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LOCKSMITHS AT WORK

Reproduced from a French woodcut. Interesting because it shows the absence of machinery of any sort at the beginning of the Seventeenth Century

LOCKS and KEYS—PART I

MARK TWAIN humorously stated that china door knobs were mute evidence of a higher civilization. "It is true they cease to function as door knobs early in life; but they then afford consolation to the setting hen."

And in this irony of the American Humorist was contained obvious criticism of the builders' hardware of the period, for, from an artistic standpoint, a glance at the builders' hardware of the early eighties shows that it was the crudest element which entered into the art of building. The builder of a fine house had to deny himself any pretense of art. His only refuge was to stick closely to simplicity in order to escape criticism. Very gen-

Some historical reference to hardware and its development in the United States
By . . . Harry L. Harris

In the less conspicuous rooms of the house, knobs were of brass, or, more often, of white or mottled porcelain.

The effect was banal and inartistic, but, as Mark Twain inferred, "respectable."

The first definite promise of better things in builders' hardware was given shortly before the Centennial exhibition in Philadelphia, in 1876, for we find the following in "Locks and Builders' Hardware"—a handbook for architects—by Henry

erally in well built houses, escutcheons, door knobs and hinge plates showed plane surfaces of metal. The epitome of elegance was to silver them, when they were applied to the mahogany doors of the period.

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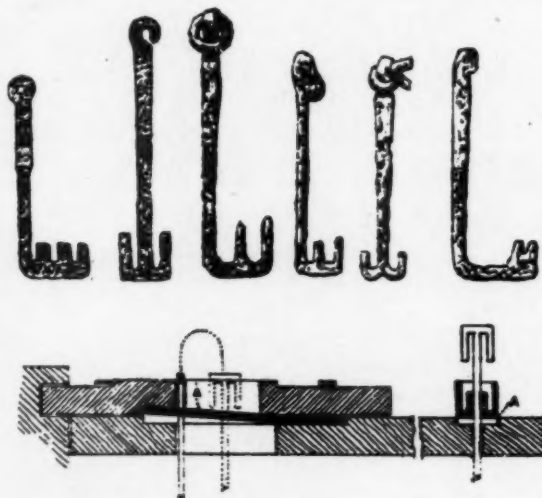
Segment from a Grecian Vase, showing the completion of the toilette of a Greek lady. An attendant is restoring the jewel case to the cabinet. Note the curious sickle shaped key. The operation of the lock is shown in the diagram illustrating a typical Greek door in use circa 500 B. C.

R. Towne, published by John Wiley & Son, New York, in 1904. "The early efforts at decoration in hardware were feeble, crude and meretricious. Credit is due to the Russell & Erwin Manufacturing Company for being the first to perceive the opportunity for better things in this field and by the introduction of their designs in 'Compression Bronze,' about 1872, to introduce ornamental hardware thoroughly excellent in design and admirable in execution."

That the introduction of the perfected "American Lock" came so late in history is the more remarkable as, in one form or another, locks are contemporaneous with civilization. The desire to keep valuable possessions safe from marauders was evident even in the Golden Age. Two thousand years before Tut-ankh-Amen enjoyed his brief period of greatness the Egyptians used cumbersome locks of wood. You may see them depicted in the mural decorations of the Great Temple at

Karnak. Straight bars of heavy wood sliding through two wooden staples; one on the door, the other on the jamb. In the door was cut a large keyhole, through which the wooden key was inserted. Bronze or wooden pegs in the end of the wooden key correspond to as many holes in the wooden bolt of the lock; and when the door is shut it cannot be opened until the key has been inserted and the obstructions to the free movement of the bolt removed by raising up the pins that fall down

into the holes of the bar, corresponding to the pegs in the key. Incredible as it may appear, the mechanical principle on which the Egyptian lock is founded is exactly the same as in the modern cylinder lock of the most improved construction. How many centuries of patient labor preceded the invention of locks we do not know. It is sufficient to say that the lock, in one form or another, was common to all ancient peoples. Locks secured the doors of the palaces in Nineveh. The British Mu-



Early Egyptian keys. The method of use is shown in the lower diagram. Historically this appears to be the first effort to make a door secure

seum has a lock which prevented intrusion into the chamber of one of the veiled beauties of Khorsabad. These locks were huge affairs, with keys two or more feet long. It was such a key that the Hebrew Prophet had in mind when he wrote: "And the key of the house of David will I lay upon his shoulder."

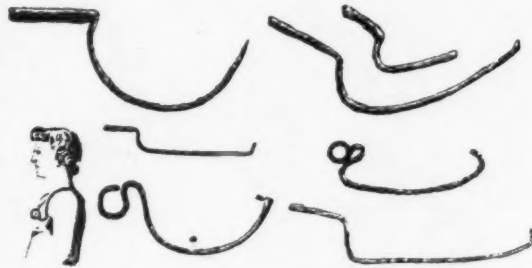
During the time of the Middle Empire in Egypt keys of brass and iron were commonly used. Iron keys have been dug out of the ruins of "Many Gated Thebes." A fine example of one of these keys is described by Wilkinson in his "Manners and Customs of the Ancient Egyptians." This particular key is of iron with a shaft five inches long. The handle is a loop while the other end is turned at right angles to form the operative end of the key. It has three teeth to fit into corresponding cavities in the lock.

For the very earliest description of the lock one must turn to the Bible where—1,350 years before our era—we learn that Eglon, King of Moab, used a lock to fasten shut the door of his summer palace. Read in Judges 3, verses 23 and 25 how "Ehud went forth through the porch and shut the doors of the parlor upon him and locked them... his servants... took a key and opened them." The results were not pleasant for Eglon.

The Greeks had keys, for Homer tells us that Penelope, wanting to open a wardrobe, used a sickle shaped brass key with an ivory handle. Incidentally, the early Greeks, probably owing to the fact that they were sailors, were peculiar in that they used intricate knots to safeguard valuables—the only nation of which this interesting fact is recorded. In the eighth book of the Odyssey, Ulysses is represented securing the rich presents of Alcinous and his Queen by a cord,

fastened in a knot "closed with Circean Art;" and the story of the Gordian Knot, which Alexander severed with a blow of his sword, is woven into our everyday language.

The early Romans very generally pinned their faith to padlocks, a distinct improvement over the bar type of lock, because the mechanism was contained within metal walls and keys could be



Greek keys. Figure in lower left corner shows manner in which keys of this type were carried

made smaller. Togas had no pockets, so the Noble Roman usually carried his keys slung on a thong around his neck. Ovid appreciated the weakness of the padlocks for he relates that thieves used to pry loose the staples from the doors of the wine-shops and he says "Escute forte Seram"—"Shake the lock hard."

Warded locks came next in point of antiquity. Those mysterious people, the Etruscans, used them. Rude specimens have been found on the sites of Luni and Populonia, proud cities thirty centuries ago.

With the break-up of the Roman Empire and the consequent state of unrest into which the world was thrown, there arose a great demand for lock making—indeed for the perfection of ironwork in general. The danger of robbery acted as a spur to human ingenuity to improve the method of securing portable property.

Contemporaneously, the dignity of manual labor became more and more appreciated. A goldsmith was made a bishop; several blacksmiths, archbishops; and a carpenter, pope. The Saints Calendar is filled with the names of those who, before winning a crown of martyrdom, won a living by the work of their hands.

The troubled history of the Middle Ages indicates that the crying demand was for security. Barons built imposing castles of stone for security. Men clad themselves in steel. Mere locks

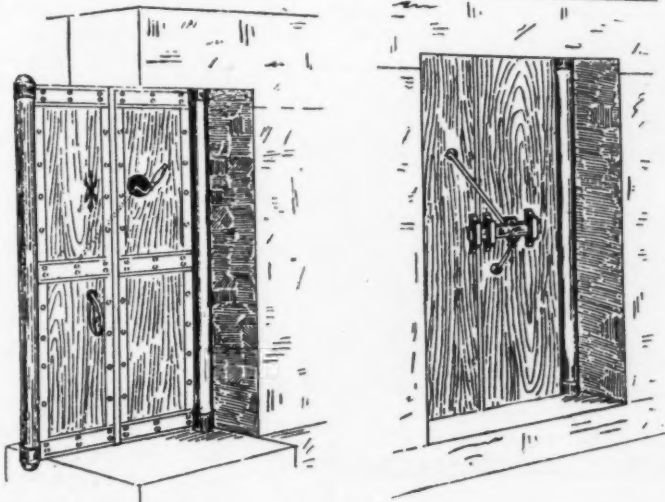


Diagram illustrating method of operating Greek locks in use 500 B. C. Note that the key is used to shove back the bolt which slides through three staples on the doors. The thong, looped and ready to hand, which protrudes through the hole, is used to lock the door

on doors became insufficient. Cells were lined with iron plates; doors were made from iron and strengthened with iron bars; locks were applied to chests, wardrobes and commodes. The Emperor Justinian who, in addition to being a great lawyer, was also a miser, ordered his smith to con-

ping pins. This blocks the bolt and has to be moved upward, and out of the way by the key as it turns, before the key actually engages the bolt.

French workmen of this period excelled in the manufacture of beautiful escutcheons. It was the custom of houseowners to remove their hardware



ROMAN KEYS. TAKEN FROM RECENT EXCAVATIONS IN POMPEII

struct iron chests to hold his hoard of gold pieces, probably the first safe recorded in history.

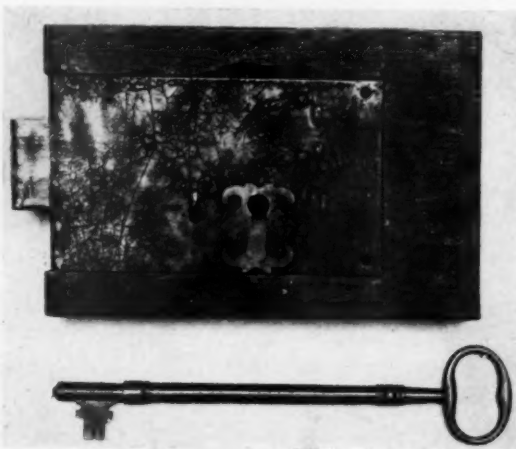
Queen Fredegonde of France had a stout iron chest in which she kept her jewelry. Her daughter Rigonthe offended her mother and when the time came to "kiss and make up," Fredegonde told her to select, as a peace offering, a bauble from the chest. As Rigonthe bent over the heavy chest to examine the contents Fredegonde pulled out the prop which held the lid upright. Rigonthe's head was in the box when the lid fell. The Queen then sat on the lid until the Princess' head was severed from her body. Gregory of Tours tells the story in a matter of fact way, indicative of the characteristics of Fredegonde.

Medieval keys were generally made of bronze and the influence of the church is shown by the ecclesiastical shapes taken by the "bows"—in which were used lozenges, trefoils, quatrefoils and the like. The shanks of these keys are round and hollow, thus allowing them to work in the lock on a fixed center, the "bits" are stepped and cut, as if to avoid fixed wards inside the lock case. In the early Fifteenth Century first appears a level or pivoted tumbler in place of the early drop-

from a building when they moved, and wills of the period bequeath cherished doorplates as valued works of art. In later years, particularly during the reign of Charles II, English artisans became celebrated for the manufacture of beautifully ornamented keys, which were exported all over the world. The bows were exceedingly flat and thin, the steel being pierced all over so as to leave scrolls, monograms and ciphers. Occasionally an entire coat of arms, with crest, device, supporters, ribbon and motto, was cunningly worked out.

A great stride forward in the mechanics of lock making was effected in 1774, when Barron installed two tumblers to guard the bolt instead of one. Ten years later the Bramah lock appeared.

In this lock a thick disk of metal is contained in a casing, and when turned, propels the bolt of the lock by means of a pin contained in its under side. It is, however, normally kept from turning by several sliding steel strips which are held in slots around its outer edge. These "sliders" are thrown upward by springs, and have to be pushed downward by the key. The end of the keybarrel is incised with notches of varying depth so that some of the "sliders" are pushed in more than



An excellent example of the famed wooden case rim lock. Taken from the door of a school in New Britain, Conn., kept by Elijah Burritt, brother of the "Learned Blacksmith"

others, thus creating different combinations. When all these little "sliders" have been pushed down to the proper distance, side openings in them match the edge of a fixed plate and they are left free to pass around the inside casing, together with the central disk which carried them, the turning of which is effected by the key.

