LUDLOW & PEABODY, ARCHITECTS; W. H. WRIGHT, ASSOCIATE



EMBASSY HOTEL, ST. LOUIS, MO.

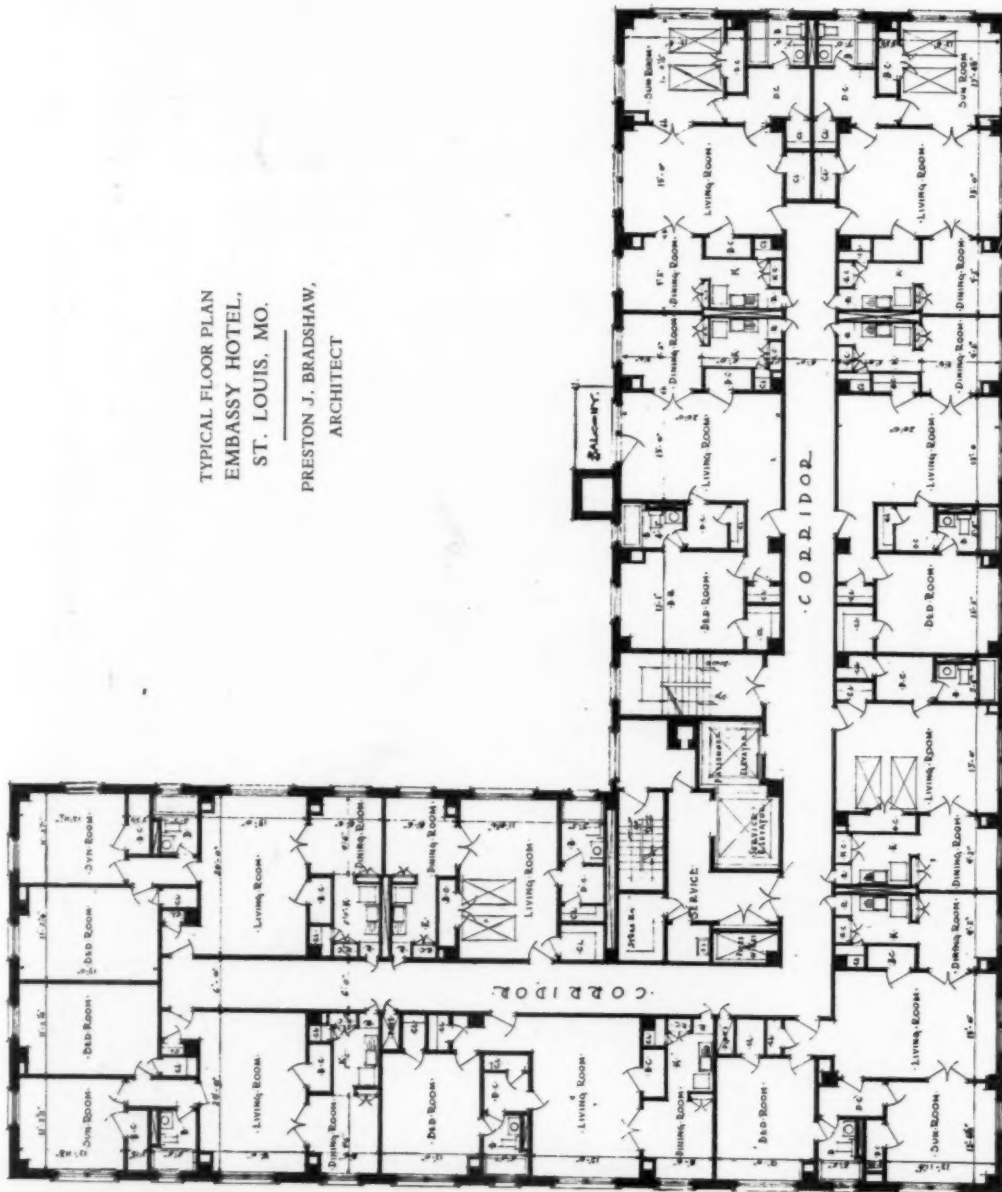
PRESTON J. BRADSHAW, ARCHITECT

(See plan on back)

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TYPICAL FLOOR PLAN
EMBASSY HOTEL,
ST. LOUIS, MO.

PRESTON J. BRADSHAW,
ARCHITECT





EMBASSY HOTEL, ST. LOUIS, MO.

PRESTON J. BRADSHAW, ARCHITECT

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THE ARCHITECT AND HIS PROFITS—PART I

By CHARLES KYSON, President, Architects' League of Hollywood, Calif.

Editor's Note: This is the first of a series of three articles by Mr. Kyson, treating of the business side of architects' practice. The facts set forth are results of wide investigation. The methods suggested are based on experience and actual practice. This series will present a basis for practical effort and largely overcome the uncertainties now generally existing in the offices of architects as to the actual cost of production of plans, working drawings and what is of even greater importance, personal service.

FEW ARCHITECTS OR BUSINESS MEN KNOW THEIR COSTS

YOUR profit, friend architect, how about it? Do you know what it is, or what it should be? How about the Smith job, did you make any money on it? Practical question, eh, what? Vital question to you, most decidedly yes! If all we architects knew our costs we would be much better off than the average business man. Uncle Sam's Federal Trade Commission calmly announces, after analyzing 700,000 businesses, that 50% of the business men guess at their costs, 40% estimate their costs, and only 10% know their costs. The interesting fact is that of 22,000 failures analyzed by this enlightening Commission, it was disclosed that 91% of these failures could have been prevented by proper accounting methods. Show that to some of your hard-headed business clients when they tell you an architect is no business man! Comforting as these facts may be, let us all get into the 10% class as soon as ever we can, because we are not all there yet by a big margin. In fact, I strongly suspect from my investigations that we haven't much, if anything, on the average business man in this respect.

ARCHITECT'S CLIENT CONFUSED BY VARIOUS FEE QUOTATIONS

Mr. Everyman, our average client, decides to build. He goes forth to seek an architect. Ultimately the subject of price comes up and he receives about as many different fee quotations as the number of architects he visits. Some of these architects may show him the minimum commission schedule of The American Institute of Architects, and state that that is their price. Is it any wonder, then, considering the wide range of fees quoted our friend, Mr. Everyman, that he decides that the architects adhering to The American Institute schedule are high priced? You know he is going to receive quotations from firms of architects who apparently know their business, for sometimes less than half of the minimum schedule of The American Institute of Architects. This is due to two primary causes: the principal one being the architect's ignorance of his production costs, and, secondly, the fear that if he quotes a fair price he will lose the job. Regardless

of the cause, it makes it exceedingly hard sledding for the architect who, knowing his production costs, fights for a legitimate profit, and tries to get enough money for his work so that he can render to the building public the service to which it is entitled and which it should have. This is particularly true when the architect is trying to charge the rate as established by The American Institute of Architects.

It follows that no sane architect is going to operate his business at a loss. The only reason that he cuts prices is because he thinks he can get his work out more cheaply than men who are known as the "high priced architects." Now this group of men are not "high priced"; they are merely men who render their clients adequate service and know their production costs; men who have the business sagacity to realize that an architect must put art on a business basis if he is to succeed in his profession. These men have accounting systems and realize where they stand at all times. The price-cutters are invariably men who have no adequate bookkeeping or cost accounting system from which they can arrive at their actual costs, and who have an erroneous belief that they can produce work much more cheaply than it is possible for them to do.

If you disagree with the figures as given herein, write and tell the League about it. You may think we are all wrong, but before you jump at any hasty conclusions, I would suggest that you put in a cost system or have an accountant help you figure out whether you are making what you should out of the practice of your profession.

If you should feel that the figures hereinafter shown are too high and that you can operate for less than the schedule set forth by The American Institute of Architects, and, if in the past years you have been operating your business by charging less than this schedule, then pardon these brutal questions: Have you any money? Do you own your own home? Have you a decent automobile? Are your bills paid promptly? Are you out of debt? Do you live as well as the men in other professions? If you can honestly answer in the affirmative, and still charge cut-rate fees for your services as an architect, and operate your business legitimately, then you are right and we are wrong.

If you are like most of us, you are honest, sincere, and want to do the right thing by your client, your profession and yourself. Because you are a professional man and something of an artist you may shrink from production cost figures; they may be distasteful to you.

PUBLICITY AND EDUCATION THE ONLY SOLUTION

The Architects' League of Hollywood wants to help you and it wants your help. It is a body of earnest, sincere men who love the profession of

architecture, and want to help it to a position of greater esteem, respect and understanding upon the part of the public. This League believes in sincere and honest publicity. It believes that architects have been too retiring and have not frankly recognized that the only solution to their problem is through the publicity medium of the printed word. A frank statement of costs from architects' offices of repute, if spread around amongst the younger architects of lesser experience, will be of unestimable value to the profession of architecture and to the public as well.

PURPOSE OF THE ARCHITECTS' LEAGUE OF HOLLYWOOD

This organization believes in legitimate publicity and education as being the only solution to the problems which face the architect today. The figures herein contained are taken from a report that the Architects' League of Hollywood is preparing for distribution to the architects of America at a later date. The name "Architects' League of Hollywood" was chosen because the architects who formed the League were practicing in Hollywood, and because of its publicity value. This does not mean that there is any local significance to the organization. It is in no sense of the word a business-getting organization. It has no axe to grind, and it welcomes into its membership any certificated or licensed architect or architectural draftsman who recognizes that there is something decidedly wrong with the profession of architecture as it is practiced today. They are a live group of architects who have the interest of their profession at heart. They want you to join their organization. They want your co-operation. They want your support, and they want your money to carry on the good work, because this kind of publicity takes time and money. The architects who are doing this work are charging nothing for their time that they themselves are engaged in this work. There are items such as secretarial work, stenographic work, drafting, etc., that are necessary to the furtherance of this publicity activity. Treat this as an investment and not a donation. Money invested in this endeavor will pay you returns out of all proportions to the amount involved, and after all this is trivial. The initiation fee is \$10.00, and the yearly dues are \$6.00. If you feel like making any additional donations to this work, don't be at all diffident in doing so because you can be assured that this work will be carried forward in an intelligent and aggressive manner.

Furthermore, if you feel that there is anything wrong with the architectural profession, put it on paper and get it published. The Architects' League of Hollywood will be very glad to do this as it maintains a Publicity Committee for this purpose. There is no use of architects telling each other that something is wrong with the profession of architecture. We know that. We have made a big mis-

take in misinforming the public as to what it costs the architect to render the service it should have. It is up to us to correct this condition. The only way we can do it is by the word of mouth or the printed word. The sooner we can put this over, the better it is going to be for us from every point of view. It will enable us to design better planned buildings and more artistic ones. It will be a benefit to the public, and it will be a benefit to us financially. Send any communications to the Architects' League of Hollywood, 6040 Hollywood Boulevard, Hollywood, California.

THE PROFESSION OF ARCHITECTURE MUST PROSPER IF THE PUBLIC IS TO BE ADEQUATELY SERVED

Architecture is a vital and necessary profession and it must prosper if the nation's need for beauty is to be served properly. My experience has taught me that, as a rule, the public is reasonable and generous and willing to pay a fair price for what it gets. If this public has been confused and misinformed as to what a fair price for architectural service is, it can only be the fault of the architectural profession, for we are the point of contact with the public. It appraises us at our own valuation. If, through ignorance of our costs, we have given an erroneous value for our services in the eyes of the public, let us correct that impression as rapidly as we can. We architects must be idealists, but let us all strive to be practical idealists.

THE GREAT NECESSITY OF SIMPLE COST FINDING METHODS IF THEY ARE TO BE SUCCESSFUL

In giving you the following figures the Architects' League of Hollywood has endeavored to make them as simple as possible. Many complicated methods have been analyzed and discarded. Every known method of allocating overhead has received careful consideration, and if it seemed too complicated, it has been set aside, because the Cost Committee of the League felt that a complicated system would never be followed. Therefore if it seems rather rudimental, it has purposely been made so.

WHAT IS THE ARCHITECT'S PROFIT?

At this point it is perhaps well to define "profit," and I am going to quote from the book "Keeping Up with Rising Costs," by Wheeler Sammons of the editorial staff of *System Magazine*. Mr. Sammons defines profit as follows: "Profit is not interest on investment; it is not a salary paid for managing the business. Both these items the proprietor should properly pay himself as investor in and manager of his own business. Whether he receives a profit above these depends, in the long run, on his ability as a business man to earn that profit from the people he serves. For profit is the owner's return for risk taken in providing for the wants of his customers and the community."

From this it becomes at once apparent that not only the interest on the money invested in one's equipment should be figured into one's overhead, but also the salary that the man operating his own business should pay himself and charge into his overhead before his net profit can be ascertained.

GREAT MAJORITY OF ARCHITECTS DO NOT CORRECTLY FIGURE PROFIT

I have talked to many architects, and it is the exception to find one who knows how to figure his net profit. They all make the very common mistake of figuring their time as worth nothing at all. And you hear this rather self satisfied expansive

FRIEND ARCHITECT, MEET THE SCALY OLD DRAGON "OVERHEAD"

Now before a man can find out what is his net profit, he must know how to figure his overhead correctly. Overhead, that scaly old dragon! He keeps right on feeding on your income. He doesn't care anything about you or yours. His rations come before yours. It makes no difference to him whether you make even a salary, let alone a net profit. The minute you quit working on a salary, you have a little dragon in your home, and if you're not a wise little St. George, he will give a wallop with his old tail that will land you in the bankruptcy court.

TABLE I

	Column A	Column B		Column A	Column B
1. Rent	\$45.00	\$100.00	21. Architectural Books	5.00	10.00
2. Janitor Service	10.00	10.00	22. Telegrams and Express	5.00	10.00
3. Heat and Light	3.00	7.00	23. Advertising	—	5.00
4. Towel Service	—	2.00	24. Miscellaneous	5.00	5.00
5. Stenographic Service	25.00	130.00	25. Auto based on 1,500 miles per month at \$.08 per mile	75.00	120.00
6. Bookkeeping; accounting	9.28	31.00	26. Long Distance Calls	1.32	4.80
7. Drinking Water	—	2.00	27. Blue Printing, stationery, drawing materials and printing	62.00	82.00
8. Telephones	9.56	15.70	28. Attorney Fees	—	10.00
9. Office Maintenance and Repair	1.50	2.00	29. Photographs	7.00	21.50
10. Depreciation on Office Equipment	5.00	25.00	30. Bad Debts	20.00	50.00
11. Insurance (fire)	2.50	3.00	31. Expense of non-productive sketches	—	90.00
12. Insurance (liability)	1.00	1.00	32. Drawing account of \$100 per week or salary to architect	433.34	433.34
13. Insurance (accident)	10.00	10.00	Total Overhead per month	\$771.00	\$1,225.79
14. Taxes	5.50	6.45	Overhead per year	9,252.00	14,709.48
15. Interest on capital invested in office equipment	6.00	12.00	Overhead per hour	4.30	6.83
16. Magazines	2.00	2.00	Productive Hours per Year	2,156.00	2,156.00
17. Stamps; petty cash	10.00	12.00			
18. Charity	3.00	3.00			
19. Club Dues	5.00	5.00			
20. New Office Equipment	4.00	5.00			

statement. "Oh, yes, my business nets me around 40% profit." I want to challenge that statement right now. I don't believe there is an architect in America that makes 40% net profit, or anywhere near that amount, over an average of several years' business. He is lucky if he makes 10% net profit, and if he makes 15% he is traveling in "high" with the throttle open and all eight cylinders hitting. The trouble is that our expansive 40% friend is like nine out of ten business men, he doesn't know what profit is. He feels a bit chesty with his 40% profit, and yet he never seems to have any money. He can't get his bills paid. Why? Because he doesn't know his costs or how to figure them. What he thinks is a profit of 40% is merely a part of his production cost, and frequently he has no profit at all.

When you start in business watch your step, George. You have declared war on the old dragon, overhead, and he'll get you if you don't watch out.

THE RATIONS OF THE DRAGON

The various items of overhead have been carefully considered by the Architects' League of Hollywood and enumerated in Table No. 1. Column "A" is the overhead reduced to its lowest terms. It is the overhead of the young architect who works out of his house and honestly tells you he has no overhead. His little private war with the dragon only costs him \$771.00 per month, or about 7 1/5 cents per minute for his working time. No overhead! Young fellow, my lad, guess again! Column "B" is that of the small architectural business em-

playing from two to five draftsmen. This is probably the great average architect's office in America.