In 1818, Chubb patented his "Detector Lock," which had a tremendous vogue. The introduction of a wrong key or tampering with the lock threw

the tumblers out of correct alignment, and the proper key had to be worked the reverse way for an instant before the lock could be opened. The Chubb lock has passed out of use but its mechanical principles, improved and changed, are found today in many of the simpler forms of locks.

Editor's Note. This is the first of two articles by Mr. Harris on the history and development of hardware. The second article will appear in our issue of November 21.



BRONZE CRILLE FOR THE TRENTON SAVINGS FUND SOCIETY, TRENTON, N. J.

DESIGNED BY ROLF WILLIAM BAUHAN, ARCHITECT

STADIA—PART II

BY ROI L. MORIN

The YANKEE STADIUM, NEW YORK

OSBORN ENGINEERING CO., Architects and Engineers

THOUGH the new stadium for the New York American League Baseball Club was designed primarily for baseball, one may readily see it was borne in mind that it would serve other purposes from time to time, as it is provided with a 400-yard cinder track and space for a football field. It will be used for important college football games this Fall, as it has already been used for championship prizefights and a "Rodeo." (A heavy cocoa matting was spread over the entire extent of turf, to prevent it from being injured by the horses' hoofs.)

one of eleven 9" pipes in the outfield, and another of twenty-four smaller pipes in the infield, pitching from the pitcher's plate toward the baselines. A concrete gutter runs around the base of the entire stand, draining into the municipal sewers.

The grandstand, which is little more than half built for the present, is a three-deck steel and concrete structure, with T. C. partitions, built on large footings of crushed rock slushed in with cement, so as to form large monoliths. As the structure is on filled ground, the only alternative was to drive piles, but it was thought that this type



FIG. 1. PERSPECTIVE OF PROPOSED COMPLETED STRUCTURE, YANKEE STADIUM, NEW YORK

A glance at the general layout of the field proper, Fig. 4, shows immediately a fault which one often encounters in baseball parks in some large cities, namely, that the right and left fields are too shallow, being cut off at the foul lines by the stands. There are a number of outfielders in the big leagues today, fleet enough to get a "fly" fully twenty-five yards further out (I have in mind, at the moment, the entire outfield of the Cincinnati Reds) and many heavy hitters welcome these short fields to pile up home-run averages.

The field itself is excellently surfaced and drained, so well, in fact, that a moderate rainfall half an hour before the opening will not prevent a game. Two drainage systems of pipes were laid,

of foundation would prove as serviceable and far more economical. Time seems to substantiate this conclusion, as, some six months after completion, the settlement is almost negligible.

The perspective, Fig. 1, indicates that the whole structure will completely enclose the field. For the present, however, the outfield is enclosed by temporary wooden bleachers, as shown in Fig. 4. The total seating capacity will be in excess of 85,000; while the present capacity, 70,000, is more than adequate, and the Yankee Stadium, as it stands today, seats more people than any other similar structure. The seating capacity is probably already too large, as the stands will rarely be filled except at World's Series games, and then not always. The daily attendance during the sea-

son varies from 5,000 to 35,000, and a small crowd is lost in the huge edifice.

The three tiers, as shown in Fig. 3, consist of (1) a lower deck (25,000 seats), a 127' deep, slight stepping on a reinforced concrete slab, (2) the mezzanine (10,000), concrete steps on simple steel trusses supported at both ends, and (3) the upper deck (13,000), sharply pitched concrete steps, a third of which are cantilevered out from

from an intermediate promenade, a runway to each bank of seats, the aisles running back and up from the front of the balcony. The mezzanine deck has an average pitch (8" risers), while the top deck is pitched almost uncomfortably sharp, though these latter seats give the best view of the entire field. As may be seen from the section, Fig. 3, no attempt has been made to "dish" the slope of the tiers.



FIG. 2. MAIN ENTRANCE, YANKEE STADIUM, NEW YORK

the main steel columns, over the lower deck. The roof is of wood sheathing covered with felt and pitch.

The seats vary considerably in value in the three tiers. Those in the lower deck are pitched only very gradually, affording as clear sight as in the parterre of a first rate theatre. In the front of each deck are two rows of boxes, those in the lower deck being thrust far forward, and though exposed to sun and rain, afford an intimate view of the diamond. The mezzanine deck is shallow, and completely sheltered from the elements. Both of these tiers are reached from promenades in the rear, down aisles. The top deck is reached by runways

The most severe criticism of the cross section is that the several last rows of the lower deck have bad sight lines. Any fly ball, even a long, low *Texas Leaguer*, is lost to view from the time it leaves the bat until it lands in the outfield. The large scoreboard in deep center cannot be seen at all from the last four rows. This is apparently a condition which might have been avoided in design, either by raising the front of the mezzanine, or not attempting to get so many rows in the lower deck. Aside from this, the general seating arrangement and circulation of the Yankee Stadium are highly praiseworthy. It would be well for many theatre designers to trot out there to see



FIG. 3. SECTION OF STANDS, YANKEE STADIUM, NEW YORK
OSBORN ENGINEERING CO., ARCHITECTS AND ENGINEERS

what excellent results can be achieved in such a comparatively crude structure in a baseball park.

The promenades, or concourses, are all 20' wide, entrance or exit from which is effected by two sets of duplex ramps (going in opposite directions as in school stairway construction), one in the center, at the main entrance, which is directly behind the home plate, and one opposite right field. When the stands are completed there will be two more, one in left field, and one in deep center. No stairs are to be found in the structure, except the step-pings in the aisles, and in the private stairs to the offices.

representatives. A single passenger elevator leads to this floor.

Of the many minor comforts and refinements that go far to make for quality in this structure there is much to be said. The scoreboard, a huge mechanism, with a face fully 25' by 40' and letters 2'-0" high, is a model of perfection. It is situated in deep center and may be seen plainly from every seat, except those few bastard rows in the lower deck. On this board all the games in progress in other cities are reported, as they are telegraphed in, as well as all details (strikes, balls, runs, hits, batter up, etc.), of the game on the field. Surely



FIG. 4. LAYOUT OF FIELD, YANKEE STADIUM, NEW YORK

The offices, reception rooms, club rooms, etc., are under the main stands where there is ample space. The club rooms consist of visitors' and home club rooms, with twenty-five lockers each,* and five showers, connected with the dugouts by underground runways. Adjoining these rooms are the umpire rooms and training quarters, a douche room equipped with a shower, needle and douche, rubbing table, electric massagers and heat box. The heating facilities consist of a small U. S. boiler, and hot water is supplied by two batteries of three large size gas water heaters.

On the floor above the dressing rooms is located a suite of offices and reception rooms for press

a great improvement on the clumsy and inadequate little scoreboards to be found at the Polo Grounds and other places! A battery of phone booths is located on each tier. In a central location on the mezzanine concourse are a large store room and distributing center for refreshments, with adequate icebox facilities.

The toilet arrangements are perhaps the best to be found in any structure of this kind. There are sixteen distributed throughout the stands, including the bleachers, six of which are for women. Adjoining the men's toilets are smoking and lounge rooms, and the women's rest rooms, tastefully furnished with wicker chairs, dressing tables, etc., cretonne hangings and grass mats.

The entire structure is lighted, to be used in the evenings for prizefights, etc. The field and

*Baseball clubs are not allowed to take more than twenty-five men on a trip, except in the period just prior to, or during, the World's Series.

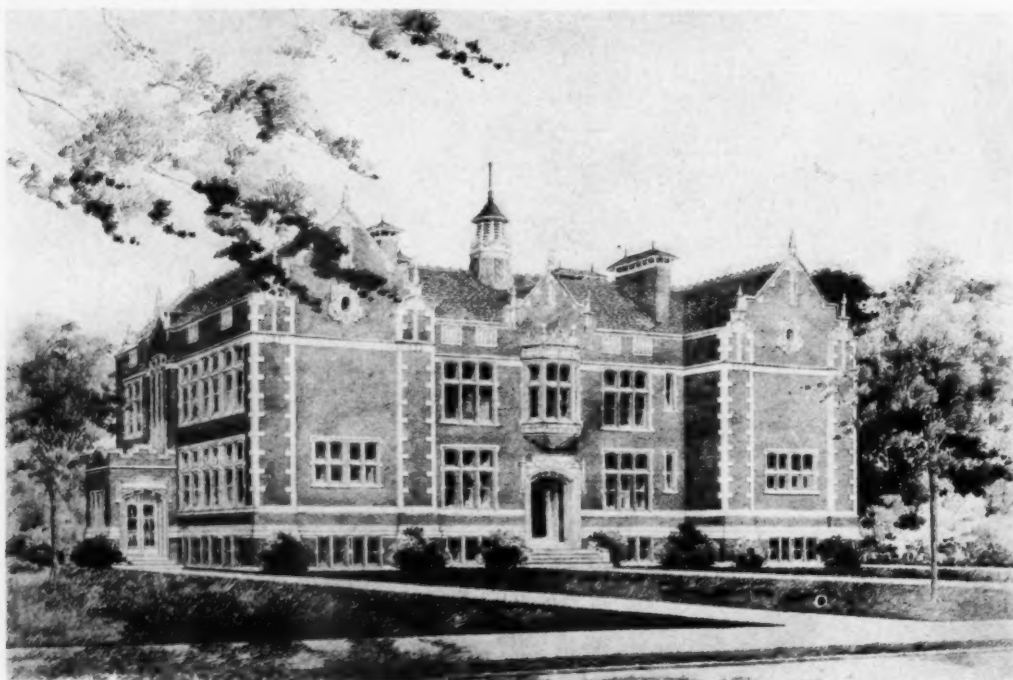
the approaches, bridges, roads, surrounding streets, etc., are brilliantly illuminated by a battery of thirty 1,000-watt Cahill Flood-Light Projectors.

The Yankee Stadium is well situated from the point of view of crowd distribution, before and after games. It is fed by four distinct subway and "L" lines, two on either side, a railroad, and several different boulevards for motor vehicles and pedestrians. Although a large bridge crosses over the Harlem River adjoining the structure, the crowd is so well distributed that the "bottle-necking" condition that occurs over the Charles River, adjoining the Harvard Stadium, is not to be found here. Eighteen separate ticket booths, distributed along three streets outside of the structure, have proven adequate for any emergency.

Of the architectural finish there may be some criticism. These baseball parks, by their natural requirements have taken on a distinct physiognomy of their own, not the least pleasing of which is the Yankee Stadium. The color tone of the stucco (the general wall surface has been finished

in a dash), a gray-buff, harmonizes very well with the emerald green metal louvres. An attempt has been made to point up the form marks in the concrete, which as usual, is not altogether successful. An unfortunate attempt has been made to introduce violently colored glazed tile insets, in band courses, which is rather bad. They are out of scale, and not at all in harmony with the general color.

On the inside there is a copper-covered frieze or cheneaux which is rather idiotic. (See Fig. 3.) The idea is not bad, the frieze caps off the structure well, and with the flagpoles at each column center gives the whole place a gay and festive air, but the detail and execution are heavy-handed, especially when viewed from the inside (as fully half of it is always seen). The writer was moved, during the feverish moment of a double play, to sling his straw hat (the end of the season being near anyway at that time), at one of the copper-covered buttons. The buttons remain one and all to this day, mute testimony to his erring aim, and the durability of bad art.



ST. MARY'S HIGH SCHOOL, MILFORD, MASS.

JNO. WM. DONOHUE, ARCHITECT

LETTERS FROM *an* ARCHITECT to HIS SON ABOUT to BEGIN PRACTICE in a SMALL CITY—IV

BY FRANK E. WALLIS, F. A. I. A.

My dear Dick:—

“**E**VERYTHING which is in any way beautiful is beautiful in itself, and terminates in itself, not having praise as part of itself.—Is such a thing as an emerald made worse than it was, if it is not praised?”

You will need neither praise nor the patting of your back if you remain certain that the job mentioned in your last letter was designed and carried out according to the laws of the game. You will have little need of public or of private commendation and if you do not receive a certain amount of harsh criticism and blackguarding you may be sure that somewhere, some time, in some place you have shown the white feather and have fallen down on your job.

Though the five orders of architecture were discarded and all of the lectures of all of the professors in all of the schools and all of the colleges on this subject and all of the histories of architecture forgotten and your job satisfying its own honor, fulfilling its own destiny, and functioning, if this is so, you may go to the jewelers, buy yourself a large and juicy gold medal and send the bill to my office.

I beg that you do not clutter your attic with old cloe's, empty boxes and “dead men,” write R-I-P at the foot of the attic stairs.

You must never believe that I am inclined to depreciate processes, nor do I advise you to forget the natural and proper developments of form and fitness, nor the ancient history of the creation and invention of necessities and the reason why things were designed and built, such things as churches, cathedrals, temples, homes, full rigged ships and trolley cars.

I do, however, beg of you to avoid the contamination of a certain type of men who are occupied in this business or profession of architecture. These people are, of a certainty, charming men, well balanced, well dressed and properly married, but they are not necessarily, because of these habits—acquired or otherwise—good architects.

They are, however, gentlemen and much too frequently occupy the front of the stage ba-a-a-ing like woolly lambs of the superior sacredness of *Art* and of the superiority of the high priests of *Art*—themselves.—These pests saturate communities and fill the minds of women and young girls and frequently and many times affect the thinking machinery of strong men with the most stupid urge to engage themselves in *Art*, without preparation and with no application of elbow grease

or use of midnight oil. They feel that they “have it in them.”

The real architect has it—in for them—because of the many false notions which must be shoveled aside before sane and actual work may be begun, false notions on *Art*, false notions on its application and false notions on life.

If you will read Vasari, and some of the other worthies of ancient times, you will not feel exclusive nor “sot up” over these difficulties. This type has always sat at the head of the table of self glorification, along with the other Gold Dust Twin, he who usually sits at the foot of the table or under the table where he may more safely gather up the stray crumbs.

This other twin is the architectural bootlegger, the trader, the partial service man, or perchance the good draftsman who sells himself, his registration card or his license to practice for a pot of message.

A young poet, killed in the great war—Joyce Kilmer—writes feelingly of these types in his own field of effort; you should read “To Certain Poets” and “The House with Nobody in It” for your own enjoyment and satisfaction:

“Why, what has God or man to do
With wet, amorphous things like you?
This thing alone you have achieved:
Because of you, it is believed
That all who earn their bread by rhyme
Are like yourselves, exuding slime.”

Hanging on the outer office door of this type, you will most certainly find this sign—quick sales in bulk and small profit in cash or eudos. The partial service man will sell and turn over his best effort to the building speculator, frequently to his own undoing, for many of these speculators belong to the same club with the bucket-shop man and the dealer in pinchbeck jewelry, though in my practice, I must admit that I have known some who were honorable, that is, if you saw them first.

This type, with whom the other twin rarely associates, because he is rather common and ill bred—old top—this type carries on in much the same fashion as does his more aristocratic twin, the secret being, clever assistants, young chaps who design well and compose and plan well. Oh, yes, son, I will agree that it is good training for them, if they are wise and absorb for their own future benefit and if they will protect themselves with gas masks.

Separate, distinct and in a class, a very large class, you must come as architect, and you must have perfect self-command and absolute control of your material, you must rule your means and your purpose, you must meld both your work and your character—your personality and your process with the local and the general environment, always improving localism if able so to do.

You should, if possible, become a member of your local Chamber of Commerce, you should serve as Mayor, Councilman or Alderman and you should always engage yourself in public matters of interest and practical use to your fellow citizens and to your city, those affairs in which you as a practical building man are of necessity more well grounded than it is possible or indeed necessary for the average business man to be.

"Do you not know that as a foot is no longer a foot if it is detached from the body, so you are no longer a man if you are separated from other men. For what is a man but a part of a state?"

It occurs to me that I have, in some of my letters left you in the air on the basic question of money payments for services rendered, and that through stress of business calls my outburst on factory building was not sufficiently broadened.

On the question of payments, even though you may base your amount on the minimum recommendation of the A. I. A., you will always have these two methods for you, either a written contract or a gentleman's agreement, neither one of them of importance under certain circumstances.

In other words, you must take your chance

with the throw of the dice, for unfortunately either or both of these methods may be repudiated as they frequently are. I have found in my practice that it is usually safe to collect payments as the work progresses, the larger sum at the beginning and the smaller as holdovers.

There is no possibility of a doubt as to the ability of the real man, the well trained and well balanced architect, not one of—the Gold Dust Twins—but one genuinely working for the honor of the job as an architect should work, I repeat that there can be no doubt but that this man will pay his payments from the added usefulness and rentability, from the reduced wasted floor space of any problem upon which he may be engaged. The highbrow who may be superior to his problem, the bootlegging practitioner whose motto is "for myself for this moment" are both of them foolish extravagances.

You must refuse to overload your office, to overload your own brain and soul power, as you must do if you wish to bootleg; you have a bank balance, or at least you should have, perhaps not as great as the bank balance of the bootlegger, but of sufficient volume to give you credit, payment of bills, and insurance against the world. Do you remember the old chap who wrote Ecclesiastes—he who wrote—"Better is an handful with quietness, than both the hands full with travail and vexation of spirit?" Watch your overhead, son, pay well for services rendered and soon after you have the job and the payments thereof sewed up, go on with the job for the honor of the job and forget payments until due, then collect as any well balanced business man should.

(To be continued)

EDITORIAL COMMENT

THE RELATIONSHIP of the architectural press to architects is a matter of frequent discussion. *The Western Architect* of August, 1923, contains an editorial on this subject from which the following quotation is made:

There may have been a facetious intention in the remark of an Eastern architect in conversation with a group that "The _____ has illustrations, but *The Western Architect* has an editorial policy," but it raises the serious thought: "How many architects read the printed matter in their architectural journals?" One architect, the president of his local chapter, said that he had asked seven men what they read. One, the secretary, replied he looked through his architectural journal on its arrival and saw things he resolved to read, but it was laid aside and the next issue came before this was done. These felt that it was a duty to keep posted on current affairs of interest to architects. The others evidently overlooked the fact that the same duty devolved upon them to keep informed on the trend of thought expressed in words as it was to find that expressed in design. And it is today the community of thought, word-expressed, that marks the signal advance made by the profession and which is the distinguishing feature of Institute advancement in the past decade. In the days when *THE AMERICAN ARCHITECT*, (official organ of the Institute, edited by William Rotch Ware, published by the Osgoods,) was the only medium of communication of professional thought, drawings in its pages were few and photographs none.

The use which an architect makes of his professional publications may not be fully appreciated. Compared with other professions, it must be an indication as to his ability and standing in his profession. We have more confidence in a physician who belongs to his professional organizations and reads the journals devoted to the medical profession. We also feel the same toward the surgeon who keeps abreast of the times through reading and who frequents the great clinics where new methods are demonstrated. A greater degree of confidence is had in the attorney who maintains a membership and active interest in his local and national bar associations and who keeps in touch with the digests of court decisions.

The same thing can be said of architects. Many of them frankly admit that their interest in architectural publications is confined largely to the illustrations. Architecture embraces so many elements which cannot be expressed by pictures that we are loath to think the profession as a whole has retrograded to the state of a moving picture mind which is incapable of comprehending and reading the written word. To be competent to practice architecture today, it is necessary to have knowledge of structural and mechanical engineering, at least to the extent of making proper provision for these things in the design of a building. The architect must also possess a knowledge of specifications; economic conditions which affect the building industry, and the laws applicable to the practice of his profession. He must also have

a knowledge of the related arts of decoration and furnishings as well as a continuous contact with the developments in the esthetics of his art. A journal which embraces these things supplies the needs of the profession and it is read by its qualified members.

By supplying the deleted words in the above quotation one might understand why architects could be so quoted. It would appear that the reading of an architectural journal depends largely upon whether it is worth reading or not.

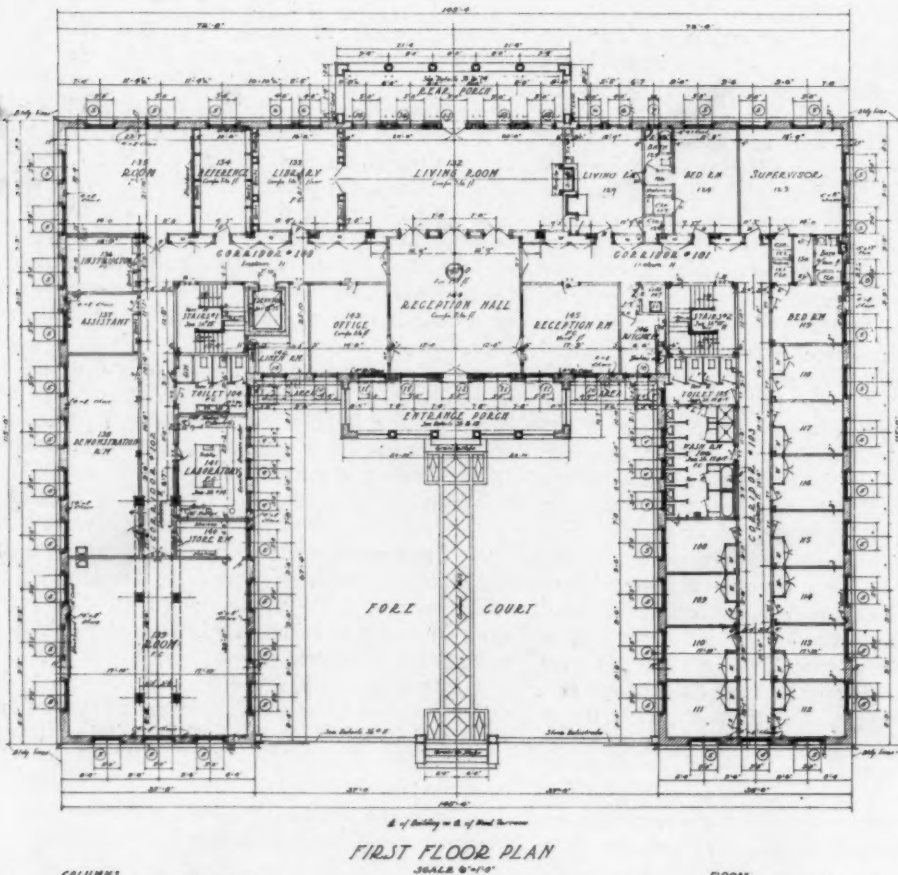
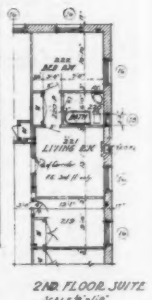
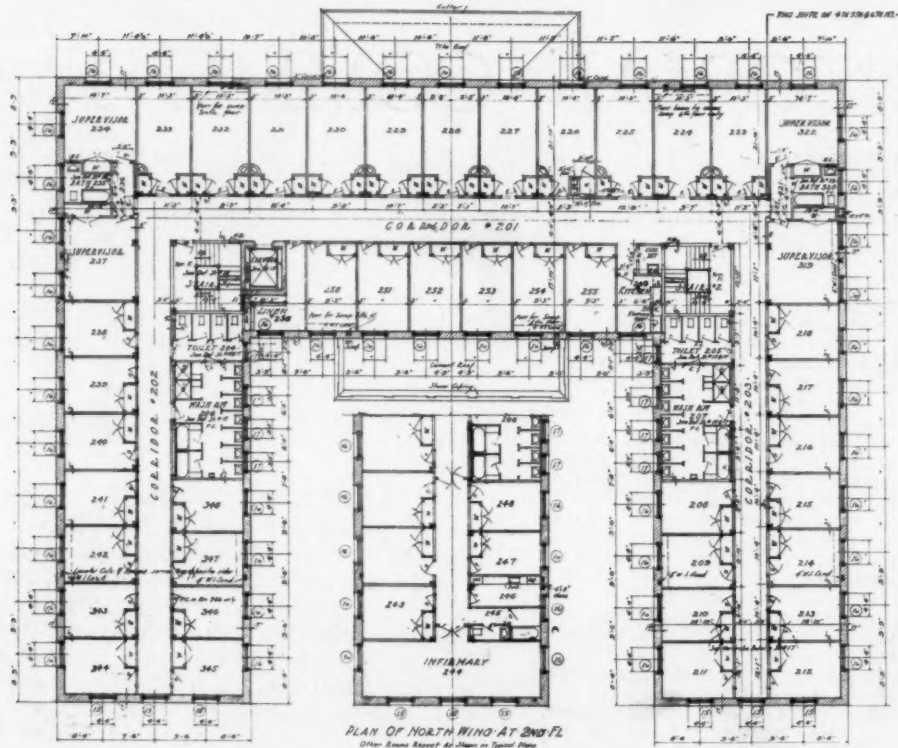
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AN ENGLISH CONTEMPORARY is somewhat perturbed because it has discovered, through the medium of a recent advertising display in the London Underground Railway, some decidedly good artistic advertising. "Have the arts no place unless they can advertise whiskey?" it asks. It is also fearful that art is now to find its best inspiration through trade, where once it found it through the noblest ideas. And, why should it not? The only redeeming feature of billboard advertising is the effort to make it artistically good. It is a healthy sign and a certain indication of our artistic uplift that advertisers are fast learning that they must present their "copy" not only well written, but artistically composed. If industry dominates art, if the artist finds his best client in the advertiser, it would seem to be the one big thing that will prevent the decadence of art. Nor is the present very substantial recognition of good art on the part of the advertiser so entirely new. We seem to recall that a number of years ago a very successful advertisement of a loudly acclaimed English soap was a reproduction of a painting by a past president of the British Royal Academy.