THE DRAGON'S MENU ANALYZED

Most of the items in Table No. 1 are self-explanatory and require no comment except as follows:

Item No. 13—*Accident Insurance*—Some architects would question this. But ponder on my experience a moment. I fell off a building and broke my leg, and do you know, curiously enough, no philanthropic clients came forward to pay my hospital bills or advance money to keep my office open. And if I had not taken the business precaution of insuring my income by carrying accident insurance, I would have been put to great expense and inconvenience.

Item No. 15—*Interest on Capital Invested in Office Equipment*—Some accountants would question the allowability of this item. But the fact remains that any money you have tied up in adding machines, furniture, and typewriters is not out at interest earning money for you, therefore it is costing you money.

Item No. 23—*Advertising*—To this might be charged expense for exhibitions, etc., publicity, advertising, donations. This item is not really enough.

Item No. 25—*Automobile Expense*—An automobile will cost about 8 cents per mile to operate, including taxes, depreciation, insurance, etc. You can run a Ford for 6 cents per mile. When you are running an automobile in your business, you are feeding old dragon, overhead.

Item No. 28—*Attorney Fees*—Yes, we do have to have 'em. Better figure on them.

Item No. 29—*Photographs*—The best investment you can make is in photographs of creditable pieces of work you have done. Show these to your prospective clients and sell your services on the quality of these instead of making a lot of free sketches. If you do this, the dragon will look reproachfully

at you, for he will know that you are a wise little St. George, and he knows you are "putting one over on him." Your client may be pained and grieved that you will not furnish him a lot of free information and make a lot of gratuitous sketches for him because of the advertising value and other assorted hokum. At this point, however, you will have to be enough of a salesman to sell friend client the idea that your time is worth money to him, as well as to yourself. If you do not possess the ability to sell him this idea without making a lot of free sketches, you had better give up the business and work for some one else on a salary, because if you cannot overcome this point by salesmanship, your career is going to be filled with disappointment and loss. It might be wise to form a partnership with a man possessing selling ability. In forming a partnership in an architectural business, remember that you have to do considerably more than twice the amount of business to maintain the same income for each partner as though you were alone. When the dragon sees an architectural firm formed, with a number of partners, expensive office rent, and elaborate office furniture, he licks his chops in anticipation of the easy pickings that are rather sure to come.

Item No. 30—*Bad Debts*—Yes, they are always with us, like the poor. If you ever find a method of eliminating these, please let me know and you will earn my undying gratitude. Knowing your costs and scrutinizing the credit ratings of the people for whom you do work, will do much to eliminate the matter of bad debts. Watch it like a hawk, because if you don't your meager margin of profit can easily be wiped out.

And here let me introduce the lad with the glib tongue and the imposing front, whose only capital is an idea that he wants to build. He is the blood brother and the business partner of your constant companion and enemy, the old dragon.

(To be continued)



INTERIOR ARCHITECTURE

MASONIC TEMPLE, MADISON, WISCONSIN

JAMES R. & EDW. J. LAW, Architects

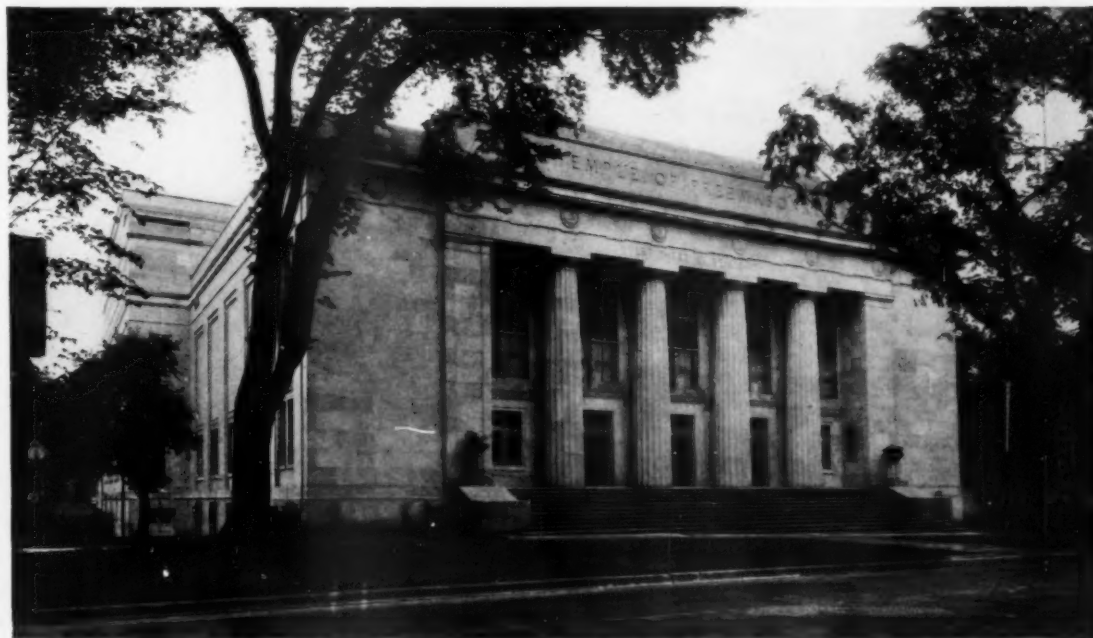
MANY beautiful buildings are dedicated to Freemasonry the world over, and among the more recent is the new Temple at Madison, Wisconsin. Architectural beauty and practical utility were the two objectives in the planning of this Temple. Architectural beauty, because the pace in this direction had been set in the "City-of-Four-Lakes" by the magnificent Wisconsin State Capitol building and the classic State Historical Library building, on the University of Wisconsin Campus. Utilitarian, because all of the activities of the various Masonic orders and organizations of Madison are carried on in the same building.

Temples in which the Blue Lodges, the Shrine, and the Scottish Rite bodies carry on their work co-jointly are still rather few and scattered. The work and interests of the six Masonic organizations in Madison—three Blue Lodges, a Chapter, Commandery, and a Consistory—the Order of the Eastern Star, White Shrine of Jerusalem, Wimodaughis Club, and the Order of De Molay, all center in the new Temple.

Situated at the junction of Johnson Street with the broad Wisconsin Avenue, almost within the shadow of the great white dome of the State Capitol, the new Temple has a central and easily accessible location. The old Temple was located here, therefore the site is redolent with Masonic history.

Bedford stone facing and trimmings cover the outside of the structure, which is of reinforced concrete with steel skeleton, fireproof throughout. Four Doric columns of magnificent proportions and grace give the entrance an impressive and stately dignity, suggesting solidarity and strength. The portico is especially effective at night under the full flood of light, which throws into bold relief the art windows, beautifully glazed doors, symbolic medallions, and the inscriptions over the doorways. "Let There Be Light" is emblazoned on the portico architrave.

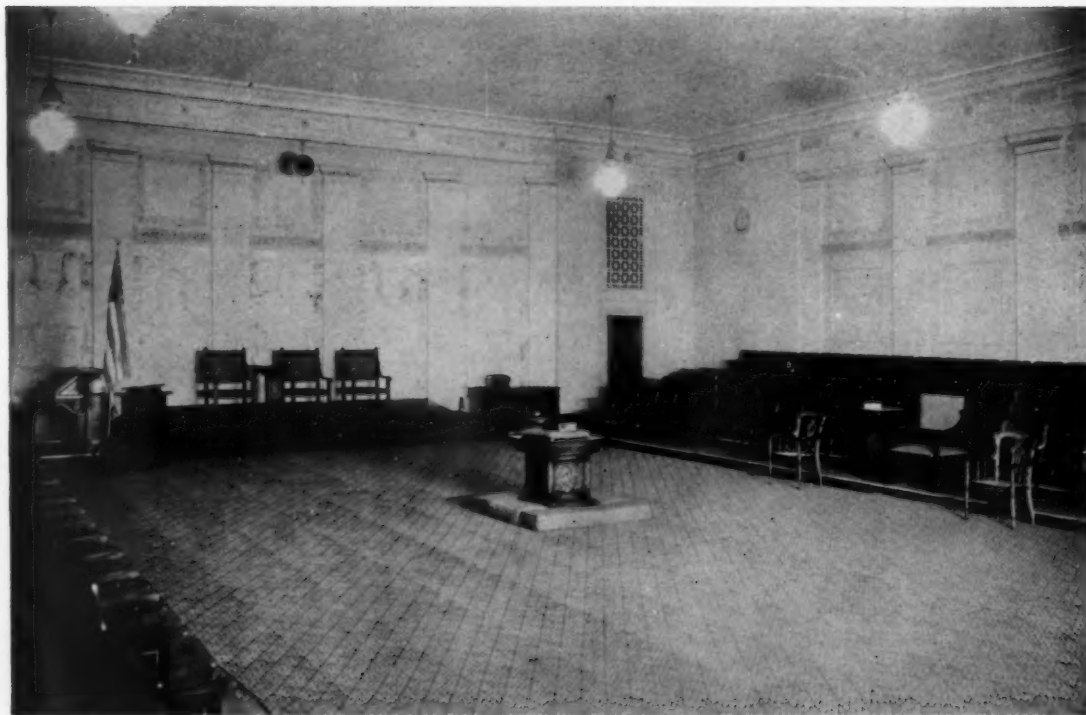
Construction of the building was begun in 1923. It was built in two units—the old Temple on the ground being used for lodge purposes until the first unit of the new building was ready for occupancy.



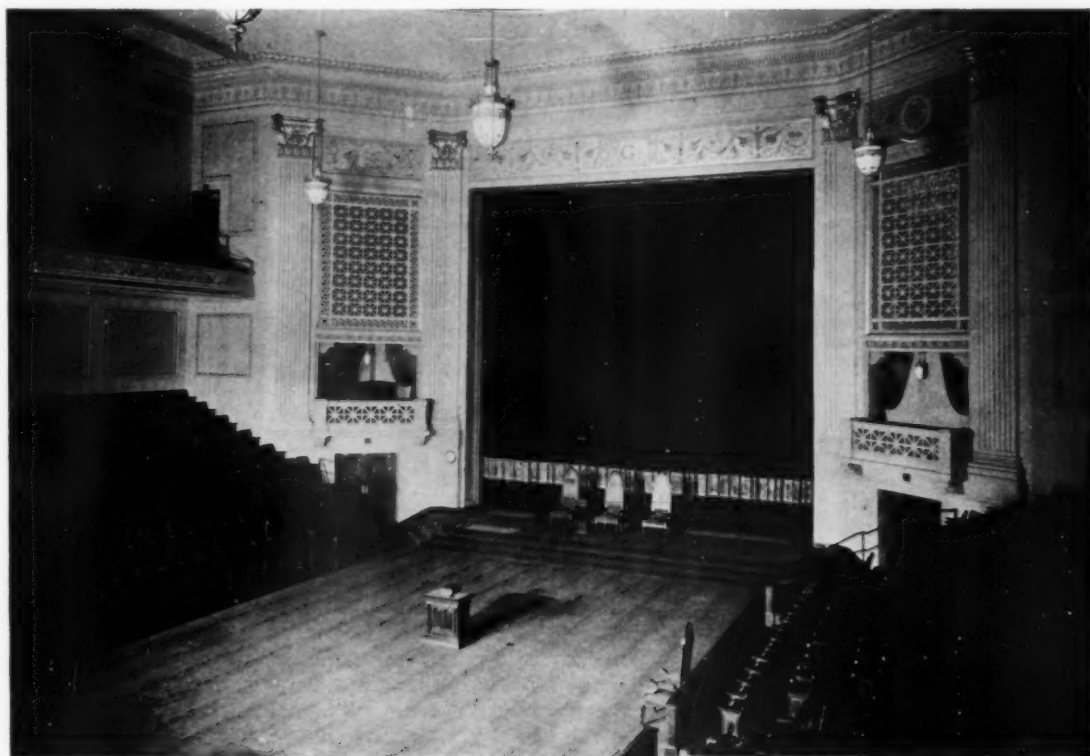
GENERAL VIEW OF THE TEMPLE OF FREEMASONRY, A BUILDING OF PERFECT SYMMETRY IN THE DESIGN OF WHICH ITS MASSIVENESS IS EMPHASIZED



LODGE ROOM NO. 3. SEATING ABOUT TWO HUNDRED. EQUIPPED WITH PIPE ORGAN, STEREOPTICON AND LODGE PARAPHERNALIA



LODGE ROOM NO. 2. SEATING ABOUT THREE HUNDRED AND FIFTY. DECORATED IN SHADES OF TANS AND BROWN, WITH ORNAMENTATIONS OF THE SYMBOLIC EMBLEMS OF THE FRATERNITY



LOOKING TOWARD THE STAGE IN THE AUDITORIUM WITH THE HALL STILL IN ARRANGEMENT FOR BLUE LODGE



THE AUDITORIUM FROM THE STAGE, THE SEATING SO ARRANGED THAT EACH OCCUPANT OF A SEAT CAN SEE BOTH THE FLOOR AND THE STAGE



THE LOUNGE, GIVING THE IMPRESSION OF SPACIOUSNESS, WITH NOTHING CROWDED AND YET NO FEELING OF EMPTINESS

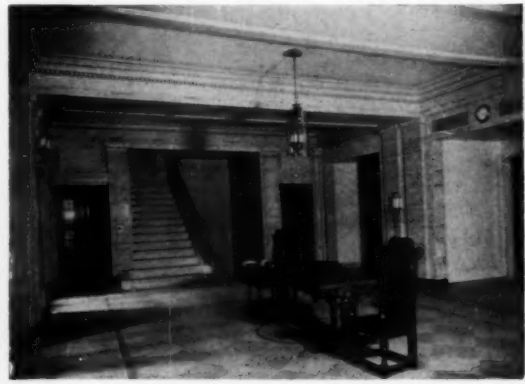
The ownership of the building is vested in the six Masonic bodies on a proportionate basis, and the Madison Masonic Union, composed of three trustees from each of the six bodies, is the governing board. The total cost of the new Masonic Temple approximates \$650,000, including organs and furnishings.

The foyer walls are of Kasota stone, and the tessellated terrazzo floor is mosaic. The design is one that is preserved in Masonic buildings—the blazing star centered in the field of squared blocks with a tessellated border surrounding the whole.

The lounging room, with its fireplace and built-in book cases, was designed with but one idea in mind—a homelike atmosphere. The walls are finished in tan, with a stencil border in greens and reds. Carefully selected furniture, lighting fixtures, and draperies make the room cheerful and comfortable. Light, softly diffused through colored shades, or sunlight filtering in through the fawn colored window drapes in the daytime, makes the lounge a restful and delightful place.

Lighter and more delicate colors are used in the ladies' parlor for both decorations and appointments. The background is light tan, and contrasts are offered in the deep brown draperies, lavender light shades, and pastel colors in the stencilled wall panels. A ladies' dressing room, with tables and mirrors built in completely along one side wall, is a feature of this parlor. The furniture is less massive than that in the gentlemen's lounge, and the atmosphere of the whole is one of daintiness and charm.

The larger of the two lodge rooms is especially designed and arranged for Chapter and Commandery work, and accommodates 350 persons. The decorative scheme is a combination of tan and brown, and symbolic emblems are incorporated in the stencilling of the wall panels. The front of the room has a recessed concave wall of figured Alaskan marble. Crimson upholstery in the massive rostrum chairs and crimson altar cushions give splashes of



THE FOYER WHICH BREAKS IN PERFECT HARMONY INTO THE VARIOUS STAIRWAYS AND ENTRANCES TO OTHER ROOMS

color in contrast with the rich taupe carpet covering the floor.

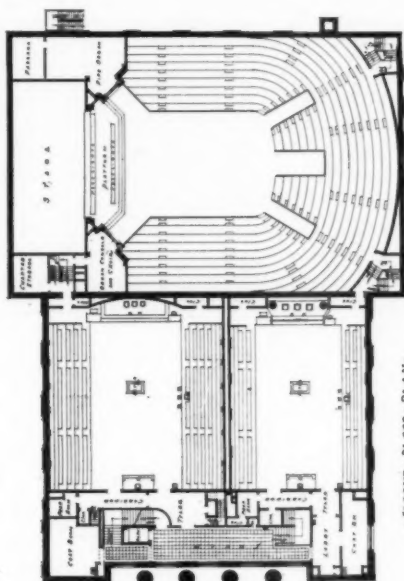
The other lodge room, designed for Blue Lodge work, seats approximately 200 persons. The general arrangement and decorative scheme are similar to that of the Commandery room, except that a deep purple carpet is used, which color is found reflected in the furniture upholstery and wall decorations. The furniture of this room, as well as that in the other lodge rooms, was especially designed and constructed in Belgium. Each lodge room is complete with a pipe organ. Soundproof walls separate the rooms, and meetings may be in session in both lodges at the same time, and both organs may be played at once, without confusion of sound or acoustic interference.