As long as art is stimulated, does it matter from what direction the stimulus comes? Or, are we, like a lot of dilettante, to bewail any improvement of our artistic knowledge unless its source is absolutely chaste and pure?

The advertising pages of the leading magazines in this country have become so attractive in their "copy" as to compete largely with the text in popular interest. And, it is common knowledge that many men of high repute in the artistic profession eke out a considerable income through their work for advertisers.

Why traduce an important uplift in our art education because it receives its main support from commercialism? "Art for art's sake" is all very fine, but artists must live. If the public that prides itself on the fact that it "dotes on art," will not support it and the hard-headed practical man will, the answer is clear,—at least it is to artists.





HARPER NURSES' HOME, DETROIT, MICH.
ALBERT KAHN AND ASSOCIATES, ARCHITECTS



HARPER NURSES' HOME, DETROIT, MICH.

ALBERT KAHN AND ASSOCIATES, ARCHITECTS



HARPER NURSES' HOME, DETROIT, MICH.

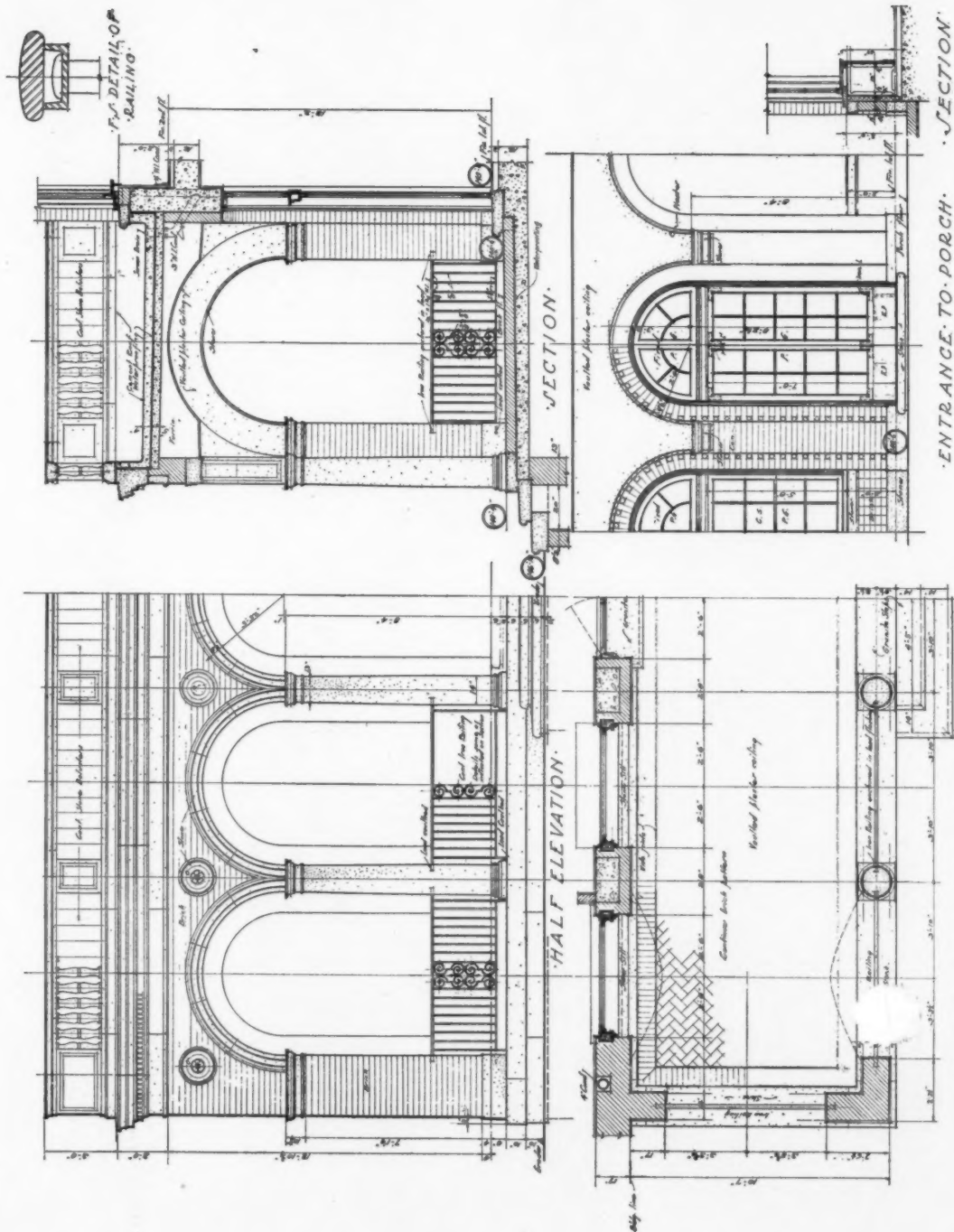
ALBERT KAHN AND ASSOCIATES, ARCHITECTS



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HALF PLAN OF PORCH.

ENTRANCE TO PORCH.

SECTION.

DETAILS OF ENTRANCE PORCH.

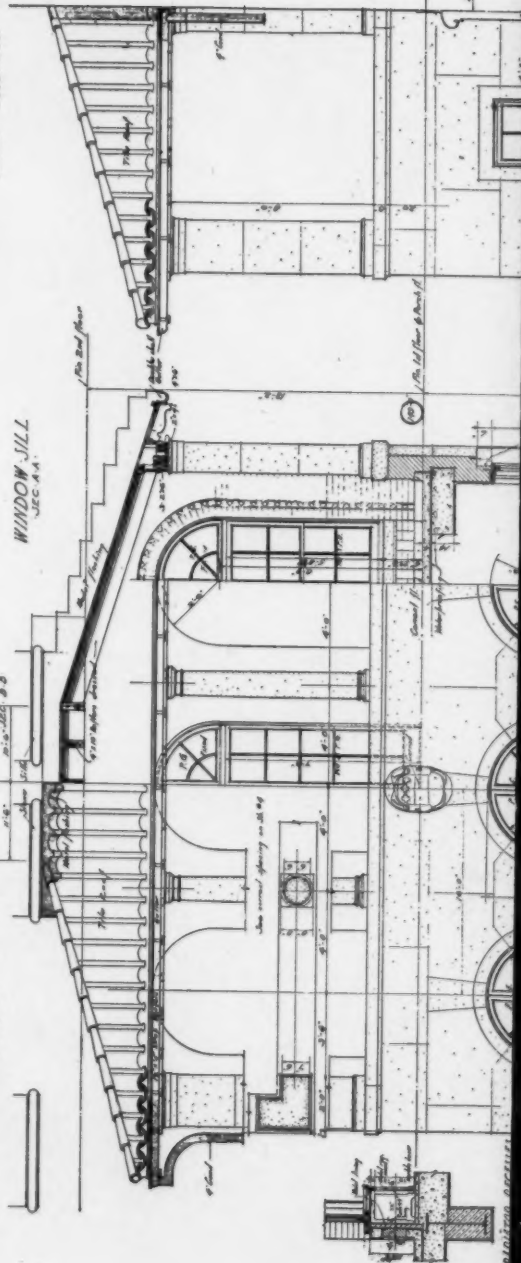
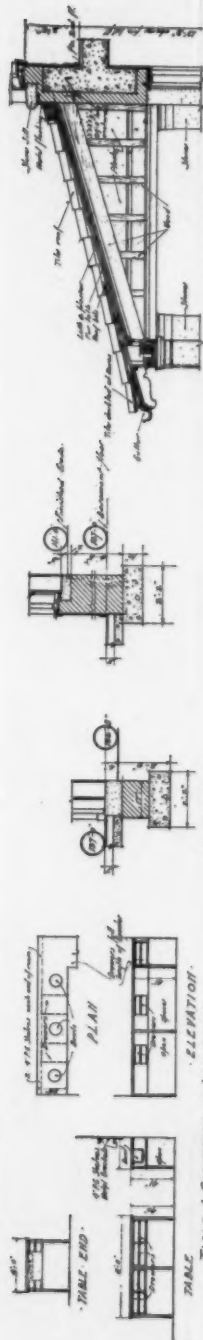
4 COURSES OF BRICK = 12"

SCALE 1/4" = 1'-0"

HALF PLAN OF PORCH.

4 COURSES OF BRICK - 11"

DETAILS OF ENTRANCE PORCH. Scale 1" = 1'-0"



LEGAL DEPARTMENT

Conducted by

CLINTON H. BLAKE, Jr., of the New York Bar

A SUBSCRIBER submits a rather interesting question with respect to the basis on which his compensation as architect is to be computed. He entered into a contract with a County for the preparation of drawings, specifications and engineering and supervisory services in connection with the erection of a new fireproof courthouse building to be erected at the County seat on a site to be designated by the County. The County agreed to pay the architect a fee of 5% on the total cost of "said improvements for which said architect renders services." Preliminary drawings were started, but before they were approved, a controversy arose with reference to the site of the building and developed into a very bitter and long drawn out fight. Various public meetings were held, and at one of these meetings the architect was present and suggested that he prepare contour maps and estimates of cost for the five different sites which were under discussion, in the hope that this might provide a basis of determining the most satisfactory and economical site. The architect prepared the maps and estimates and at length one of the sites was decided upon and purchased. When the architect came to make up his bill, he included in his preliminary payment a charge of 3% on the cost of the site, as well as on the estimated cost of the building. This was paid to him. Later, the complexion of the County Board changed and the architect submitted his final 2% charge, figured also on the cost of the building. The Board refused to pay it and claimed, in addition, that the amount on which the 3% was figured should not have included this item of cost. The question presented is whether the architect, under these conditions, has a right, in figuring his commission, to include the cost of the site and, secondarily, whether, if he cannot do this, he can recover in any way the value of his services in preparing the contour maps and estimates of cost for the proposed sites.

The facts submitted to me are not over-full, but as they stand, it seems reasonably clear that the architect cannot include the cost of the site chosen in estimating his fee. The wording of the contract is peculiar, in that the 5% is to be figured, not on the total cost of the work or of the building, but on the total cost of the "improvements for which said architect renders services." This might conceivably mean the site as well as the building itself, but it seems to me that this would be a strained construction and that the reasonable mean-

ing of the contract, especially in view of the ordinary practice in the profession should be construed to be that the fee is to be figured on the cost of the building itself, and that the word "improvements" as used has reference to the actual structure to be erected and the work done on the property, as distinguished from the cost of the property itself.

It is true that the services of the architect, in preparing the contours and the estimates, entered into the purchase of the land, and that to this extent he was instrumental in aiding in securing the site. This work, however, was really extra and apart from the architectural services contemplated by the contract, and, if the architect is to receive compensation therefor, it must rest, I believe, on a separate agreement, implied or direct, to pay him for the contours and estimates, or on his right to recover their reasonable value, in the absence of any such agreement. The statement which I have makes no reference to any agreement being entered into on this point. On the other hand, it does not appear that the architect agreed to do this work gratis. Unless he said something from which it could be assumed that the latter was the case, he should be entitled to recover the reasonable value of the work done in preparing the contours and estimates.

The question arises in this particular case, whether his claim for this amount is to be against the County or others. Apparently, he was told to go ahead and do this additional work at a general public mass meeting and not in the first instance by the County authorities. On the other hand, the facts seem to indicate that the County adopted his work. If it can be shown that the County did this and made use of it, he should be able to recover from the County for its reasonable value. If it appears that the County did not, in fact, ratify or avail itself of the benefits of this work, then the architect's claim would have to be against those who, as individuals and members of the meeting in question, authorized him and requested him to proceed with the work.

In any case, where the circumstances are such that it is contemplated by the parties that the cost of acquiring the property is to be included in arriving at the compensation to be paid the architect, the only safe course is to have the contract specifically state so. Otherwise, the natural inference will be that the general practice of the profession will be followed and that the commission of the architect will be based on the actual cost of the

work done, without including therein in any way the initial cost or value of the real property on which the building has been erected.

There is no reason, in the ordinary case, why an architect should be paid any commission on the cost of the land. Acquirement of the land is an entirely separate transaction from the building operation. If the architect is called upon to perform special services with respect to the acquirement of the land, then he should protect himself by having a proper and special provision included in the contract covering the additional compensation due him for whatever special services he is called upon to perform.

LEGAL DECISIONS

AN architect made estimates of the cost of the work to be done and prepared plans therefor. He assured his clients that his buildings "never exceeded the contracts" unless changes were directed by the owners. Some changes were suggested by the architect himself, but he coupled his suggestion with the statement that he thought the changes could be included in the estimated price. The plans were submitted for bids. The estimated cost was 1,545 pounds sterling. The lowest bid received was for 2,056 pounds. The clients refused to proceed with the work and returned the drawings to the architect. The architect brought suit for his fee. The court held that the matter was a question for the jury, and that the jury should determine whether the estimates were reasonably near the actual cost; that the actual cost, to enable an architect to recover, must be reasonably near the estimated cost. The case was submitted to the jury, accordingly, and the jury disagreed.

Nelson v. Spooner, 2 F. & F. 613.

AN architect prepared plans for a building, with knowledge of the purposes for which the building was to be used and that it was necessary, in the light of these purposes, that it should be well and properly lighted and first-class in every respect. The building erected in accordance with the architect's plans was not well lighted and was not first-class. The client, as a result of these defects, was caused great damage and expense. In a suit by the architect, the client submitted a counterclaim, setting up the foregoing facts. The court held that, inasmuch as the architect prepared

the plans with full knowledge of the purposes for which they were to be used and of the necessities of first-class work and of proper lighting, he represented, in effect, that he was a competent and skillful architect and that the building, if built in accordance with the plans, would be properly lighted and would be first-class; that the representations made by the architect with respect to the plans, under such circumstances, would amount to a warranty on the part of the architect that the plans were as he represented them to be; that he was an expert representing himself as fully qualified to judge in a matter of this kind, and that on the other hand the client with whom he dealt lacked these expert qualifications.

Niver v. Nash, 7 Washington 558.

AN architect prepared plans and specifications. A builder contracted for the work. It developed that he was not able to execute it in accordance with the plans and specifications. He sued the owner on the theory that there was an implied warranty that the work could be done in accordance with the plans and specifications. The court held that an architect or engineer who prepares plans and specifications does not, by reason of that fact alone, enter into any implied warranty that the work can be successfully executed in accordance with such plans and specifications.

Thorn v. London, 1 Appeal Cases 120.

(NOTE) It would not be safe to assume generally the two extremes represented by some of the foregoing decisions. An architect cannot safely assume that, so long as he gives ordinary attention to the work, he is not liable for any defects or mistakes which may develop. It is true that he should not be liable, if he exercises ordinary skill and diligence. On the other hand, what amounts, in a given case, to proper skill, diligence and care, must be decided by all the facts of that case, and an architect certainly does hold himself out as possessed of peculiar skill in his given work, beyond that of anyone not trained in the profession. On the other hand, it is going too far to say that he absolutely warrants that any work done from his plans will be without defects. There is undoubtedly an implied representation and warranty that he is skilled in his profession and that his plans will be such as one skilled in that profession with ordinary care and diligence should prepare. Beyond this, he should not be held liable.—C. H. B. JR.

DEPARTMENT of ARCHITECTURAL DECORATION and FURNITURE

THE title of this article is pretentious. A wall treatment may mean anything from Giotto's chapel in Padua or Raphael's "Acts of the Apostles" tapestries in the Vatican, to the meanest conceit of a decorator's shop. This article is merely meant to reiterate a few practical considerations in laying out interiors, and to present some excellent examples of work executed.

Trite as it may seem to state, many an otherwise successful design may be ruined by neglecting to provide adequate curtain pockets at all exterior openings. Early in the progress of the work, on the structure proper,—no matter how much later the interior finish will be done—the heating contractor's specifications of radiator sizes should be checked against the wall thicknesses, furring, and jamb widths, for after the radiators get to the job, it is invariably found that three and four column radiators have been provided in several places, where two or single column, of greater length,

Practical considerations of methods of wall treatment By . . . Morris L. King

would provide adequate radiation. The hangings as usual are the last consideration in mind! Whether the radiators are built into enclosures

beneath the sills or at the jambs, or are free-standing, a four inch space should be allowed within the jambs for the overdrapes to extend to the floor. Otherwise there is no good reason for detailing trim that is to be concealed by hangings from a rod attached to the face of the trim by "goosenecks." Moreover, the hangings so widen the openings considerably, and ruin the scale of the room.

Whether the walls are to be tapestried, panelled, covered with leather or a painting on canvas, or are to be plain painted plaster, it is necessary to observe first (and most important architecturally), scale, then harmony of color and texture, and last, appropriateness of design. A designer should consider always, the type of people who will live in the rooms, and not surround simple business

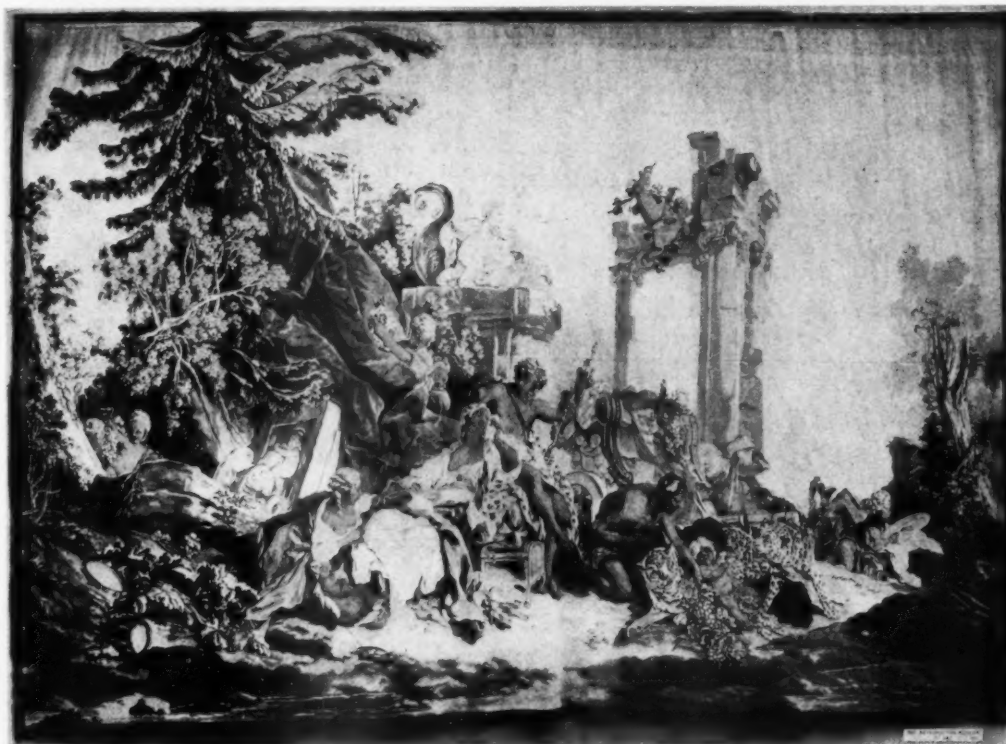


FIG. 1. A BEAUVAIS TAPESTRY, "VULCAN AND VENUS," WOVEN UNDER OUDRY AND CHARRON, DESIGNS BY FRANCOIS BOUCHER, FRENCH, ABOUT 1754

(From the Metropolitan Museum of Art)

country club folks with *outré* or archaic conceptions, no matter how beautiful. In this connection, a decorator who furnishes entire rooms Louis XV, "true to the period, brass trimmings and all," errs quite as flagrantly as the cleverest artist with his bizarre "moderne" treatment.

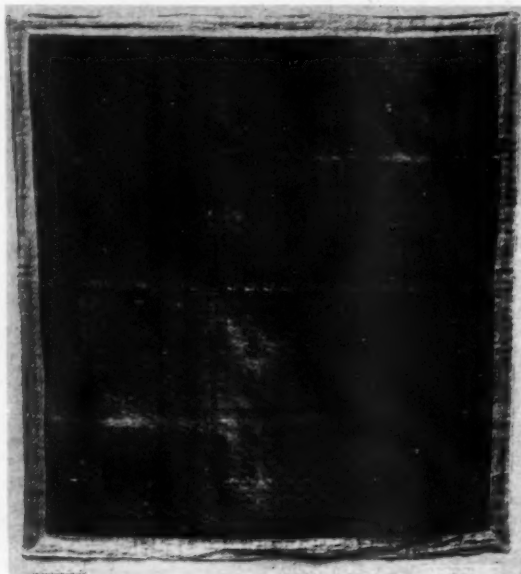


FIG. 2. SEVENTEENTH CENTURY ITALIAN MAUVE VELVET
The beauty of these Renaissance velvets needs no championing. This particular one would serve as an admirable foil for a bronze mask hanging over a mantel
(From the Metropolitan Museum of Art)

Of scale and proportion little can be written, the trained eye being the only judge. In our exterior architecture, since the advent of steel construction the ancient conception of scale has lost all significance, and we are laboriously, if clumsily, formulating a new sense of scale. Who today would be so rash as to proportion the details of a facade so that the balustrade of balcony projecting from an upper story, would be five or six feet high (being in scale with the entire facade, rather than with a figure standing on the balcony)? Yet such details are to be found in every city in Italy. In the designing of interiors, however, the old sense of scale still holds. The designer must consider that the first group of mouldings he full-sizes, whether a cornice, architrave or dado, ties him down once and for all, to the scale of the remainder of the room.

Not only is this sense of harmony interrelated with the proportions of mouldings but also with the texture of materials and surfaces employed in the finish. Let us suppose, for instance, that the general treatment of a room is to be of a dainty Georgian or Adam fashion, then it is obvious that a smooth hard-finished plaster surface, sized, painted six coats, and glazed, is more appropriate

than a coarse hand or sand-finished surface. It would be a mistake to attempt a trowelled plaster surface on walls that are to serve as a background for a tapestry as shown in Fig. 1. The walls should be treated as simply and unobtrusively as possible in such a case. Note with what simplicity the walls are treated in Figs. 4 and 8.

Fig. 2, on the other hand, shows an antique velvet which would hang well on a coarser hand, or sand-finished, surface. Its function is purely decorative, a spot of color on the wall. In fact it might in itself serve as a background for a bronze plaque, or a Greek marble!



FIG. 3. JAPANESE EMBROIDERED TAPESTRY PANEL, SIXTEENTH CENTURY

A series of prints, on paper or painted on silk of a similar nature, may serve as a motif for a panelled room
(From the Metropolitan Museum of Art)

A style whose *motif* is sophistication and finesse, such as the Adam, or some of the more elegant French periods, should have floors to match the walls, strip or parquet, of white oak, filled, stained and waxed, or marble, such as squares, of alternating Belgian Black and White Pentelikon, or a marble border with a terrazzo field; whereas the more naive styles, such as those of the Tudor

period, early Italian or sixteenth century Spanish require other flooring, colored tile, many hued slate, Ridgeway stone flagging or oak plank flooring 1 1/16" thick to vary from 6" to 11" wide, with rounded edges and the surfaces jack-planed and

all the way from Whistler's famous peacock room* to a naive landscape treatment for a breakfast room, done by some struggling young artist.