Over the two lodge rooms and on the top floor are the Consistory dressing rooms and the Commandery locker room. The robing room is used by the Consistory at its semi-annual meetings. The locker room is complete with large individual lockers, and showers and dressing rooms are nearby. Organ blowers and the general ventilating system are also located on this floor, and considerable space still remains for the installation of additional lockers and dressing rooms.

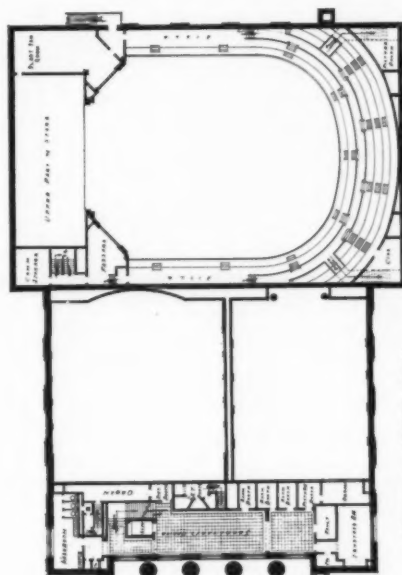
The ground floor of the Temple is planned for the social and festive side of fraternal work. The Johnson Street foyer leads directly to the large ballroom or banquet hall, the spaciousness of which lends itself splendidly to large social functions, dances, and banquets. Over 1000 guests can comfortably be accommodated in this banquet hall at one sitting. Another smaller dining room accommodates about 200 persons.

The kitchen is advantageously situated between the two dining halls. It has a separate entrance, and is equipped with the most modern kitchen equipment.

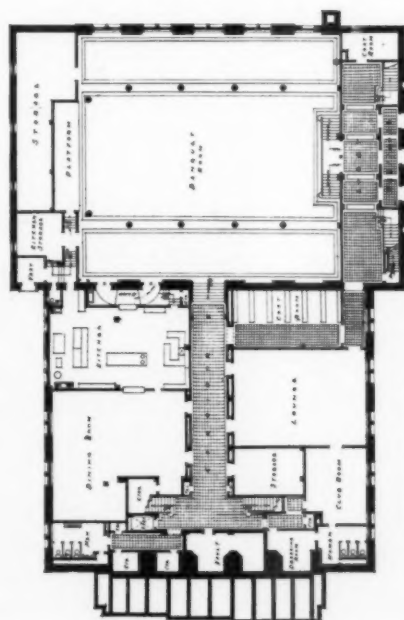
The downstairs lounge is a convenient gathering place when social functions are given. A ladies' dressing and club room opens off this lounge, and



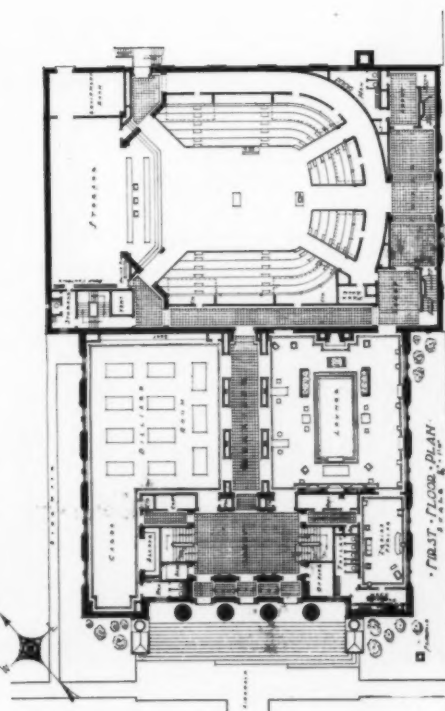
SECOND FLOOR PLAN
SCALE 1/8" = 1'-0"



MEZZANINE FLOOR PLAN
SCALE 1/8" = 1'-0"



GROUND FLOOR PLAN
SCALE 1/8" = 1'-0"



FIRST FLOOR PLAN
SCALE 1/8" = 1'-0"

MASONIC TEMPLE • MADISON • WISCONSIN • JAMES D. & EDW. J. LAW ARCHTS.

a commodious gentlemen's hat and coat room is just off the corridor. This lounge is also used as a class room by the Consistory in its work.

Wide corridors connect the Johnson Street foyer with stairways leading up to the main foyer in the front of the building. Dressing and coat rooms, showers, wash rooms, and storage space have been generously arranged for on this floor as on the others. Two large smokeless boilers are fitted with oil burners for heating the building, and these with other mechanical equipment are located in the basement under the rear of the building.

The auditorium is the main lodge room. Thirteen hundred people can be seated in this room while the floor space is left clear for degree work. If the floor space is used for temporary seating, an additional two hundred can be accommodated. Entrances are made from the four corners and from the rear center, thus providing for all forms of Masonic ceremonials.

Thick taupe carpeting covers the floor. The general motif of the decorative color scheme is worked out in harmony with the deep wine colored velvet stage curtain with its golden band of ornament and the upholstery in the officers' chairs.

The console of a pipe organ occupies the balcony at the right of the stage, while the choir balcony is directly opposite. An echo organ is located at the rear of the upper balcony.

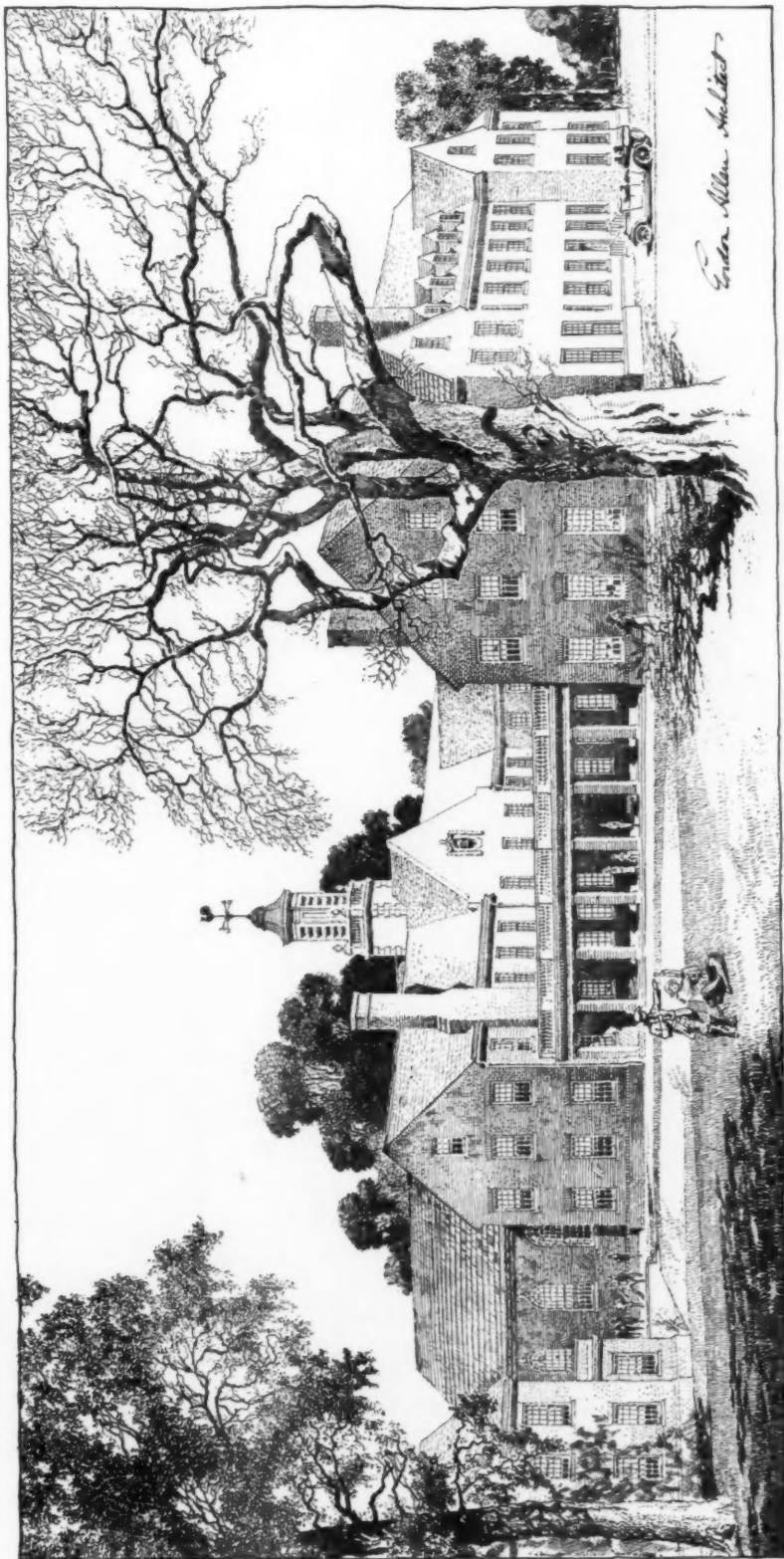
A stage of generous proportions, with the latest of everything in theatrical equipment, is an important part of the auditorium. It is 25 feet deep, 57 feet wide, and has a backstage height of 52 feet. The proscenium opening is 35 feet. Back drops and curtains, a variety of indoor and outdoor sets, and a moving picture machine and screen are part of the equipment. Banks of footlights are carefully concealed in the floor, and when not in use are covered with carpeting. The huge switchboard provides a variety of lighting effects.

The spacious auditorium foyer is reached from the Johnson Street lobby, and stairways lead up to the balconies. An ambulatory connects this foyer with the main corridor and the men's lounge.

Provision was made in the planning of the Madison Masonic Temple so that a number of activities might be carried on within the building without confusion or conflict. This is the utilitarian objective which the architects sought to combine in harmony with architectural beauty.



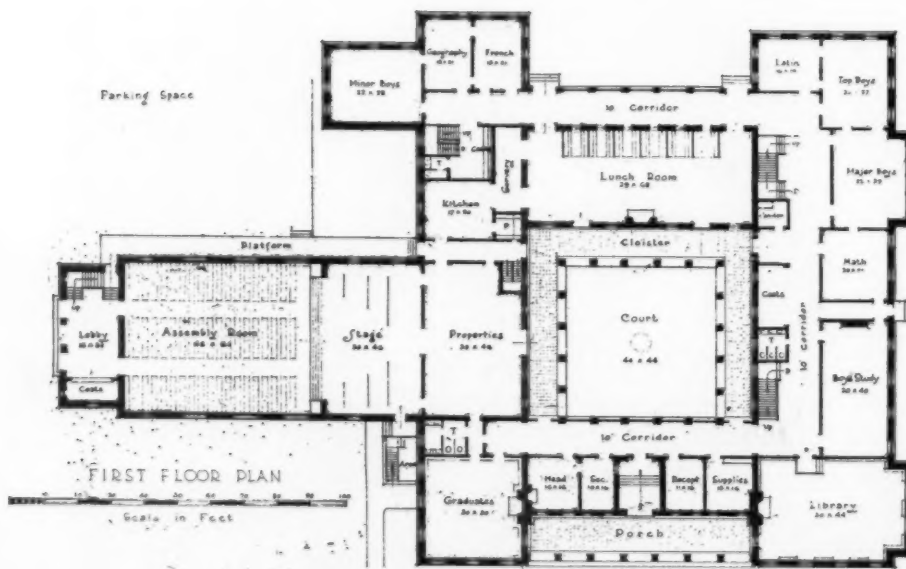
THE LIGHTED PORTICO, WITH EVERY DETAIL WROUGHT INTO BLACK AND WHITE



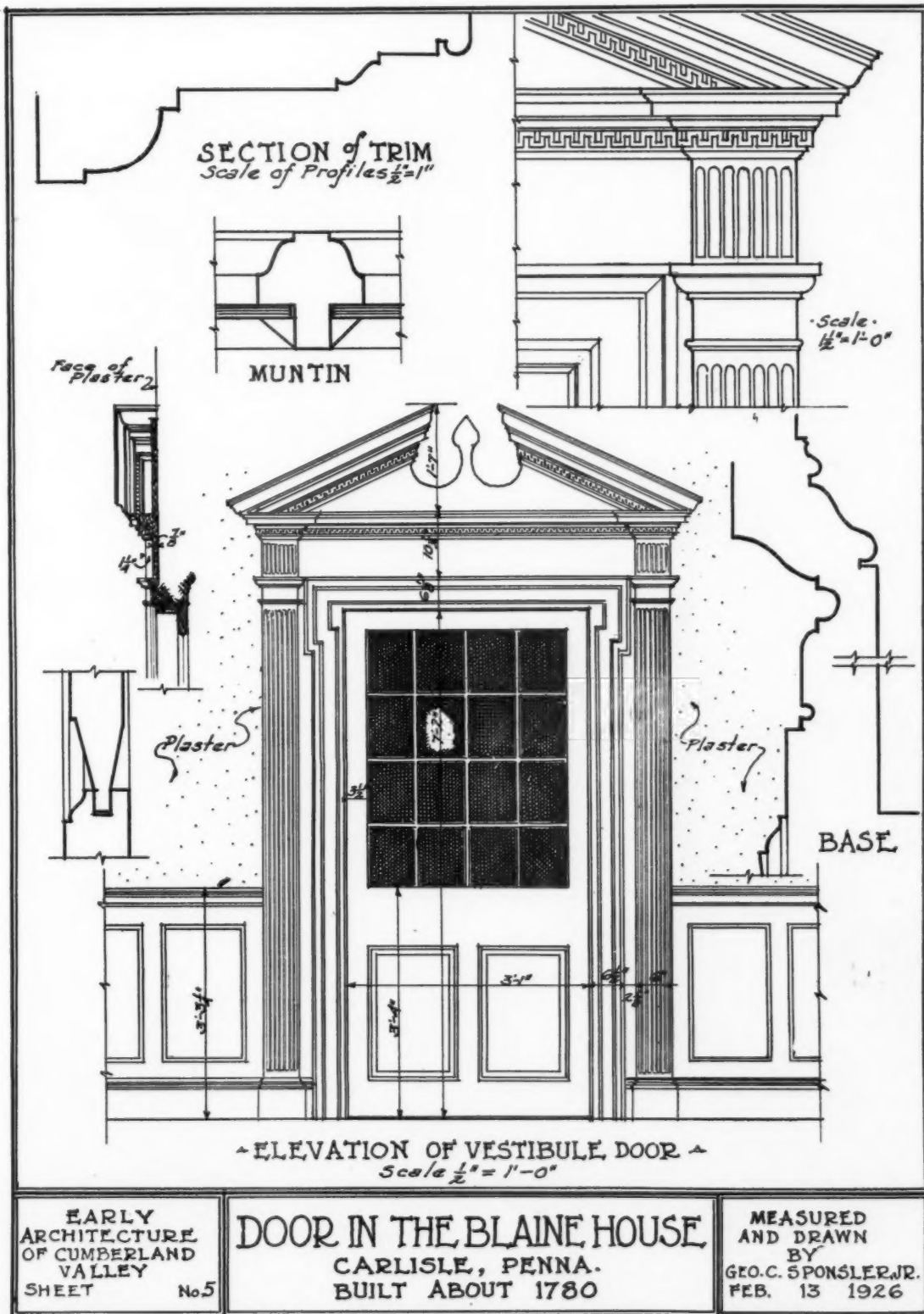
The Roger Ascham School

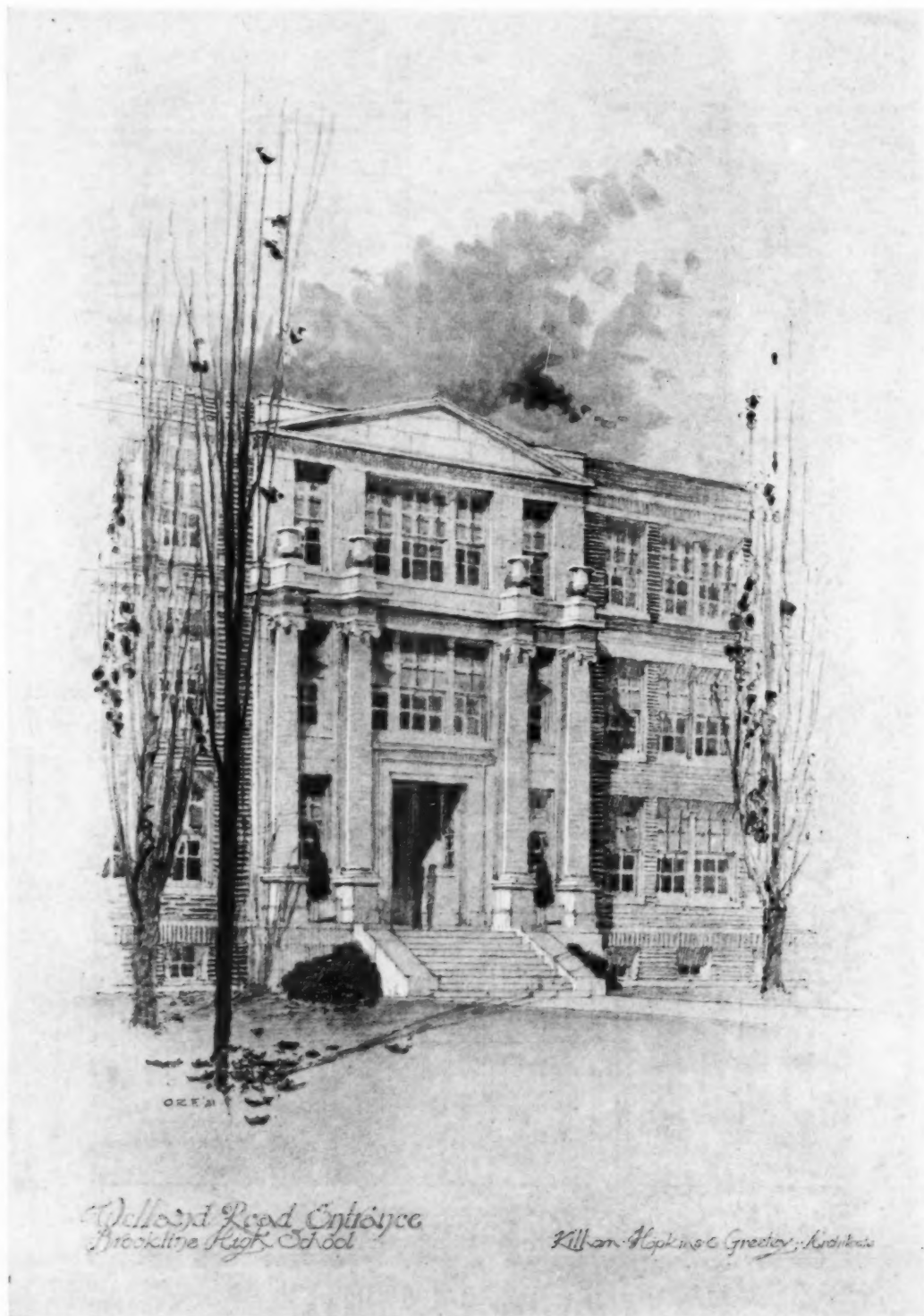
THE ROGER ASCHAM SCHOOL, WHITE PLAINS, N. Y.

GORDON ALLEN, ARCHITECT



THE ROGER ASCHAM SCHOOL, WHITE PLAINS, N. Y.
GORDON ALLEN, ARCHITECT

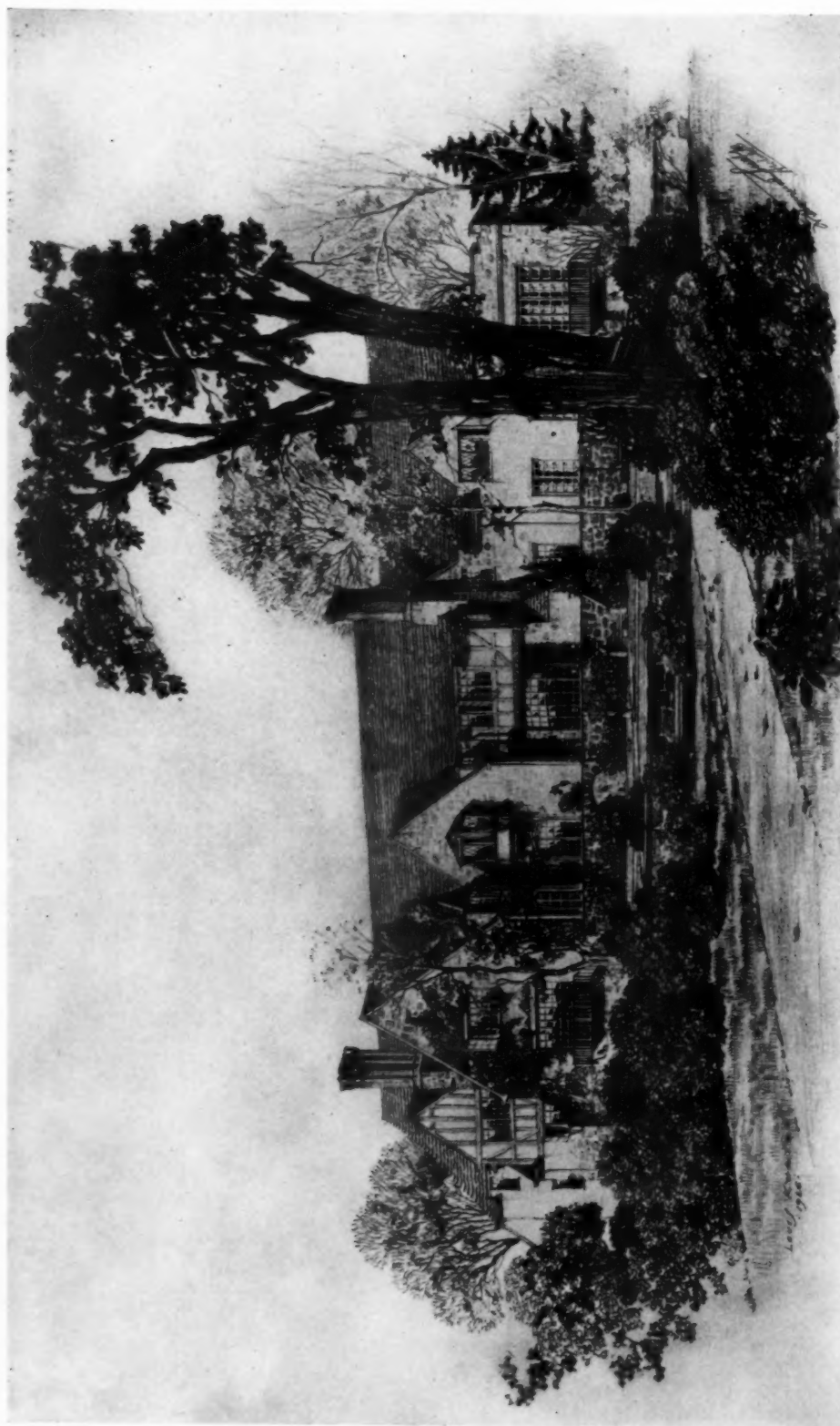




OFFICE SKETCH BY O. R. FREEMAN OF THE OFFICE OF
KILHAM, HOPKINS & GREELEY, ARCHITECTS



HOUSE AT RIVERDALE, N. Y.—W. STANWOOD PHILLIPS, ARCHITECT
FROM THE ORIGINAL DRAWING BY LOUIS KURTZ



HOUSE AT RIVERDALE, N. Y.—W. STANWOOD PHILLIPS, ARCHITECT
FROM THE ORIGINAL DRAWING BY LOUIS KURTZ

TRANSMISSION AND ABSORPTION OF SOUND BY WOOD
STUD PARTITIONS

By PAUL E. SABINE

Riverbank Laboratories, Geneva, Illinois

AN EXAMINATION of the literature of the subject of the transmission of sound by walls of different types and materials discloses a wide divergence in the findings of different investigators working in this field. These differences may be ascribed in the main, (1) to the intrinsic difficulties of sound intensity measurements, (2) to failure on the part of investigators to recognize all the factors that enter into the transmission of acoustic energy and a consequent failure to control all of these factors, and (3) to important differences in test conditions and methods of measurement.

In the seven years that have been devoted to this problem at the Riverbank Laboratories, the plan has been to carry on a systematic and ordered program of research, to determine the factors that really control the transmission of sound from room to room by way of partition walls, rather than to investigate the sound insulating merits of the many possible constructions and materials that can be used. It is hoped that by employing a single method under conditions that are maintained constant throughout the entire program, the whole series of investigations will in the end present a consistent picture of the essential facts, from which conclusions of general significance may be drawn.

In a paper published in the July 4, 1923, issue of *THE AMERICAN ARCHITECT*, it was shown by actual tests on fifteen different walls that the transmission of sound by partitions composed wholly of masonry materials is determined by the weight per unit area of the wall, quite independently of the particular masonry material used in its construction. As the weight was increased from 10 to 42 pounds per square foot of wall surface, the reduction of the intensity of the transmitted sound increased very approximately as the five halves power of the weight. From this point, the investigation was conducted along two distinct lines: (1) to the study of double masonry partitions with varying degrees of structural bridging and with the intervening space filled with different sorts of deadening materials, and (2) to the study of the more common construction of wood studs, lath and plaster. The results of this study, so far as they

refer to the character of the lath and the particular kind of plaster used, are reported herewith.

A wood stud construction consisting of yellow pine 2 x 4's was built in the opening, 6' x 8' between the sound chamber and one of the test chambers described in earlier papers. The studs were spaced 16" on centers and nailed at top and bottom to 2 x 4 inch cross members.

SPECIFICATIONS

1. *Metal Lath*: Expanded metal lath of medium weight (3.1 pounds per square yard) was nailed lengthwise across the wood studs. There were no joints between the ends of the strips and the sides of the strips were lapped and tied with wire midway between the studs.

2. *Wood Lath*: Straight pine laths, $\frac{1}{4}$ " x $1\frac{1}{2}$ " x 48" with $\frac{3}{8}$ " spacing between laths were used. The end joints between laths were staggered every seventh lath. Each lath was nailed to each stud, and a $\frac{1}{4}$ " spacing was allowed between the ends of abutting laths.

3. *Gypsum Plaster*:

(a) *Scratch coat*: One 80 pound bag of fibered gypsum plaster was used to $1\frac{1}{2}$ cubic feet of washed sharp bank sand. This was applied by a skilled plasterer to both sides of the test wall, allowing about $\frac{1}{4}$ " on the face of the lath.

(b) *Brown coat*: One 80 pound bag of fibered gypsum plaster was mixed with $2\frac{1}{2}$ cubic feet of washed sharp bank sand. This was applied to a thickness of $\frac{1}{4}$ " to $\frac{3}{8}$ " twenty-four hours after scratch coat was applied.

4. *Lime Plaster*:

(a) *Scratch coat*: One 50 pound bag of hydrated lime fibered with 3 quarts of hair was mixed with $2\frac{1}{2}$ cubic feet of washed sharp bank sand. This was applied to a thickness of $\frac{1}{4}$ " on the face of the lath.

(b) *Brown coat*. One 50 pound bag of hydrated lime (unfibered) was mixed with $3\frac{3}{4}$ cubic feet of sand. This was applied to a thickness of $\frac{1}{4}$ " to $\frac{3}{8}$ " three days after the scratch was supplied.

5. *Finish Coat*: Hydrated finishing lime was made into a putty, twenty-four hours before use. This was circled on the plasterer's board and gaging

plaster was mixed in with water in the usual manner. This was applied as a finish coat to the brown coat.

TESTS

Sound transmission tests on various constructions were made as follows:

1.
 - (a) Metal lath, gypsum plaster, scratch and brown coats, tests made 30 days after applying.
 - (b) The same as (a), tested 12 months after applying.
2.
 - (a) Wood lath, gypsum plaster, scratch and brown coats, tested 15 days after applying.
 - (b) The same as (a) tested 40 days after applying.
 - (c) Wood lath, gypsum plaster, scratch, brown and finish coats, tested 50 days after applying scratch and brown coats and 10 days after applying finish coat.
3.
 - (a) Wood lath, lime plaster, scratch and brown coats tested 15 days after applying brown coat.
 - (b) The same as (a), 45 days after applying.
 - (c) Wood lath, lime plaster, scratch, brown and finish coats, tested 50 days after applying brown coat, and 5 days after applying finish coat.

In each of the transmission tests, seventeen tones were used, covering the range (five octaves) from C_2 (128 vibrations per second) to C_7 (4096 vibrations per second). Experiment showed that the transmission varied widely with slight changes in pitch, particularly for the lower tones. For this reason, the test tones over the lower three octaves were chosen at intervals of approximately one-fourth of an octave, and in the upper two octaves at inter-

vals of one-half of an octave. As each tone required some seventy-five separate observations, the work was necessarily tedious and time-consuming, but experience has shown that any less exhaustive examination does not eliminate the uncertainties arising from the variation in transmission with variation in pitch referred to above. For the purpose of the investigation, and in view of the practical importance of the results, confidence in one's conclusions seemed worth the cost in time and labor necessary to secure it.

As in earlier papers, the results are presented in detail by plotting vertically the common logarithm of the factor by which the physical intensity (energy of unit volume) of the sound is reduced, and horizontally, the pitch of the sound. Since the sensation of loudness of a tone is roughly proportional to the logarithm of the physical intensity, the vertical height of the graph represents roughly the reduction of loudness produced by the test wall. On this scale, a reduction of 6 units, corresponding to a reduction of the physical intensity from a value of 1,000,000 to a value of 1, would reduce the sound of ordinary speech to a barely audible intensity. A reduction of .1 unit on the logarithmic scale could barely be perceived. These facts enable the graphs to be interpreted in terms of ordinary auditory experience.

In the following table, the results of the tests are summarized and reduced to a single figure in each case for comparison. The average value of the experimentally determined logarithms of the reduction factors for the seventeen test tones is taken as a figure representing the sound insulating merits of each construction in comparison with similar averages for other constructions. To this table are added