In the simpler types of domestic architecture where wood panelling and ornamental plaster are



FIG. 4. TAPESTRIES IN A PHILADELPHIA HOUSE
MELLOR, MEIGS & HOWE, ARCHITECTS

wire-brushed to sample, screwed to joists and pegged in the old-fashioned manner. In the matter of oak, it will be found that for oak panelling, such as naively carved floral patterns, or linen-fold, the Austrian oak will lend itself more readily to sand-blast or wire-brushed finishes, to obtain an antique effect.

Fig. 5 shows a beautiful manner of finishing a room, which may or may not be done expensively,

neither feasible nor desirable, and the walls are given flat color tones, or even papered, life can be instilled into a room, and the effect of tapestries in an elementary form can be obtained by the use of chintz, or what the French call cretonne. The

*James MacNeil Whistler's famous peacock room is now in this country, set up intact at the Freer Art Gallery in Washington, and is well worth a journey thither to see. In its execution, the decorative painting meant everything to the Butterfly, the structural features nothing, for the painting is carried uninterruptedly over trim, doors and even window shutters.

hand blocked prints can be obtained in an infinite number of designs, cost varying with the number of colors blocked. There is being imported from England at the present time a new series of designs, similar to that shown in Fig. 6. The modern French designs are utterly dissimilar to the English, such renowned artists as Paul Poiret contributing new ideas in floral forms and the use of color. The French designs are highly decorative, though some are too bizarre for the average home.

Fig. 7 is a cut that does but little justice to a thing of great beauty, a panel of painted, gilded and embossed Cordovan leather. No richer and more elegant treatment for a hall could be devised than a series of panels of leather similar to this. Unfortunately, such treatments are rarely used in modern interiors, not on account of its great cost, for no cost seems prohibitive nowadays, but because of the inability of modern craftsmen to produce such works as this. The finest painted and embossed leather today comes from Japan, but none so fine as this Flemish masterpiece. An entire room in a castle near Blenheim was pillaged by the Duke to enrich his own Blenheim castle which was then being built by Parliament. These rich panels have been in this country for many years, and no doubt other such treasures could be found today in Europe, cheaper than it would be possible to reproduce them.

Another product of the Orient is shown in Fig. 3. Korean paintings on silk are numerous in the

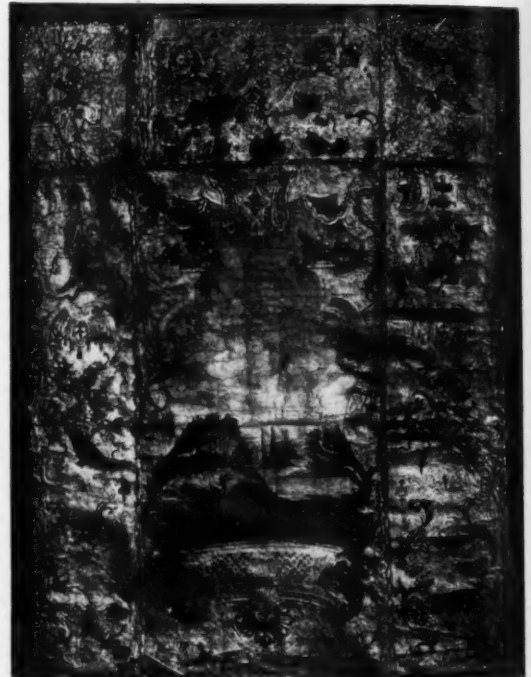


FIG. 7. TOOLED AND PAINTED CORDOVAN LEATHER WAINSCOT

One of twenty panels, each with center landscape or marine, and bordered with arabesques, all on a diapered, gilded and tooled ground. Flemish, brought to England after the battle of Blenheim by the Duke of Marlborough. Subsequently brought to this country and sold recently at the Anderson Galleries as part of the Symons collection



FIG. 5. WALL PAINTING BY ROBERT CHANLER IN A LONG ISLAND HOUSE
WALKER & GILLETTE, ARCHITECTS

art shops at the present time, and a series of them (such as the series representing the seasons in the Emperor's palace in Peking) would make a gorgeous motive from which to treat a room. The



FIG. 6. FRENCH PRINT BY JEAN PILLEMENT, 1727-1808
Block printed chintzes with repeating designs similar to this, are now being imported from England
(From the Metropolitan Museum of Art)

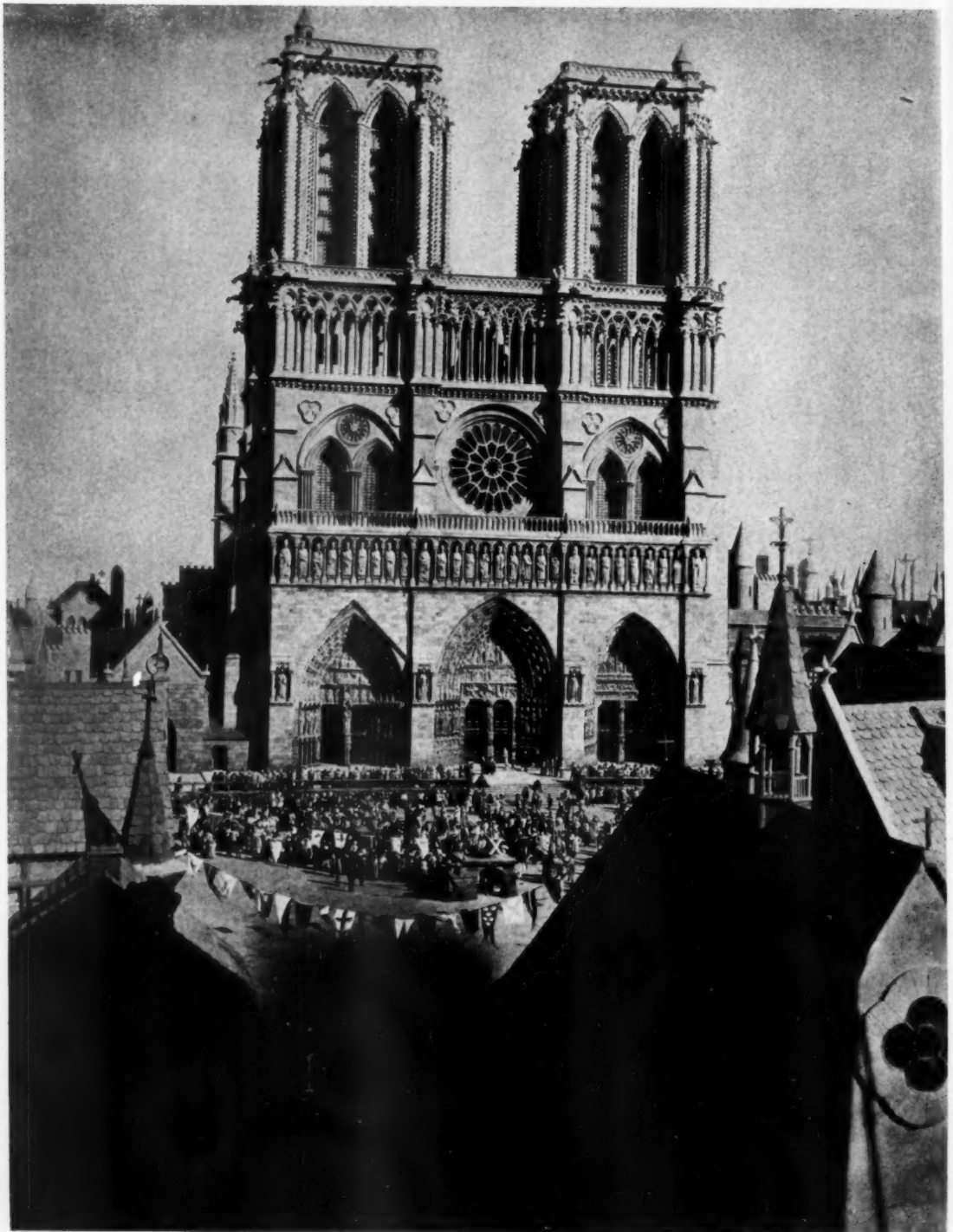
walls might be divided into the usual number of panels, to conform with the sizes of the paintings, and the dado, blank panels and ceiling covered with a gilded muslin, or silk, drawn taut over the surface and glazed. The tone of these Oriental paintings is usually of gold.

Figs. 4 and 8 show what fine floors can be laid with tile made in this country. Tile is like any other object of highly decorative value, it is a dangerous thing for the unlearned to use. Undoubtedly the sad use, or rather misuse, of tile in the past, has prejudiced many an architect



FIG. 8. MANTEL TREATMENT
Another view of room shown in Fig. 4
MELLOR, MEIGS & HOWE, ARCHITECTS

against them, but witness what charm and simple beauty are indicated here. Consider also the character in the many aisles and floors of churches, done for the most part, in tile.



REPRODUCTION, AS A MOVING PICTURE "SET," OF THE CATHEDRAL OF NOTRE DAME AND ITS FIFTEENTH CENTURY SURROUNDINGS

This remarkable work was built at Universal City, California, to serve as a background for the filming of Victor Hugo's "Hunchback of Notre Dame." It was constructed "on the lot" by Universal Pictures Corporation

DEPARTMENT of ARCHITECTURAL ENGINEERING

The LIGHTING of PICTURE GALLERIES and MUSEUMS PART I

BY S. HURST SEAGER, F. R. I. B. A.

IT seems strange that there has been so little progress made in the planning of art galleries and museums since the opening of the first public gallery in Munich 90 years ago. Ruskin's criticism of these buildings, printed 70 years ago, does not seem to have made any impression on later designers. The inadequacy of such buildings is most forcibly called to our attention by Mr. S. Hurst Seager, F. R. I. B. A., whose valuable article on the subject of the lighting of galleries and museums we are privileged to print herewith. Mr. Seager first discussed this subject in the Journal of the R. I. B. A. in 1912. The intervention of the war was evidently responsible for a postponed public and architectural interest. The publication of his second paper in the Journal of January, 1923, received instant and wide consideration in England and on the Continent.

The unsatisfactory quality of these buildings can be attributed largely to the fact that they are usually public or semi-public institutions. Their construction is generally controlled by a commission of public officials or private citizens whose ability for this work often can be questioned. The architect is selected by competition or otherwise. A survey usually is made of existing buildings of that kind at home and abroad. This inspection evidently is not made with the idea of learning what not to do, but rather to assist in an easy solution of the problem.

The question as to who should plan such buildings is justifiable in view of the failure of architects to solve the problem successfully. We do not expect the commissioners to be competent to guide, nor that artists should have any

knowledge of the involved laws of physics. Illuminating engineers have devoted the greater part of their investigations to artificial lighting. It appears to be an open field in which architects should, and undoubtedly will, assume their rightful place. That they can do so, is evidenced by the improvements suggested and demonstrated by Mr. Seager. In order to accomplish this, architects must keep in mind the purpose of the building—a place in which pictures are to be seen and not a place for the exhibition of architectural embellishments which encumber the interiors and distract attention from the paintings.

While the subject of lighting galleries and museums may not be of interest to architects generally, it can readily be seen that the same principles that apply to these buildings can also be made effective in other types of buildings. This is particularly true in the case of schoolhouses and industrial buildings. Of course, this applies more particularly to one story buildings of these types. It is a problem of controlling the distribution and diffusing of daylight and there is no reason why this cannot be done as effectively as we control the flow of liquids and gases and the distribution and use of electricity. The use of artificial light has been developed to such an extent that it does not require the same kind of consideration that must be given to the use of daylight. THE AMERICAN ARCHITECT in publishing this and other articles on this subject, believes that it is presenting a field of investigation to architects in which they will become interested and that it will result in a better and more effective lighting of such buildings in the future.—THE EDITORS.

IN a paper read before the Royal Institute of British Architects in 1912, I had occasion to present certain principles governing the correct lighting of picture galleries and museums. A brief synopsis of this paper is here given with extracts from a later paper presented before the same organization and printed in the *Journal of the R. I. B. A.*, of 13 January, 1923.

In the first paper I stated that the lighting of galleries and museums is a problem which has been before the architectural profession since the early part of the nineteenth century. It is a problem of such universal public interest, that it is hard to realize that we appear to be as far from a true solution as in the earliest days. There is not a single European picture gallery that I am acquainted with (1912) that approaches perfection—some are atrociously bad, some are fairly lighted

in parts, but not a single one is free from defects which should have been avoided.