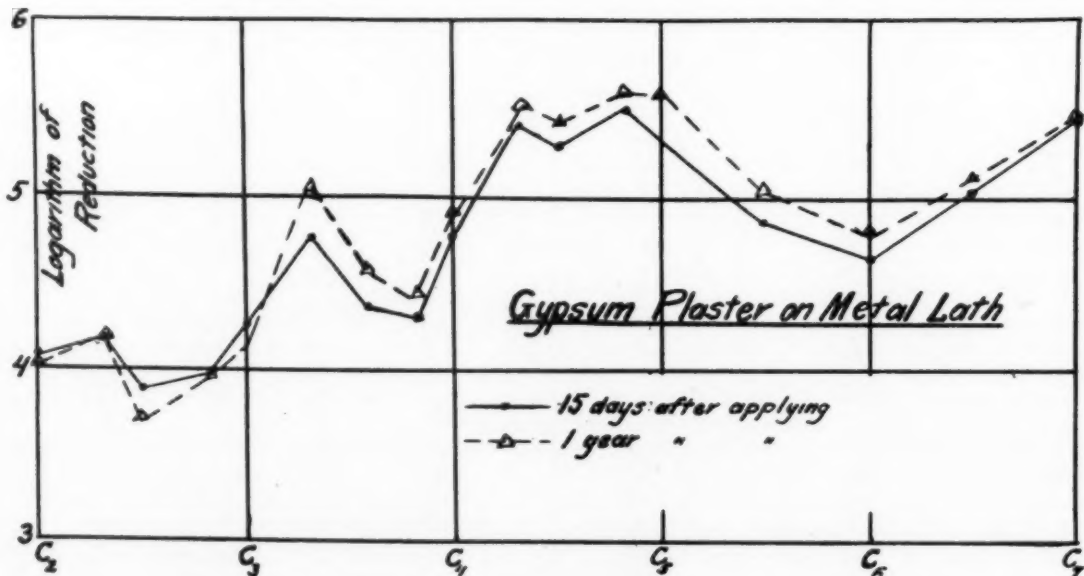
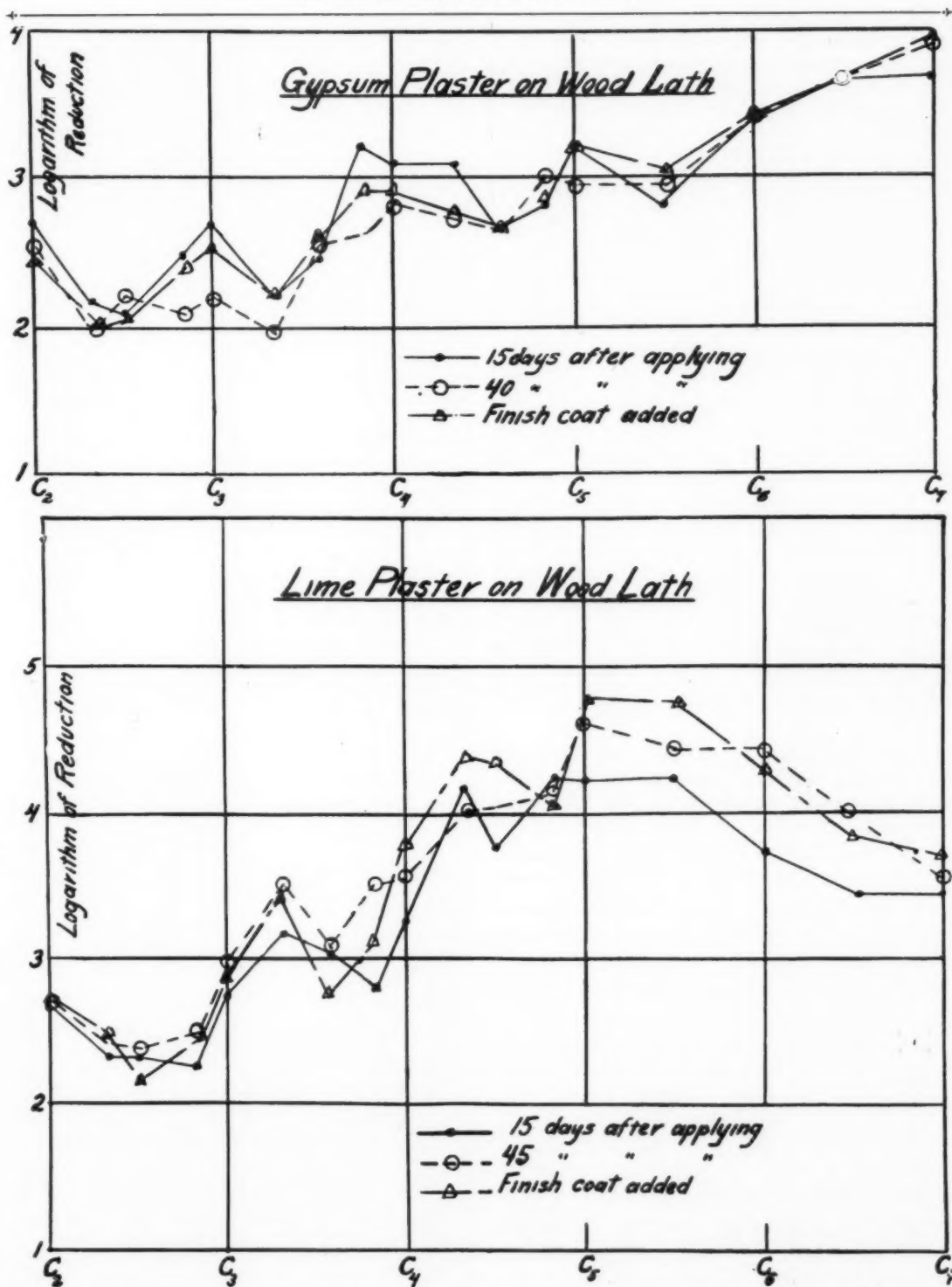


DIAGRAM OF SOUND TRANSMISSION, TEST 1



RESULTS ARE PRESENTED IN DETAIL BY PLOTTING VERTICALLY THE COMMON LOGARITHM OF THE FACTOR BY WHICH THE PHYSICAL INTENSITY (ENERGY OF UNIT VOLUME) OF THE SOUND IS REDUCED. THE PITCH OF THE SOUND IS PLOTTED HORIZONTALLY. THE VERTICAL HEIGHT OF THE GRAPH REPRESENTS ROUGHLY THE REDUCTION OF LOUDNESS PRODUCED BY THE TEST WALL.

DIAGRAMS OF SOUND TRANSMISSION, TESTS 2 AND 3

for comparison similar averages taken from tests made on panels built according to practically the same specifications at the Bureau of Standards and reported in THE AMERICAN ARCHITECT of November 5, 1925.

On the basis of the Riverbank experiments, the following conclusions are justified:

1. The effect of aging between a period of 30 days and one year on a metal lath gypsum plaster wall is negligibly small.

2. Aging between 15 and 45 days produces a measurable increase in the insulating value of a wood lath lime plaster partition.

3. There is no important difference in the sound insulation afforded by gypsum plaster laid on metal lath and the same material laid on wood lath.

4. Lime plaster laid on wood lath has a measurably greater insulating value than gypsum plaster applied on the same construction.

5. Comparison with the results of earlier tests on partitions composed wholly of masonry, shows that the wood stud construction with gypsum plaster gives the same reduction as would an all-masonry wall of equal weight. These earlier tests included solid plaster laid on metal lath on metal channel, and on both gypsum and clay tile. The inference is therefore drawn that, weight considered, the wood stud construction has no sound insulating advantage over metal channels or masonry tile.

6. Oral tests showed that speech of conversational loudness could easily be heard and could be understood through all these partitions. This fact

is quite in agreement with the numerical values given by the tests.

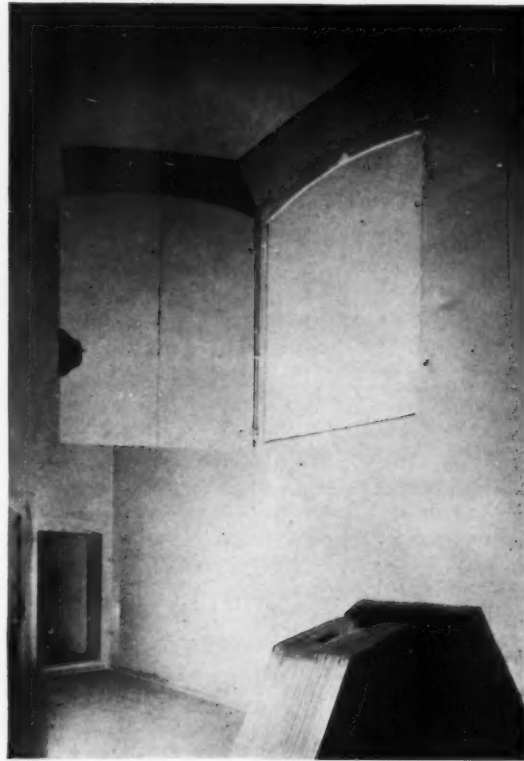
The point of greatest scientific interest brought out by the investigation is the higher reduction of transmitted sound afforded by the lime plaster. Practically, the difference is not important, since neither lime nor gypsum plaster furnishes enough insulation to reduce speech to unintelligibility. The fact that lime plaster, differing as it does in the physical properties of hardness and strength, differs also in acoustic insulating properties, is significant. The reason for the difference is of interest in a study of the factors that control sound transmission.

In view of the commercial importance of the findings on the acoustic properties of building materials, a direct comparison of the results of the Riverbank tests with those of the Bureau of Standards would seem desirable. The specifications for the test walls for the Riverbank tests were practically the same as those for the Bureau panels. There is, however, a marked difference in the results, both in the absolute value of the reduction factor for a given partition and also in the relative values for different constructions. On the average, the Bureau's figures are 2.4 units higher on the logarithmic scale. The number whose logarithm is 2.4 is 250. This means that the Bureau finds a reduction in the physical intensity of the transmitted acoustic energy, 250 times as great as that shown by the Riverbank tests. As to comparative values, the Bureau's figures for the metal and wood lath surfaced with two coats of gypsum plaster show an advantage of .68 logarithmic units in favor of the metal lath, while the Riverbank fig-

TABLE I
Reduction of Sound by Wood Stud Partitions

Wall	Lath	Plaster	Coats	Aging	Wt. Per sq. ft.	Ave. Log. Reduction Factor	
						Riverbank	Bur. of Standards
1a	Metal	Gypsum	S & B	30 days	17.4	2.70	} 5.37
1b	Metal	Gypsum	S & B	1 year	17.4	2.80	
2a	Wood	Gypsum	S & B	15 days	18.0	2.85	} 4.69
2b	Wood	Gypsum	S & B	40 days	18.0	2.73	
2c	Wood	Gypsum	S, B, F	50 days	18.6	2.80	4.27
3a	Wood	Lime	S, B	15 days	17.4	3.29	} 6.91
3b	Wood	Lime	S, B	45 days	17.4	3.54	
3c	Wood	Lime	S, B, F	50 days	18.0	3.52	6.08

Riverbank values are averages for 17 tones from 128 to 4096 vibs. / sec. Bureau of Standards values are averages for four frequency bands, 250 to 3470 vibs. / sec.



ABOVE AT LEFT: INTERIOR OF TEST CHAMBER SHOWING TEST WALL, WITH SECTION REMOVED TO DETERMINE WEIGHT. ABOVE AT RIGHT: INTERIOR OF SOUND CHAMBER SHOWING TEST WALL. AT LEFT: THE RIVERBANK LABORATORIES BUILDING. THE PLAN AND CONSTRUCTION OF BUILDING WERE COMPLETELY DESCRIBED IN THE AMERICAN ARCHITECT, ISSUE OF JULY 30, 1919. IT IS A THREE STORY STRUCTURE OF BRICK AND CONCRETE CONSTRUCTION, DESIGNED AS TWO ENTIRELY SEPARATE STRUCTURES UNDER THE SAME ROOF. AN INGENIOUS PLAN PERMITS ALL SOUND FROM THE INNER SOUND CHAMBER TO BE COMPLETELY EXCLUDED FROM THE THREE TEST CHAMBERS EXCEPT SUCH AS PASSES THROUGH THE TEST WALLS. THE SOUND CHAMBER IS COMPLETELY ISOLATED FROM THE TEST ROOMS BY AN 18 INCH AIR SPACE, 18 INCH BRICK WALLS AND SEPARATE FOUNDATION. A ROOM, CONSTANT IN ACOUSTICAL PROPERTIES, IS MAINTAINED IN THE SOUND CHAMBER. A LARGE STEEL REFLECTOR REVOLVES NOISELESSLY, CONSTANTLY CHANGING THE INTERFERENCE SYSTEM AND GIVING UNIFORM DISTRIBUTION OF SOUND INTENSITY

RIVERBANK LABORATORIES, GENEVA, ILLINOIS, AND TEST PANELS REFERRED TO IN ARTICLE

TABLE II

	Riverbank	Bureau of Standards
Method	Reverberation	Telephonic
Test conditions	Vertical walls built into opening	Horizontal or vertical panels set in opening
Test tones	17 discrete tones from 128 to 4096 vibrations per second	4 frequency bands between 256 and 3470 equal to about six discrete tones
Distribution of test tones	13 tones between 128 and 1024 vibrations per second	2 tones between 128 and 1000 vibrations per second

ures show a negligible difference. The Bureau finds that the addition of the finish coat to a gypsum plaster on wood lath wall decreases the insulation by .42 units, while on lime plaster on the same construction, the finish coat decreases the logarithm of the reduction factor by .83. The Riverbank tests indicate a negligibly small change in both cases. Finally, comparing the difference between the lime and the gypsum on wood lath, the Bureau of Standards shows an average advantage of 2.00 in favor of the lime, while the Riverbank tests show a difference of only .66.

A comparison between the methods and conditions of tests in the two investigations is summarized in the above table.

The comments that follow are offered simply to make clear the differences in methods, condition and extent of the two investigations.

The reverberation method of acoustic measurements was devised by Professor Wallace Sabine, used by him with notable success in the study of auditorium acoustics and later adapted in this laboratory for sound transmission measurements. A very excellent treatment of the theory of the method is given by Dr. Edgar Buckingham in Scientific Papers of the Bureau of Standards No. 506. In the seven years it has been employed here it has given consistent and reproducible results. The practical duplication of the tests on the metal lath, gypsum plaster wall after a period of one year shown in test 1, is evidence of the reliability of the method. It has, to be sure, the practical disadvantage of being tedious, but many experiments with various instrumental means of measuring sound intensity, convince the writer that *any* method which takes account of all the necessary facts will be tedious.

As to test conditions, it would seem that a vertical wall built into the opening between two rooms would much more nearly approximate the actual conditions of practical partition wall construction than would a preconstructed panel set in such an opening.

Finally, it is believed that both in the number and distribution of the test tones, the Riverbank tests are more closely related to practical cases than are those of the Bureau of Standards. The frequency bands used in the latter cover only a relatively small portion of the whole frequency range. Thus the interval from 250 to 257 vibrations per second is less than half of a semitone.

This is the only test tone used in the Bureau's test for the entire range of three octaves from 128 to 1000 vibrations per second, which includes by far the greater proportion of sound encountered in speech, music and every day noises. The frequency band from 1000 to 1087 is a trifle more than a semitone, so that the Bureau's investigation over the pitch range which is of practical importance is limited to test with what amounts to only two tones. To this fact, no doubt, certain apparent contradictions in the Bureau's findings are to be ascribed. To cite a single example: The Bureau's figures indicate that the addition of a brown coat of lime plaster to a scratch coat of the same material on wood lath *increases* the average logarithm of the reduction factor from 5.68 to 6.91. The result of a corresponding change using gypsum plaster produces a *decrease* from 5.31 to 4.69. One hesitates to generalize to the conclusion that the addition of lime plaster increases the acoustic insulation while the addition of gypsum plaster produces the reverse effect. In the many tests made in this laboratory, it has been found that, while appreciably increasing the weight of a partition may reduce the insulation for certain tones, yet for the whole range of tones, the heavier the partition of a given material, the greater will be the acoustic insulation. Respectfully, but with considerable conviction, the opinion is offered that the choice and range of test tones in the Bureau of Standards tests were not such as to eliminate the uncertainty arising from the phenomenon of resonance in the test wall and that on this account these tests leave considerable uncertainty as to the relative practical sound insulating merits of the specified constructions.

The large outstanding difference between the absolute values found in the Riverbank and Bureau of Standards tests is doubtless due to the difference of methods of measurement. Details of the latter are not given in the report so that a comparison or a possible explanation of the difference of results to be expected due to difference of method cannot be given. The Riverbank figures correspond much more closely to auditory experience, however. The authors of the Bureau's report state: "If the source of sound is loud enough to be painful to a listener close by, a panel whose reduction factor is 6 will reduce this sound until it is barely audible, while a panel of factor 3 will reduce it to approximately the intensity of an ordinary tone of voice."* According to the Bureau's figures, the test panel giving the highest average reduction factor was the two coats of lime plaster on wood lath with a value of 6.91. On the basis of the statement quoted, such a wall should completely extinguish the sound of speech and even a sound "loud enough to be painful." As a matter of fact, the test wall erected in this laboratory according to these same specifications did not reduce ordinary speech even to the point of unintelligibility, much less to inaudibility. The organ pipe tones used in the tests were loud, but far from painfully so (the logarithm of the intensity in threshold units ranged from 5.5 to 7.5). Heard through the test wall, they were still amply loud for

easy measurement. These facts are quite in accord with the Riverbank numerical values, and quite in disagreement with the Bureau's values.

One frequently encounters the statement that lime plaster has a higher sound absorbing efficiency than has gypsum plaster. The matter has never been made the subject of careful investigation, however, and the erection of the test walls of the two materials offered a convenient opportunity for making such an investigation. A steel door in the sound chamber could be closed over the opening in which the test walls were built, thus reducing the room to its standard condition. In this condition, its total sound absorbing power is known from an earlier calibration by the "four-organ pipe method." From the difference in the reverberation time in the sound chamber with the door open exposing the test wall and with the door closed, the increase of absorption produced could be determined, and from this, the absorption coefficient is easily computed. In the following table, these coefficients for tones taken at half octave intervals covering the usual test range of five octaves are given.