In 1853 we were about to build a new National Gallery, seventeen years after the National Gallery was opened and only twenty years after the opening of the first public picture gallery—the Alt Pinacothek at Munich. Great interest was aroused among all classes of people owing to the unsatisfactory planning of the old gallery. Ruskin wrote to the *Times* as follows:—

We are about to build a new National Gallery. May it not be arranged so that the pictures we place therein may at once be safe and visible?

I know that this has never yet been done in any gallery in Europe, for the European public have never yet reflected that a picture which is worth buying was also worth seeing * * * * and that the style of the architecture and the effect of the saloons are matters of no importance whatsoever, but that our solicitude ought to begin and end in the imperative requirements—that

every picture in the gallery should be perfectly seen and perfectly safe; that none should be thrust up, or down, or aside, to make room for more important ones; that all should be in a good light, all on a level with the eye, and all secure from damp, cold, impurity of atmosphere and every other avoidable cause of deterioration.

Modern examples show that it is as necessary to impress these views today as it was at the time they were written. Without here discussing the failures in individual cases we will leave such exposition to the illustrations. These failures consist of underlighting the pictures so that they cannot clearly be seen or overlighting the room in such ways that illuminated objects or the sources of light are reflected on glazed pictures, preventing their being seen even though they have sufficient intensity of illumination.

All are agreed that the usual type of picture gallery, whether lantern-lighted, skylighted or side-lighted, is either a partial or total failure as such and that if we want to possess a picture gallery which shall be truly worthy of the name, we must disregard precedent entirely and be guided solely by the principles which should govern the problem. Fortunately, the principles are few and simple, so few and simple that it is astonishing they should ever have been disregarded.

1. *The angle of reflection of a ray of light is equal to the angle of incidence, that is to say that the angle at which a ray meets a reflecting surface will be the angle at which it leaves it.* If, therefore, those rays of light entering from the skylight fall on a glazed picture and make with its surface an angle of, say, 45° , the reflected ray from the picture to the floor will have an angle of 45° and so for any other angle. If we stand in such a way that these reflected rays fall upon the eye,

we shall not see the picture, but a reflected image of the skylight.

Reflections can be called "painful reflections" advisedly, for I am convinced that the reason people get so extremely tired and suffer from headaches after a brief study of pictures or exhibits is

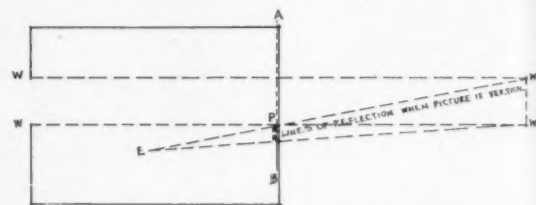


FIG. 3. SECTION OF GALLERY SHOWING REFLECTION OF WINDOW IN PICTURE WHEN THE PICTURE IS FLAT AGAINST THE WALL

WW. Window or illuminated object
 WW dotted. Representation of window the same distance from the wall as the window (the visual image)
 AB. The plane of the picture
 PB. The picture or reflecting surface
 E. The eye of the spectator
 RR. The reflection in the picture

on account of the straining of the muscles of the eye when looking at pictures or showcases which reflect images of illuminated objects. This eye strain does not result merely from the confusion of the picture by the superimposing of images by reflection on the same focal plane, but by the superimposing of a reflected image in a different focal plane from that of the picture. An experiment has made this perfectly clear. Figs. 1 and 2 show photos taken of two plans, one placed within glass and the other placed on a wall behind the camera and illuminated so that its reflection is clearly seen in the reflecting dark surface of the glass. In Fig. 1 the camera was focused on the plan of Gloucester Cathedral within the glass which is seen to be quite sharp, while the reflected plan above it is merely a dark blur. In Fig. 2 the camera was focused on the reflected plan which is now quite sharp while the lower glass covered plan is considerably blurred. Thus it is proved that the reflection is far within the picture, is in fact as far within it as the illuminated object is in front of it and the size of the reflected object is in inverse proportion to the distance of the object from the picture. The reflection and the picture cannot therefore be seen clearly at the same moment and there is a continual struggle and strain upon the eye in the endeavor to rivet the focus on the picture. It may be said that the eye is continually adapting itself to varying focal lengths in viewing objects around us. This is true, and it can do so without strain because in no instance is one focal length superimposed on another, as it is in the case of pictures with reflecting surfaces.

The exact position and size of the reflection in the picture can at once be determined by means of

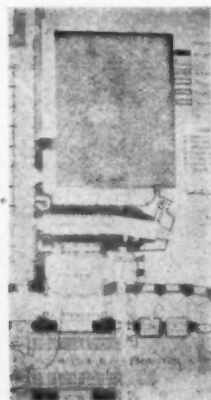


FIG. 1

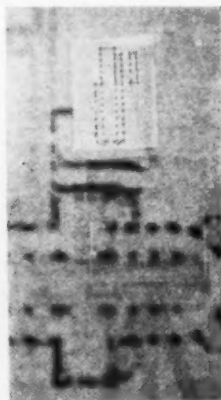


FIG. 2

EXPERIMENT TO PROVE THAT THE REFLECTIONS ON A GLAZED PICTURE ARE IN A DIFFERENT FOCAL PLANE FROM THE PICTURE ITSELF, THUS CREATING A CONSTANT EYE STRAIN

Fig. 1 shows the effect when the camera is focused on the plan of Gloucester—the upper reflected plan is merely a blur
 Fig. 2 shows the effect when the camera is focused on the upper reflected plan—the plan of Gloucester is now a blur

a diagram (Fig. 3) representing the size and position of the illuminated object within or beyond the picture. Lines drawn from the extremities of the representation to the position of the eye of the spectator will, if they pass through the picture, show the size and position of the reflected object in it. This diagram is drawn on the assumption that the picture or reflecting surface lies in a vertical

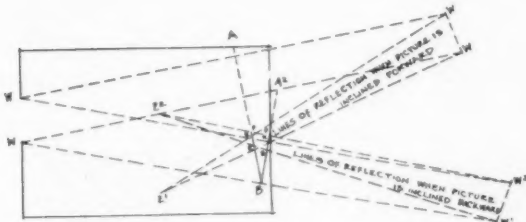


FIG. 4. SECTION OF GALLERY SHOWING REFLECTION OF WINDOW IN PICTURE WHEN THE PICTURE IS INCLINED TO THE WALL. THE LETTERING CORRESPONDS TO DIAGRAM, FIG. 3

plane, and the position of the representation is found by drawing lines perpendicular to it through the object and setting off the distance of the object from it. If the plane of the picture is not vertical, then the position of the representation will be found in exactly the same way—that is, by drawing lines from the object perpendicular to the plane of the picture, whatever the angle of the plane may be, as shown in the diagram Fig. 4. From this it is obvious that if a picture is slightly tilted back the reflections will only be seen if the spectator is raised above the normal height, and that if it is tilted forward only when below it. The exact point at which the reflections will be seen are in each case accurately determined. By this system we can determine not only the position and size of reflections in any reflecting surface from any point of view, but we can also determine the required position of the lights, in order to prevent any reflections being seen from the point of view found to be most suitable for viewing the picture.

In order to avoid reflections from the sources of light the lines drawn from the eye to the representation of the window must pass through the plane in which the picture lies either above or below, or in a side-lighted room at the side of the picture—never through it. (See Fig. 5.)

2. *Any illuminated object becomes in itself a source of light, and its image is reflected, as above stated in Law 1, in proportion to the relative illumination of the object and the reflecting surface.* If a glassed picture is very dimly lighted and any object in front of it well lighted, the reflected image will overpower the picture. If the picture is well lighted and the object in front of it dimly lighted, then the reflection, although there, will be scarcely apparent.

It is these reflected images of illuminated objects in a gallery which cause the greatest trouble and yet it is these which have not hitherto been guarded against. This could not occur if care were taken to illuminate the picture more brightly than the spectators or objects in the room.

With the usual top light the floor is more brightly lighted than the walls. It thus becomes a source of reflected light and its reflected image will be seen in all glazed pictures on the "line." A polished or light colored floor capable of reflecting light should for this reason be avoided and the floor covered with some dark light-absorbing material.

It will be noted that the reflected image is always more powerful in the dark parts of the picture and will often be very pronounced there, while in the light parts it may almost disappear, and if it has a white mount it may in that quite disappear. This leads us therefore to the statement of another law.

3. *The darker in tone the reflecting surface, the more powerful will be the reflected image.* Dark pictures to be seen effectively, must be in the highest possible light while light-tone pictures may be placed in a subdued light with less risk of reflected images. It is possible to minimize the ill effects of an imperfectly lighted room by applying this rule when hanging the picture.

4. *Light diminishes inversely as the square of the distance from its source.* The higher we make our top-lighted rooms, the duller and more gloomy they will be. This law has its most important bearing upon side-lighted rooms. In a top-lighted room the value of the light is the same in any one horizontal plane, so that the pictures along that plane are all either brightly or dimly lighted. The

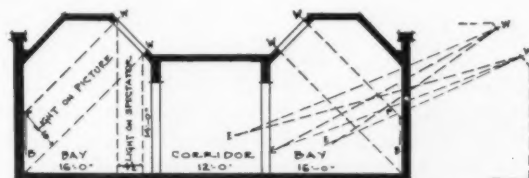


FIG. 5. CROSS SECTION, DIAGRAM OF TOP-SIDE-LIGHTED GALLERIES

The dotted lines in the left hand bay show that the light on the spectator when within the bay is less than half that on the picture. Those in the right hand bay drawn from EEE—the eye to WW—the visual image, show that in each case the reflection is above the picture.

pictures will be fairly evenly lighted except in the case of very large pictures occupying a considerable part of the vertical surface. In a side-lighted room the light is equal in vertical planes and diminishes rapidly along any horizontal line on the side walls, but will be evenly dull or bright on the wall facing the window in proportion to the distance between them.

Side-lighted rooms, as usually designed, are extremely unsatisfactory and will be as long as architects consider the position and proportion of the windows in relation to the exterior instead of considering them solely in relation to the lighting of pictures. The idea of classical proportion and pleasing fenestration in accord with antique standards must be abandoned and the problem solved from the standpoint of scientific correctness. As expressed by a writer in *The Builder* in 1853, the considerations are scientific correctness, structural perfection and only after the requirements of these two are satisfied did he ask for architectural magnificence. In most of the buildings containing side-lighted rooms this sequence has been reversed. Windows of the usual form have been placed low down in the wall, with the result that on the back wall the reflections are extreme, and it is only by reason of the spectator blocking the direct rays of light and thus placing the pictures in shadow, that they can be seen at all. The back wall forms as bad a position for the exhibition of pictures as could be devised. The side walls, if not too long, are well lighted for small pictures, those near the window are brightly lighted, but none are free from reflections, for here, as in the case of top-lighted rooms, the spectators are standing in the best illuminated space.

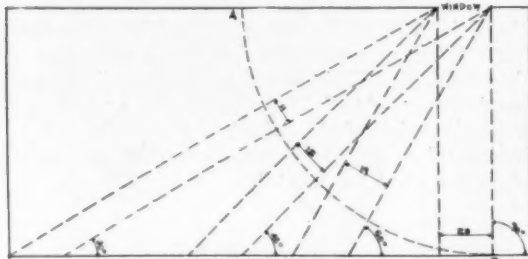


FIG. 6. DIAGRAM SHOWING RELATIVE VALUE OF BEAMS OF LIGHT FALLING ON AN OPPOSITE WALL OR FLOOR

The relative values of the beams of light on the arc AB are shown by the figures between the dotted lines. The light on the wall opposite the window diminishes as the angle becomes more acute in accord with Law 4

5. *Rays of light, if unimpeded, radiate from their source equally in all directions.* A light in the center of a sphere illuminates the entire inner surface with equal intensity and as the diameter of the sphere is increased, the light falling on its surface is diminished. If the light is on one side of a rectangular room, the lighting of the walls will be uneven because different parts of their surfaces lie in planes of concentric circles of varying diameters (Fig. 6).