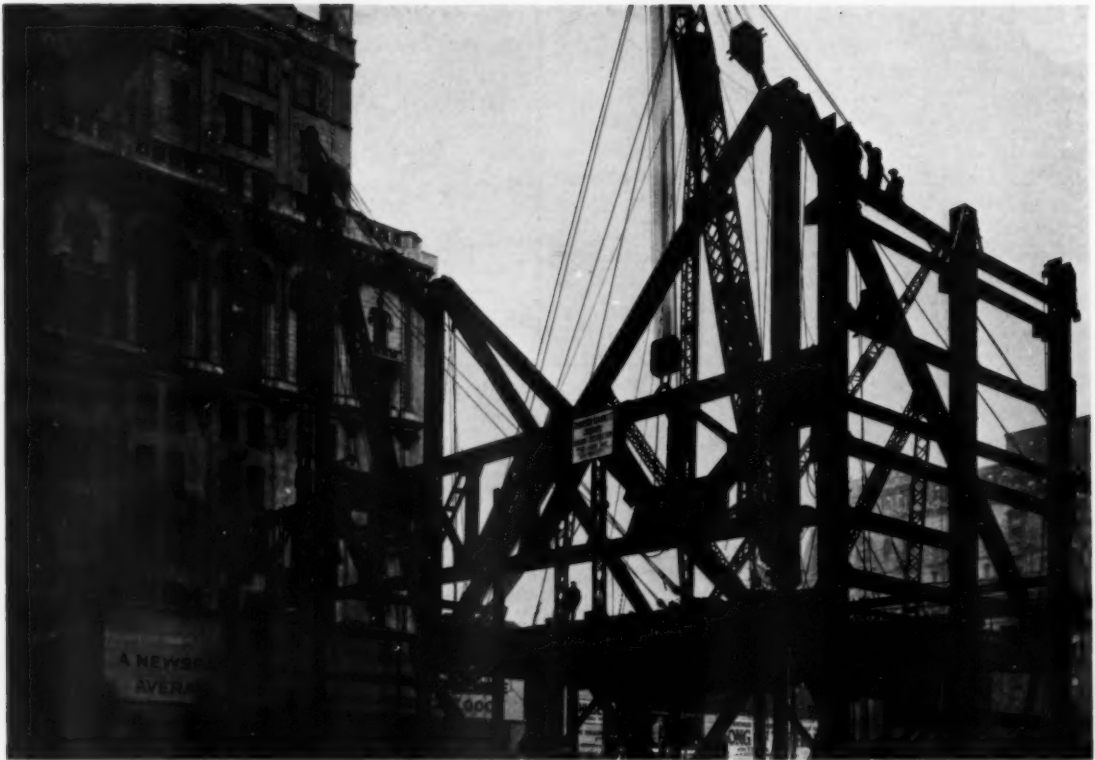
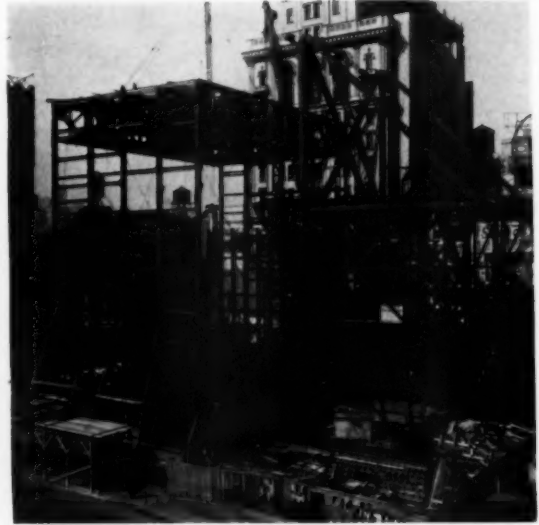
It appears that the rough unfinished lime plaster wall has an appreciably higher absorption coefficient than a similar gypsum plaster wall. The addition of the hard finish coat, however, reduces the absorption of the lime plaster surface, so that for a finished surface, the absorption is the same for lime as for gypsum. This is quite in keeping with the results of earlier experiments, and shows the preponderating role played by the surface condition on the absorbing efficiencies of materials.

*This statement is not in agreement with the values for the intensity of ordinary speech given either by Professor Sabine or by telephone engineers. The former gives the intensity of speech as approximately 1,000,000 times the least audible intensity (log. 1,000,000 = 6). The latter assign a value between 6 and 8 on the logarithmic scale. See article by J. C. Steinberg, *Phys. Rev.*, Oct., 1925, p. 508.

TABLE III

1. Wood lath, lime plaster, scratch and brown coats
2. Wood lath, lime plaster, scratch, brown and finish coats
3. Metal lath, gypsum plaster, scratch and brown coats
4. Wood lath, gypsum plaster, scratch and brown coats
5. Wood lath, gypsum plaster, scratch, brown and finish coats

Tone	Vibrations Per Second	1	2	3	4	5
C ₂	128	.027	.024	.020	.016	.020
F _{#2}	182	.061	.026	.026	.026	.044
C ₃	256	.046	.027	.026	.032	.022
F _{#3}	394	.049	.020	.022	.015	.026
C ₄	512	.060	.030	.040	.039	.032
F _{#4}	788	.067	.043	.058	.035	.048
C ₅	1024	.085	.037	.062	.050	.039
F _{#5}	1576	.078	.052	.062	.050	.039
C ₆	2048	.043	.019	.058	.030	.039
F _{#6}	3152	.066	.023	.045	.060	.045
C ₇	4096	.056	.034	.028	.028	.028
Average		.058	.031	.040	.036	.035

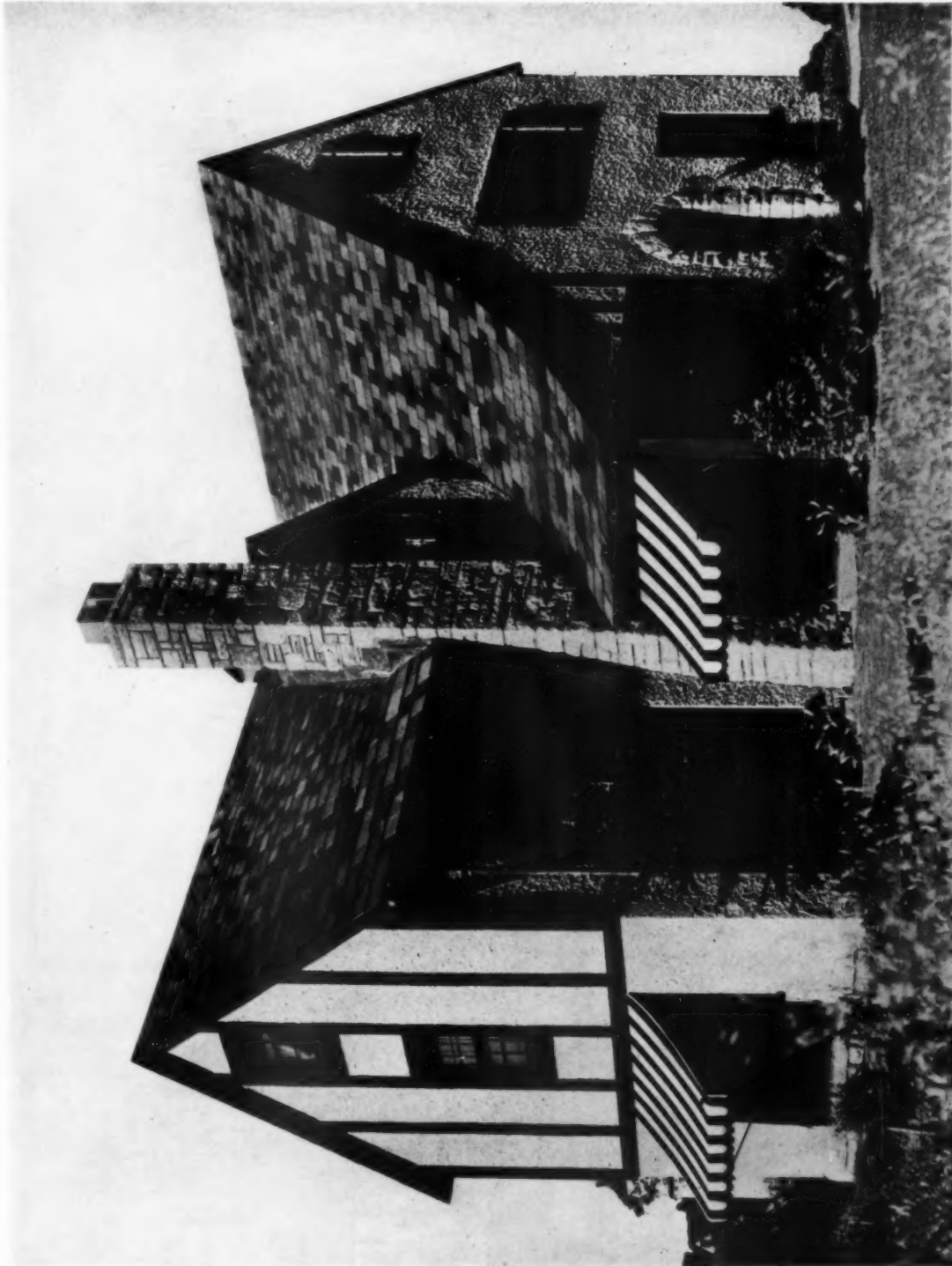


ABOVE: STEEL TRAVELER 52 X 72 FT. AND 84 FT. HIGH USED TO ERECT STEELWORK OF THEATRE PORTION OF BUILDING. TRAVELER, OPERATED ON TRACKS, CARRIED TWO DERRICKS WITH 50 FT. MASTS AND 75 FT. BOOMS

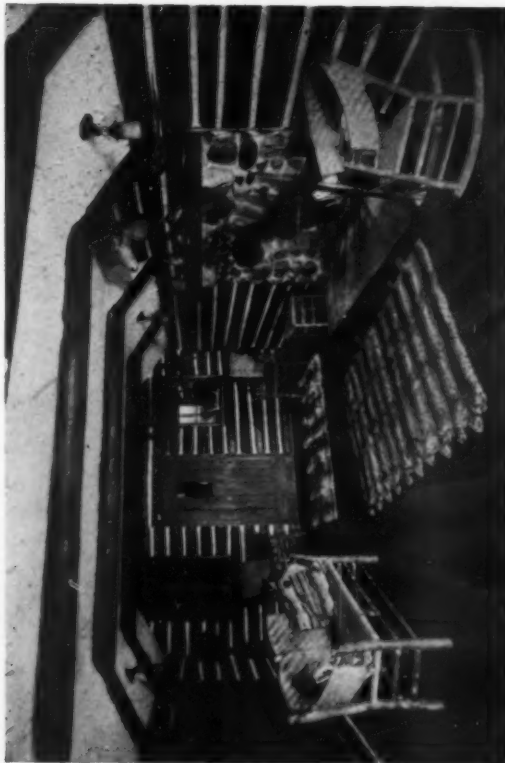
BELOW: DERRICKS ON TRAVELER SETTING ASSEMBLED 150 TON TRUSS 122 FT. LONG AND 16 FT. HIGH, 130 FT. ABOVE THE GROUND, OVER THEATRE AUDITORIUM. THE SPECIAL EIGHT SHEAVE BLOCKS USED ON THIS WORK ARE AMONG THE LARGEST EVER BUILT. EACH TRUSS WAS LIFTED AND SET IN ABOUT $1\frac{1}{2}$ HOURS. HOISTING SPEED WAS ABOUT 10 FT. PER MINUTE

PARAMOUNT THEATRE AND OFFICE BUILDING, TIMES SQUARE, NEW YORK

C. W. & GEO. L. RAPP, ARCHITECTS



HOUSE OF GEORGE K. GANN, ST. PAUL, MINN.
MATHER & FLEISCHBEIN, ARCHITECTS

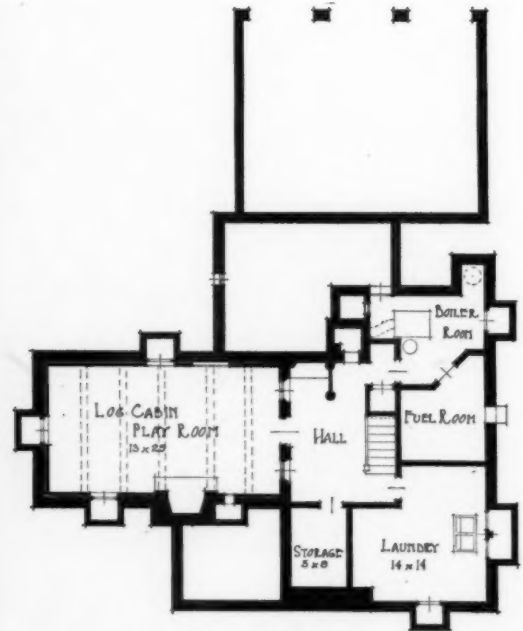


HOUSE OF GEORGE K. GANN, ST. PAUL, MINN.

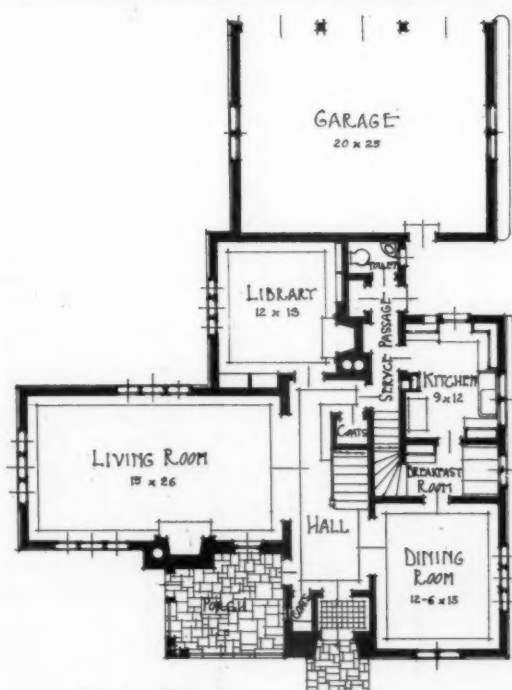
MATHER & FLEISCHBEIN ARCHITECTS

EXTERIOR walls, frame, stuccoed. Roof, variegated slate shingles. Sheet metal, copper. Glass, stained and leaded. Doors and windows, wood. Partitions, wood studs with wood and metal lath. Wall surfaces, plaster, sand finished. Floors, wood, linoleum, tile. Hardware, wrought iron and cast bronze. Heating, hot water. Has garbage disposal equipment.

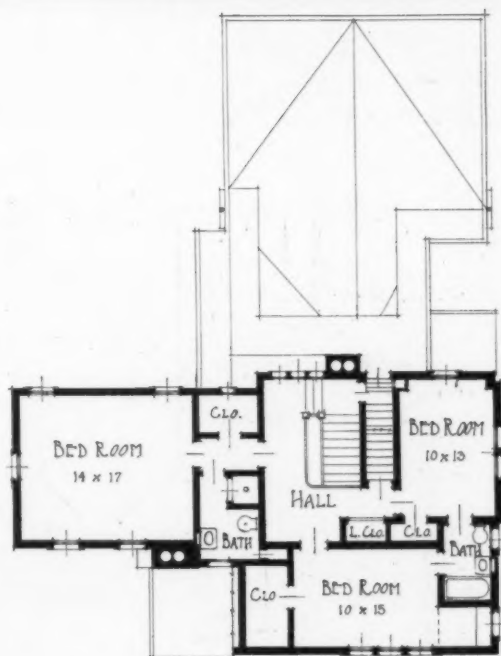
Basement room, as shown in illustration, is finished to represent interior of a log cabin, with cobble stone fireplace, floor of wide boards and rustic furniture.



BASEMENT



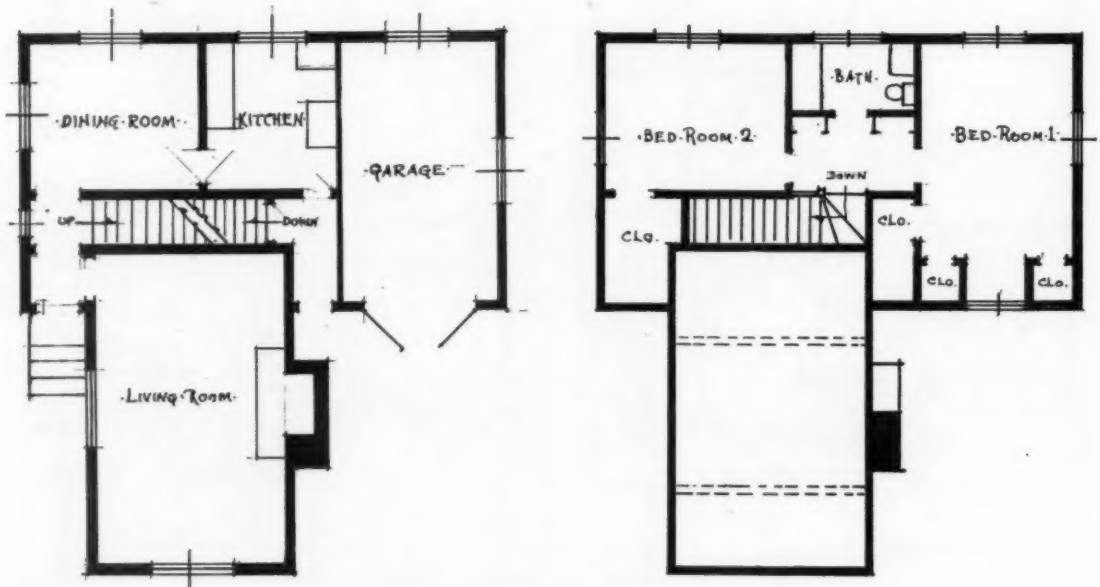
FIRST FLOOR



SECOND FLOOR

HOUSE OF GEORGE K. GANN, ST. PAUL, MINN.

MATHER & FLEISCHBEIN, ARCHITECTS



HOUSE AT LARCHMONT, N. Y.—C. C. MERRITT, ARCHITECT

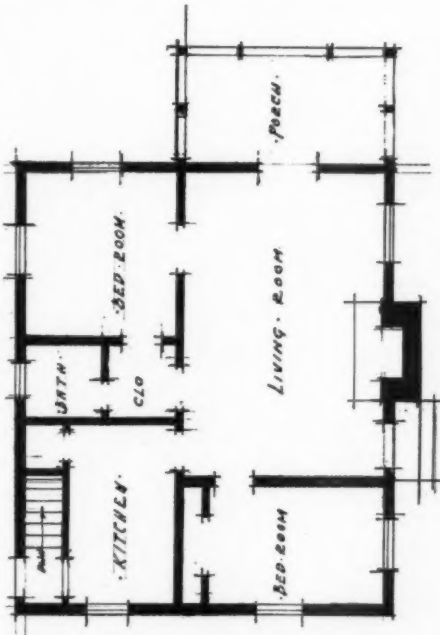


REAR VIEW

HOUSE AT LARCHMONT, N. Y.—C. C. MERRITT, ARCHITECT



HOUSE AT LARCHMONT, N. Y.—C. C. MERRITT, ARCHITECT



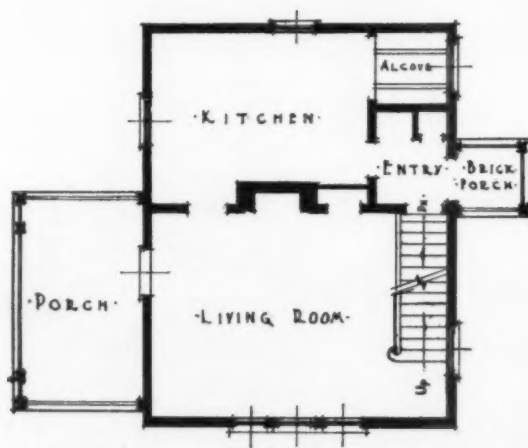
30

HOUSE AT LARCHMONT, N. Y.

C. C. MERRITT, ARCHITECT

30





HOUSE AT FREEPORT, L. I., N. Y.—FRED SMITH, ARCHITECT

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OFFICE BUILDING FOR MISSOURI PORTLAND CEMENT CO., MEMPHIS, TENN.

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IN THE MATTER OF COMPETITIONS

A COMMUNICATION FROM WILLIAM P. BANNISTER, F.A.I.A.

Editor, THE AMERICAN ARCHITECT:

MR. LUDLOW'S letter in the last issue of THE AMERICAN ARCHITECT seems to invite comment on competitions and what has happened in this means of obtaining employment as an architect.

Prior to the adoption by The American Institute of Architects of the rule requiring a proper jury of selection and the services of a professional adviser it was about this way: A number of architects hearing that an important building was to be erected, besieged the owners, using every wile to induce favorable consideration. Because of opportunity by several, and sometimes to get rid of one or two applicants, the owners would invite the applicants to compete, generally fixing a date for the delivery of the drawings and very shadowy suggestions as to requirements. As a rule the competing architects were invited to explain their solutions of the problem and were thus given an opportunity to impress the building committee with their personality. Without a fixed program the solutions varied to a remarkable degree. It was a topsy-turvy way of doing things. Favoritism, pull, waste and cost misrepresentation travelled with these competitions, yet when the method was changed to the orderly way of today, I abandoned competitions entirely for the reason that those that I won were won because of a solution that had not occurred to others. Those that I lost were generally won by somebody

else because of a better solution than mine. With all losses and evils which were involved in the "go as you please" competitions, individuality had its chance.

Having had experience as a professional adviser in competitions, as now required, I can say that the competitors are practically tied to a solution of the problem which was in the mind of the adviser when he prepared the program. It may not be apparent in the program, but it is there, and has found a place in the minds of the jury. A competitor may be disqualified because of failure to follow the letter of the program and the other competitors would have a right to complain if his plans were considered, notwithstanding that the solution was far better than that which was in the mind of the adviser and became the basis of the program. The clause in the Institute program which establishes contractual relations is ideal, but the free and easy approach to the building committee and the right thereby to argue for the merits of your design is a real loss even though it has abated favoritism.

In the matter of the selection of an architect the owner is generally advised to proceed as he would in selecting his doctor or lawyer. Unfortunately, most folks do not know anything about the competency of the doctor or lawyer that they employ, and in the case of the doctor they wander to the quack if the reputable doctor fails to cure an incurable disease. They employ their doctors or law-



Stadium, Soldier's Field, Grant Park, Chicago, Illinois. Linn White, Chief Engineer, South Park Commission, Holabird & Roche, Architects.

BESIDES the Pyle-O-Lyte installation which lights the Soldier's Field and the main section of the stadium in Grant Park, Chicago, the colonnade on the east side of the stadium has just been lighted with another installation of Pyle-O-Lytes.

This imposing structure is viewed by thousands using the new outer drive through the southern part of Grant Park and floodlighting makes its beauty and character just as impressive during the night (when it will be seen by just as many people) as during the day.

Twelve type No. 2360 Pyle-O-Lytes are mounted on the service poles which can be seen in the foreground. The mounting will be completed in more permanent form within a short time.

Architects who wish to secure the full value from a floodlighting installation are invited to consult Pyle-National engineers, who have an extensive experience in work of this character.

Pyle-O-Lyte bulletins describing the distinctive features of construction of these projectors will be sent upon request.

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yers because they like their personality or because they are recommended by some friend who knows nothing about law or medicine. They employ architects in exactly the same way except that more consideration is given to the amount of compensation asked. Doctors and lawyers cannot compete in the way architects do. It would be a funny situation if the patient were to require a presentation of several methods of treatment of his case without being able to understand a word in the program. An owner does have some knowledge of the kind of building that he thinks he needs and he may pick an architect in competition who presents the nearest approach to his conception of what he wants. The doctor and the lawyer do not belong in the scene when discussing the employment of an architect.

Competitions are not altogether bad, but if an owner or building committee would set aside patronage and pick the architect on the basis of his apparent mental capacity, a great gain would result. A good architect usually gives evidence of intelligence in matters other than his art. A person who has acquired enough capital to pay for a building usually has enough intelligence to know it when he sees it in others.

(Signed) WILLIAM P. BANNISTER.

BOOK NOTES

ARCHITECTURAL CONSTRUCTION

JOHN WILEY & SONS, INC., of New York have recently published a most comprehensive volume on architectural construction. Walter C. Voss, S.B., consulting engineer, formerly head of the Department of Architectural Construction, Wentworth Institute, and Edward A. Varney, S.B., Structural Engineer, formerly instructor of Mechanics and Structural design, Wentworth Institute, are the authors.

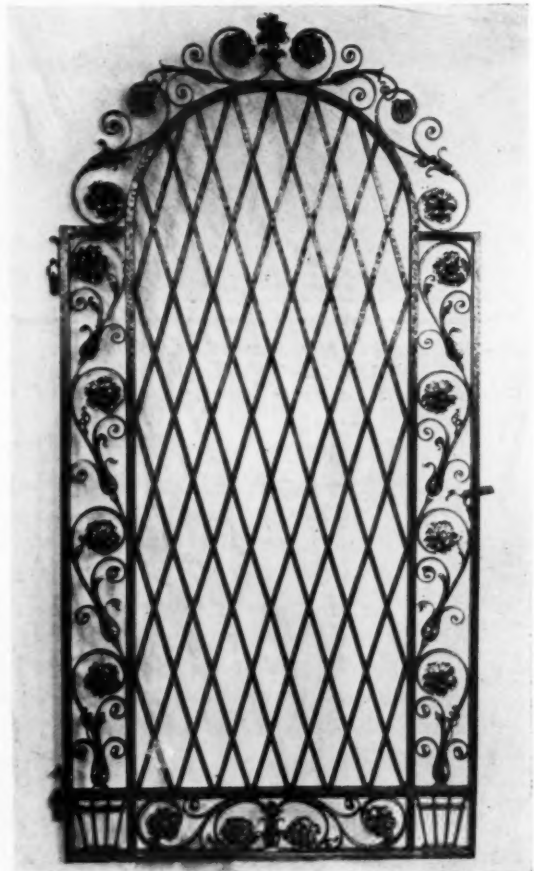
Volume two, one of a series on architectural construction, is divided into five books on wood construction, steel construction, concrete construction, walls and foundations and the mechanics of structural design. The present volume is known as Book One, Wood Construction. The series forms an analysis of the structural design of American buildings.

Book one is divided into five parts, devoted to design of beams, floor construction, roof construction, columns and miscellaneous framing. It deals primarily with mill buildings and so-called second and third class construction. "The authors have confined themselves," the preface states, "to the principles and the portion of structural design which relate exclusively to wood construction, assuming that the reader has a working knowledge of structural mechanics."

This volume is not a highly technical discussion and replete with formulæ, but one containing much

valuable data and numerous drawings and photographs of excellent construction details. This work is not a study in higher mathematics nor too technical to be readily grasped by the average; neither is it so elementary that its value as a hand book is sacrificed. It strikes a middle course that should meet with the approval of all who have occasion to design and detail wooden structures.

The rearrangement adopted of grouping all data, general drawings and details of each particular structural member by itself should be found of



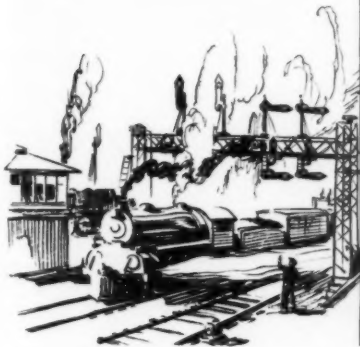
IRON GARDEN GATE FOR A HOUSE AT PAOLI, PA.

ROBERT WHEELWRIGHT, LANDSCAPE ARCHITECT

great convenience. It is unnecessary to look in various parts of the book to obtain all desired information on beams, columns or trusses. The drawings are clear and excellent in draftsmanship. The text is concise and the facts are clearly stated. Specification clauses accompany each item. This is a most complete and unusual volume on building construction. The price of volume two, Architectural Construction, book one, Wood Construction, is \$6.50 net.

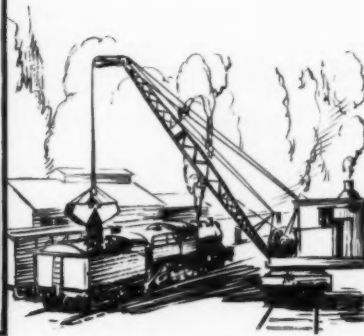
In Railroading, from the heaviest crane to the most delicate relay, Ball Bearings are essential

In fifty years, ball bearings have become an essential in almost every type of machine. In railroading, modern safety signal methods would not be possible without this efficient method of overcoming friction.



*Buhl Building
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This beautiful building is equipped with Stanley Ball Bearing Butts throughout.



The constant grind of unlubricated wear calls for Ball Bearing Butts

FOR doors that bear the brunt of heavy traffic, we recommend ball bearing butts. Unlubricated friction of metal on metal, which occurs in most hinges, results in quick wear.

Over a period of years the expense of repairs and replacements of ordinary hinges which you save will more than pay for the additional cost of ball bearing butts. The ball bearing feature is an investment—not an expense. The Stanley Works pioneered in the making of high grade butts.

Stanley standards of design and quality are well known to the architectural profession.

Stanley Ball Bearing Butts are made of cold rolled bronze and steel. They have non-detachable (non-losable) washers, and are *perfected* in every feature.

You will find that Stanley Ball Bearing Butts render maximum efficiency for life. Look for the Stanley trade-mark on every butt.

The *Architect's Manual of Stanley Hardware* contains information which will aid you in selecting and specifying the correct hardware. We will gladly send you a copy. A description of the Stanley line of butts and hinges can be found in Sweet's Catalogue, pages 1556 to 1568.

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ESTIMATING QUANTITIES AND COSTS OF
FRAME AND BRICK HOUSES

A COMPLETE System for Estimating the Quantities and Costs of Frame and Brick Houses" is the title of a book by Alfred J. Donley recently issued by the United Publishers Corporation of New York. The volume contains estimating data, information on estimating procedure and typical estimates. Example estimates are based upon plans, elevations and sections of residences, and include quantity surveys and summary of the costs of the houses shown.

It is stated in the preface that the book has been written from the point of view of both the builder and the estimator. A system of estimating is presented based upon a plan especially adapted to dwelling-house estimating. The author states in part, "... There are only five steps to be taken in making a figured estimate—all of these steps are comparatively easy from a purely mathematical point of view; ... The estimator may have all the data about building items for the plan he is to estimate, but data must be worked up or prepared before it can be built into the estimate. ... The system of estimating takes a very large part of building item data and works it up, or gives rules for working it up so that it becomes real estimating data."

The book is largely devoted to the converting of building data into estimating data. In it are also outlined a system of procedure and a method of listing quantities in order to make a complete estimate.

The volume is illustrated, very completely indexed and contains 956 pages, size 6 x 9 inches. This book can be recommended to all interested in the subject of estimating.

DEADENING AUTO NOISE

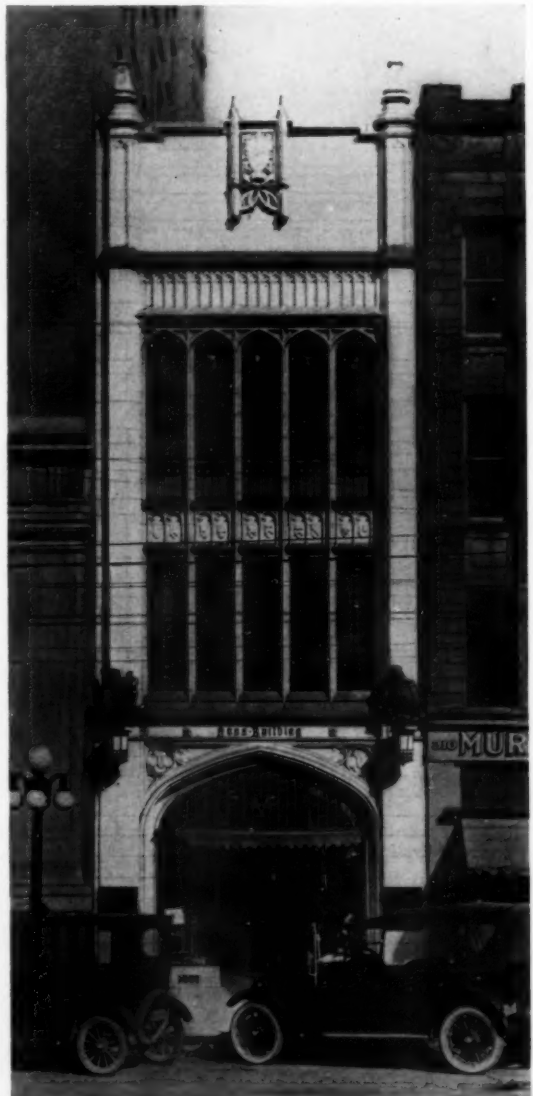
GOVERNMENT EXPERTS FIND WOOD BODIES BETTER
SOUND INSULATION THAN STEEL

FROM experiments with the soundproofing qualities of partitions, to the field of automobile construction, would seem at first thought a far cry. Nevertheless, investigations at the United States Bureau of Standards have developed a fact which may prove of tremendous interest to automobilists, and in particular to that large proportion of automobilists who now ride in closed cars.

The greater extent to which motor and chassis noises are observable within closed cars of certain makes, often referred to as the "sounding board effect," seems to have a very definite explanation.

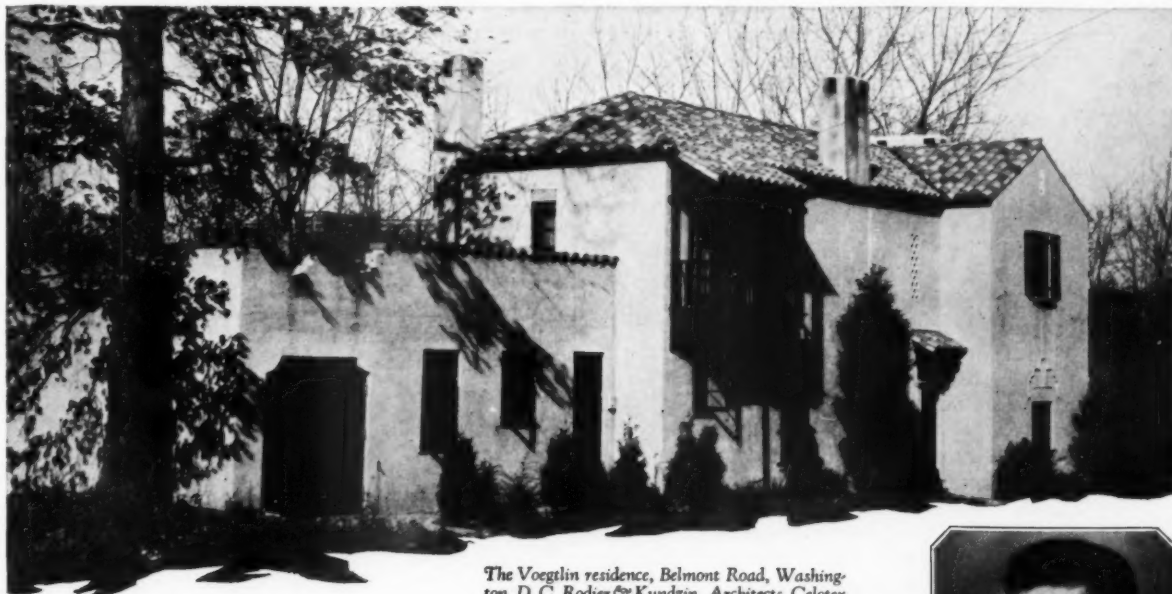
It was found at the Bureau that partitions made with wood framing and covered with lath and plaster transmit less than one-hundredth as much sound as those of lath and plaster on metal framing. The motorist's deduction from this is quite obvious. Cars with closed bodies, which are framed with

wood, shut off from the occupants more than 99 per cent of the noise originating in the motor and transmission and from contact with the road which is transmitted by the steel frame. Those in which the metal surface is attached to a steel framework let more than one hundred times as much noise through to the occupants. The more rigid the connection between the chassis and the material which forms the interior finish of the car, the more easily sound is transmitted. Hardwood, such as used in motor car frames, has greater strength and rigidity, weight for weight, than has steel, but does not transmit sound so readily, according to the experiments made by government experts.



ROSS BUILDING, LAFAYETTE, IND.

CHARLES W. NICOL, ARCHITECT



The Voegtlin residence, Belmont Road, Washington, D. C. Rodier & Kundzin, Architects. Celotex Insulating Lumber used for roof insulation

Insulation a necessity in the Spanish-type house

Rodier & Kundzin say, "We would not consider such roof construction without insulation." They specify Celotex.



Gilbert L. Rodier, Rodier & Kundzin, Washington, D. C.

THE increasing vogue of Spanish and Italian type houses emphasizes more than ever the need for insulation. Their flat tile roofs afford comparatively little air space above the second story.

Rodier & Kundzin, well-known Washington, D. C. architects say, "We have specified Celotex for insulation on practically every job from our office during the last two years and have come to depend on it."

Celotex is an insulating lumber made from the long, tough fibres of cane. Its thermal conductivity is 0.33 B. t. u. per hour, per square foot, per degree Fahrenheit, per inch in thickness. (Gebhardt, Armour Institute of Technology). It is water-proofed, permanent and sound deadening.

Unlike ordinary insulation, Celotex is not an extra item in the building.

In addition to its use as roof insulation, Celotex serves as sheathing, replacing wood lumber and building paper, adding nothing to building costs. It is easily and quickly applied.

Numerous tests by Robert W. Hunt and Co., universities and other authorities, prove that the resistance of Celotex to lateral distortion is several times that of horizontal wood sheathing.

Celotex is also used to replace lath on inside walls and ceilings. It bonds with gypsum plaster, forming stronger walls than lath and plaster, free from lath marks and less apt to crack.

The pleasing texture of Celotex makes it an attractive interior finish either in its natural light tan color or decorated.

Leading architects all over the country are specifying Celotex and over 80,000 homes have been built with this insulating lumber.

We have prepared portfolios of detail sheets in A. I. A. bulletin form which contain specifications and detail drawings for numerous applications. May we send you one?

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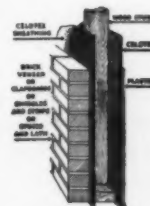
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INSULATING LUMBER

HOW CELOTEX IS USED

Celotex is used in outside walls as sheathing, replacing wood lumber and eliminating the use of building paper. On inside walls plaster is applied directly to its surface. This eliminates the use of lath. Results: More comfort, greater strength and security, longer life and less upkeep expense.



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CONFERENCE ON HOUSING AND TOWN
PLANNING AT VIENNA

AN INTERNATIONAL town planning conference will be held in September this year at Vienna in accordance with the decisions taken at the conferences at Amsterdam (1924) and New York (1925), and in response to the invitations of the Mayor and City Council of Vienna, supported by the Austrian Government and the Austrian housing and town planning organizations.

The principal subjects for discussion will be:—

(a) Examination of the conditions of land tenure in each country and of how far they permit practical results respecting town and regional planning.

(b) The rational distribution of cottage and tenement houses.

Vienna preserves much interest from the point of view of town planning and housing. It is the center of an important region and has the status not only of a city but of a state of the Austrian Republic. The city has had a zoning plan since 1893 and a general plan since 1894. It has its large belt of forest and meadow land amounting in all to 11,000 acres. A new town planning scheme is being prepared for the large town area on the left bank of the Danube.

There will be exhibition dealing with the subjects to be discussed.

APPOINTMENT OF SUCCESSOR TO THE LATE
PROFESSOR HAMLIN

ANNOUNCEMENT was recently made of the appointment of Professor Joseph Hudnut, head of the School of Architecture in the University of Virginia, to succeed the late Professor A. D. F. Hamlin as professor of the history of architecture in Columbia University, New York.

A graduate of Columbia with the degree of master of science in architecture, Professor Hudnut was for four years in charge of the Department of Architecture at Alabama Polytechnic Institute, and in 1923 joined the faculty of architecture at Virginia. While at Columbia he was the winner of the Alumni Medal in architecture.

PERSONALS

Rosario Candela, architect, has moved his offices to 578 Madison Avenue, New York City.

E. G. Blanke, architect, is now located in new quarters at 801 North Calvert Street, Baltimore, Md.

John Matthews Hatton, architect, has recently moved his office from 220 Fifth Avenue to 665 Fifth Avenue, New York City.

Percy Booth, architect, has changed his office address from 22-a Overdale Avenue to 348 Madison Avenue, Montreal, Canada.

Cyrus K. Porter & Sons, architects, announce the location of their new offices at 1110-1116 Walbridge Building, Buffalo, N. Y.

Daniel J. Scrocco, architect, has moved his office from 185 Market Street to the Military Park Building, 60 Park Place, Newark, N. J.

William Douden, architect, announces a change of address from 501 Seventh Street, Northwest, to 409 Hill Building, Washington, D. C.

T. H. Mace, architect, is no longer located at 71 Marlow Avenue, Montreal, Canada, having moved his office to 127-a Bishop Street, same city.

George Fred Pelham, architect, formerly located at 200 West Seventy-second Street, has moved his office to 570 Seventh Avenue, New York City.

Lambert Bassindale, architect, is now located at 485 Endicott Building, St. Paul, Minn., having moved his offices from 321 Capital Bank Building, that city.

William B. Tubby, architect, has moved his office from 81 Fulton Street to the Farmers Loan and Trust Company Building, 475 Fifth Avenue, New York City.

Wolf, Sexton, Harper & Trueax, Inc., engineers and architects, have moved their offices from 7 West Madison Street to the thirtieth floor of the Tribune Tower, Chicago, Ill.

Isadore E. Alexander and Robert L. Brandt announce the opening of offices for the practice of architecture under the firm name of Alexander & Brandt, 332 State-Lake Building, Chicago, Ill.

Rudolph James Nedved and Elizabeth Kimball Nedved announce the opening of their architectural office studio in the Marquette Building at 140 South Dearborn Street, Chicago, Ill. Mr. Nedved was formerly associated with Tallmadge & Watson, and Schmidt, Garden & Erikson, architects, and is now a member of the faculty in architectural design of Armour Institute of Technology at the Art Institute of Chicago.

THE PUBLISHERS' PAGE

ARCHITECTS practicing in states outside the zone of inexpensive personal visits by manufacturers' representatives, are compelled to rely largely on the advertising that appears in their architectural magazines, or producers' catalogs and other literature, for knowledge of new or improved materials and equipment for use in buildings. They do not find their reception rooms thronged by representatives eager to show them the latest product of their firms and explain their advantages.

Manufacturers are today trying to keep these outlying architects informed, but it would appear that their methods are not altogether approved by architects. In our issue of July 5, on this page, we printed an extract from a letter received from an old subscriber, practicing in a Southern state. Since that date we have received a number of letters, quite agreeing with our earlier correspondent and inquiring if something may not be done about it. Whatever is done will, of course, have to be done by the manufacturer. All we may do is to put him in possession of the facts as they are presented to us.

Among the letters on this topic that have come to us, we have selected the following as more completely covering the many points that should be considered. This letter, written by Fred H. Halsey, of the architectural firm of Witt, Seibert & Halsey, of Texarkana, Texas, speaks for itself. We suggest that our advertisers give it very careful consideration. The letter states:

"Our catalog file has always been a mess, so last November we went through it to cull out the useless catalogs. Then we wrote a form letter to all manufacturers describing the catalog we had and asking if that catalog was the latest published, and if not, asking for the latest. In describing these catalogs we found such a great majority to be without numbers, dates or short titles that we had to have a blank in our form for the kind of cover (stiff boards, cloth, etc.), color of cover, size of catalog, number of pages, name of printer, and even then some of them could not be described.

"My senior partner came to Texarkana eighteen years ago to work for an architect long since departed, yet we are still receiving catalogs addressed to him. A couple of years passed and they formed a partnership, which is still being honored with catalogs: then the first man passed on and Mr. Witt was alone, then Mr. Seibert came into the firm, then the writer. It was no uncommon thing to receive six copies of the same catalog. Some companies then got ambitious and added the roster of The American Institute of Architects to their list so that sometimes we received three or four copies addressed to the firm under various styles through which the firm name has evolved, and in addition we were blessed with three personal copies. We attempted

to set forth these facts in the form letter and asked to have all but one name eliminated from the mailing list and received several apologies addressed to all nine parties asking forgiveness for an unintentional slight.

"We had one call from a salesman from Minneapolis whose company had sent him a 'hot' letter asking why he was neglecting such promising territory. The specialty, while a good one, is seldom used, and the salesman nearly had heart failure when I asked him to show me the letter which caused his trip. Neither he nor his manager had ever read it completely, yet had spent nearly \$100 on a special trip of no value.

"Then the catalogs began to come in. They were all shapes, all sizes and only a very few had the standard classification number on them. Most of them covered two or more diverse lines not filed under the same number. Some even had the different lines on the two sides of the same sheet so that the different lines defied separation. One company sent us three different catalogs which were identical except for the covers. Practically none of the companies stated whether the catalog they sent superseded the one we mentioned in the letter.

"Your magazine has improved so greatly in the twenty years I have been reading it, and so completely fills the architect's need that you are the logical ones to try and overcome this time and money wasting difficulty by:—

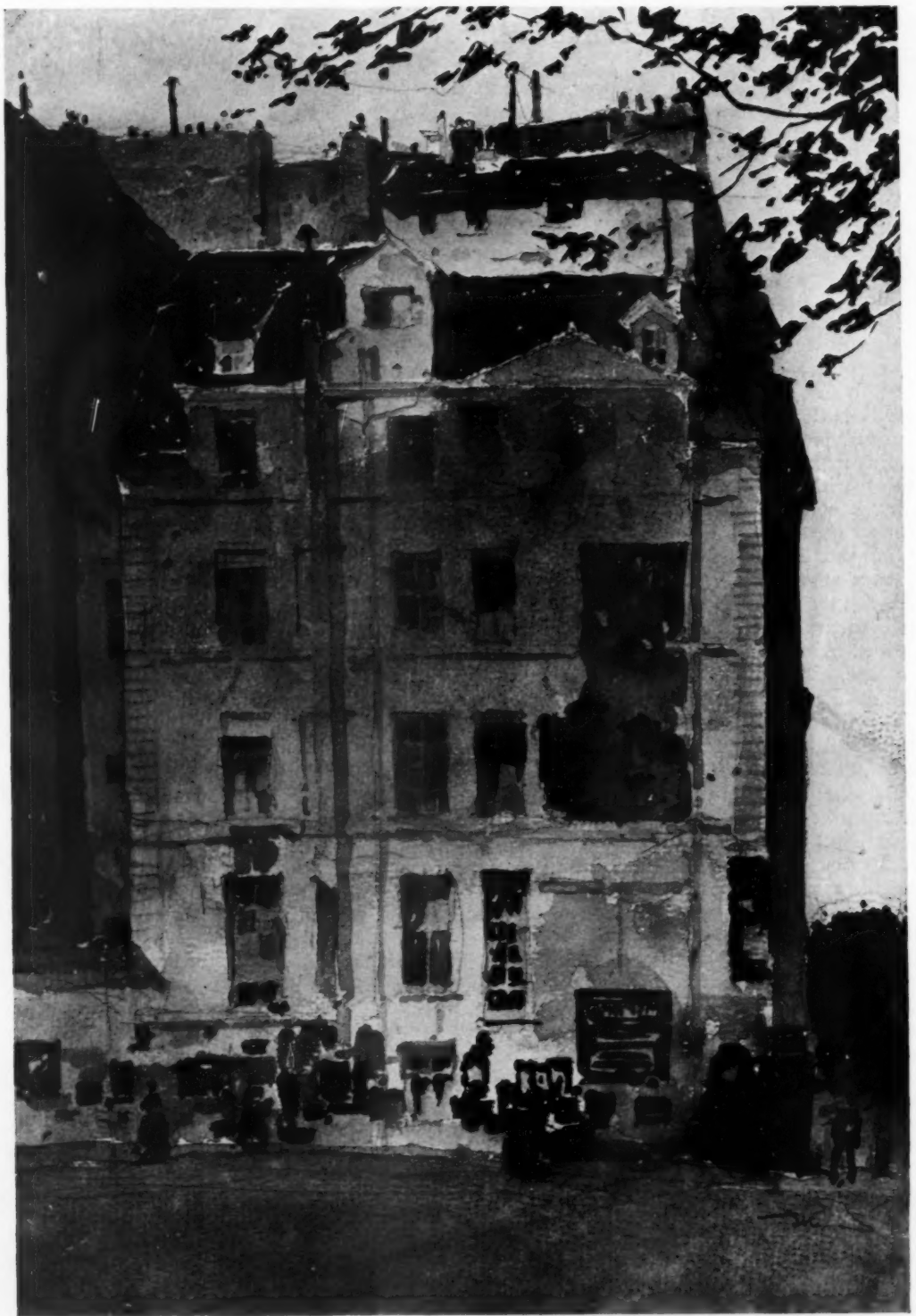
"First: Printing the classification number on every advertisement and refusing to print an ad without the number or with more than one number.

"Second: Writing two separate and distinct ads for each article, one giving sizes, installation data, upkeep data, clearances (required to install, remove and repair), how to adjust, in short, the whole dope which you would want if you were five hundred miles from the factory with a strange piece of apparatus, and no one to fix it but yourself, and the other devoted solely to hot air or 'blah' about who used it and where. Only one ad in a hundred thousand is worth carrying along when you go to tinker with the article when it is misbehaving.

"Third: Compiling a complete list without duplicates of the architects who are still alive and in practice and giving it to the manufacturers.

"Fourth: Editing the ads.

"Fifth: Incessantly pounding into the advertiser that practically never can the architects tell if the catalog they receive today supplements or succeeds the one they already have and that in the rare occasions when this news is included, the notification does not indicate the exact items modified or how modified."



ALONG THE QUAIS, PARIS
FROM THE WATER COLOR BY SAMUEL CHAMBERLAIN

THE AMERICAN ARCHITECT