In the case of daylight, this law holds good only within the angle made by the reveals of the openings. Through an opening in a wall or ceiling, the limit of the rays of light passing through it will extend only up to a line drawn from the outer

edge of one side to the inner edge of the other. The space beyond this will be in shadow, and will be lighted only by reflected light from the surfaces of the floor and ceiling.

6. *Dark colors absorb light while pale colors and polished surfaces reflect it.* This law must be followed in designing picture galleries in order to avoid reflected lights to interfere with the direct lighting of the pictures. We must therefore have dark neutral colors on both walls and floors.

The laws can be summarized as follows:

1. To avoid reflections in the pictures from the source of light, the angles made by the lines from the source of light to the picture must be greater or less than the angles made by lines drawn from the picture to the eye of the spectator when standing in the most suitable position for viewing the picture.

Note: As this position will vary according to the size of the picture, it follows that the lighting suitable for large pictures requiring a distant point of view may be quite unsuitable for a small picture requiring a close point of view.

2. To avoid seeing in the pictures reflected images of spectators and objects in the room, the spectator and objects must be in a subdued reflected light, in marked contrast to the direct lighting which must fall on the pictures.

3. The darker the pictures the more brilliant must be the lighting upon them and the greater the contrast between the direct lighting of the pictures and the reflected lighting of the room.

4. In order to obtain a brilliant light on the pictures, the pictures must be as close to the source of light as the other conditions will permit, and the lighting must not be obscured by secondary ceiling lights or glazing.

5. The pictures must be within the space formed by lines passing through the inner and opposite outer edges of the light opening.

6. The rays of direct and reflected light, which fall on walls and floors must be absorbed by dark colorings.

I have hitherto referred only to glazed pictures, because they form the crucial test as to whether or not the gallery is successfully lighted. It is true that unglazed pictures can be fairly well seen even under conditions in which it would be impossible to see glazed pictures. Although they can be thus seen without the annoyance of reflected images, they can be seen to far greater advantage under conditions absolutely imperative for glazed pictures. Although no reflected images would be seen, light would be reflected from the surface of pictures, sometimes appearing as bright patches of light and sometimes as spots of bright light in the uneven surfaces of the brush work, which rob the picture of its true value. I do not therefore agree with the writer in *The Architectural Review*, who, with reference to the new rooms of the National Gallery, said that, it is only when glazed pic-

tures are to be exhibited that it is necessary to take special precautions in lighting; that if the pictures in the National Gallery had not been glazed, no complaints would have been heard. Certainly no complaints would have been heard, but it is a poor ideal in this or any other sphere of human activity which demands only that a work shall be no worse than we are accustomed to.

I will not describe here the examples of attempts to reach ideal lighting conditions in Munich, Amsterdam, Florence and Rome, which were included in the original writing of this paper.

A method of lighting more scientific than the top ceiling light is that of the lantern or monitor light,

perfectly successful, therefore, the lighting must be so arranged that the windows on the right of the roof throw their fullest light on the right wall and those on the left on the left wall. It may be carried out in various ways. I show one in which the width of the roof of the gallery is divided into three parts, the central part to have a flat or curved ceiling while the side portions would be covered with a pitched roof with skylights in the inner slopes adjoining the central flat portion. (Fig. 5.)

This arrangement would allow the light to fall with full brilliancy on the outer walls, leaving the central portion in shadow. This central portion



FIG. 7. NEW ROOM, NATIONAL GALLERY, LONDON
SHOWING USUAL CEILING LIGHT GIVING REFLECTIONS IN PICTURES

by means of a row of vertical windows in each side of the central part of the roof, the roof covering of this central part being raised above the windows. In this way the light from each row of windows is thrown on to the opposite wall with the result—if the angles are properly laid out—that the pictures are well lighted. If the central part of the roof is glazed also, a flood of light falls on the central part of the room which is far better lighted than the walls, with the result that reflections are painfully dominant. The lantern or monitor light, although an improvement on the top lighting, is not entirely successful for the central portion of the room is still too well lighted to prevent reflections and the windows too far away from the pictures to light them brightly. It must be remembered that it is the windows in the right hand side of the roof that by this method light the pictures on the left hand wall and *vice versa*. To be

should therefore be formed as a wide corridor, and the outer portions be divided by partitions into wide bays. The partitions should extend to the roof of the bays so that the lighting in each bay may be independent. The ends of the partitions next to the corridor would also be excellently lighted, and the pictures hung there could be well seen on passing along the corridor, as also could all the pictures on the outer walls, without entering the bay. By the division of the gallery into bays a large amount of extra well lighted wall space is provided. The length of the bay would be determined by the limit imposed by the law of reflections. They may be narrower than this limit but not wider. Only one picture should be hung on the partition wall. If others were hung near the outer wall spectators would have to pass into the well lighted area to see them, and reflections from illuminated objects would result. Moreover, spec-

tators would thus interfere with the view of those seated.

Pictures should never be crowded together, and this system provides twice the amount of well lighted and suitable wall space than that which is provided by a rectangular room of the usual form. Seats should be placed just within the bays at the correct distance from the pictures so that those wishing to study them carefully would, while seated, not be interfered with by those wishing to get merely a general survey of the gallery. The great fault in all galleries now is that the seats are placed in the center and the corridor or thoroughfare is between the pictures and the seats. (Figs. 7 and 8.) The arrangements here sketched, while strictly in accord with the principles of lighting we have laid down, may be made structurally perfect and as architecturally magnificent as the funds will permit or the taste and skill of the designer dictate.

The depth of the bay from the corridor to the wall should be about 16', so that the correct position for the seats may be within it. It will be found that 30° is the most suitable angle of vision for viewing a picture, and this gives about double the width of the picture as the best distance from which to see it. Few pictures are more than 8' wide, so that a depth of 16' would suit the majority of the largest pictures. For smaller pictures the seats would be brought proportionately nearer or the depth of the bay diminished, and for larger pictures the depth of the bay would be increased. The very great advantage of an undisturbed view of the pictures from the seats must appeal to all, while the possibility of seeing every picture without blocking the view of those who are seated



FIG. 8. GALLERY IN CITY MUSEUM, AMSTERDAM

Gallery too high and bald and has far too much light, a modern wrongly lighted room

makes this arrangement one that should be followed in all galleries. It will be seen from the diagram of the section, Fig. 5, that the light falling on the spectator when seated within the bay is less than half the light falling on the pictures, so that the reflections of the spectators and

illuminated objects would be impossible; and it will be seen that as the spectator approaches the picture into the well lighted area for a close examination only his back becomes illuminated and the reflections would not be powerful enough to interfere with his enjoyment of the details. In a gallery of the usual type it is the face of the spectator that is always more strongly illuminated than the picture.

This system of top-side-lighting may be carried out in various ways and is applicable to all usual forms of rooms. A large assembly room can be brilliantly lighted, and yet be made quite suitable

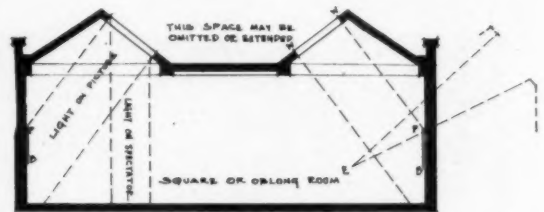


FIG. 9. SHOWING THE APPLICATION OF THE TOP-SIDE-LIGHTED METHOD TO A SQUARE OR OBLONG ROOM OF ANY DIMENSIONS

for pictures, as shown by my diagram Fig. 9. There is no need that there should be a violent contrast between the brilliantly lighted walls and the central part of the room. It need never be gloomy. All that must be demanded is that the brightest light should fall on the walls. The diminished direct light from the top-side-light, and the reflected light from the wall surface, will insure a brilliancy of effect throughout. The principle may also be applied to two story buildings as shown in Fig. 10 where the central space on the lower floor would become a storage space.

It is, of course, desirable and generally demanded that museums and picture galleries shall be used for no other purpose than the display of exhibits or pictures, and in that case the arrangement I have suggested is, I think, the best. It is as suitable for museums as for picture galleries, for the laws which apply to glazed pictures apply with equal force to glazed showcases. Here again, if the principles are understood, all the cases of exhibits can be placed in relation to the light in such a way that there shall be no chance of their being converted into distracting mirrors. The defects of European galleries are in nearly all cases almost as bad as in the museums. The most annoying effect of all is perhaps to be seen when horizontal glass specimen cases are placed in a strongly top-lighted room. Horizontal cases should be placed in brilliantly side-lighted rooms having windows on both sides. The cases should be at right angles to the windows and opposite to them.

When side-lighting is used for vertical cases, they also should be placed in the same position and

have glazed ends and tops. In both instances the spectator would therefore be standing in the shade of the wall between the cases, and the exhibits be well lighted.

A clear understanding of the simple principles laid down is what is required for success. Anyone having this knowledge can put every design to an immediate test. There is no need to travel to see them—no need for wandering Commissions. If a design is either conceived or executed in

wishing to study this important subject. All the necessary laws and theories are there stated, and the proof can now be given that these principles must be followed if success is to be obtained.

Since its publication, two valuable contributions have been made and exhaustive tests have been carried out of the Top-Side-Lighted method I then advocated. Moreover, an art gallery has been built in New Zealand on this principle, the photographs of which, hereafter to be shown, prove the efficiency of the system.

In 1913 the late Mr. C. C. Brewer published his able and exhaustive report on American Museum Buildings. He has made a valuable record of the conditions of lighting American museums and galleries. His impressions, he states, "are most disappointing." Magnificent architectural works have been erected, large sums of money have been spent not only on the buildings themselves but also—at Boston—on preliminary investigations and on an experimental gallery which was erected in order that the problem of lighting might be fully studied. This being so, it is most surprising to hear that serious defects exist in the lighting of all American galleries. They have merely followed the traditions of the old world, and have in the majority of cases adopted the flat ceiling light, which often is nearly the full size of the ceiling, thereby increasing the defects which exist in all the European galleries I have studied.

The galleries, Mr. Brewer tells us, are all much overlighted, and the large windows and skylights have to be continually screened with blinds if a restful effect is to be obtained. I share with Mr. Brewer the keen disappointment that in the Boston Museum, where "it is probable that more study and more care were given to it than to the building of any other museum in the world," the ideal of lighting has not been reached.

The investigations made by the Commission he referred to were embodied in a communication to the Trustees—"The Museum Commission in Europe." There is not a copy in England. Mr. Gilman (Secretary of the Museum of Fine Arts, Boston, Mass.) very kindly promised to lend me his official copy, but found it had been "sent to Japan."

Mr. Gilman, in his interesting work "Museum Ideals," made an exhaustive study of the glare in galleries resulting from the position of the source of light and proved by careful experiment that "attic light gives far less glare and is therefore far less annoying than 'top light.'" By attic light is meant windows in the walls of a gallery close to the ceiling, above the range of vision of the spectator when looking at the pictures. Mr. Brewer agrees in this, for he says, in reference to the large attic-lighted hall in the New York Metropolitan Museum: "No doubt the great height and area of white wall below are responsible for the

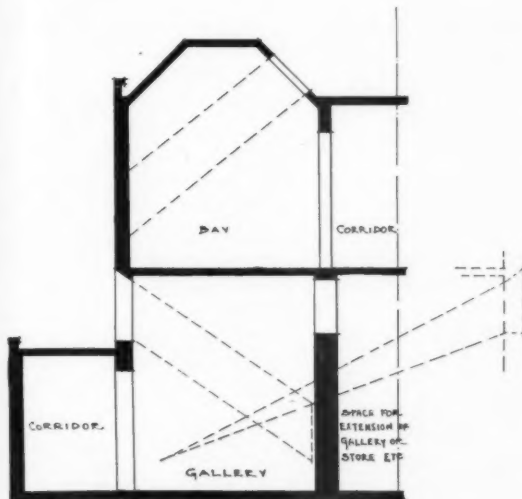


FIG. 10. METHOD OF ARRANGING TOP-SIDE-LIGHTING FOR A TWO STORY BUILDING

Hitherto it has been thought necessary in order to obtain top light that the building should be one story. By the Top-Side-Lighting method the building may be of any number of stories

accordance with the laws of light, it is good; if not, it must of necessity be bad, and no expression of opinion about it will make it otherwise. Fortunately there are not any conditions which are likely to modify the actions of the laws of light. They will always act under every condition exactly as stated. The lighting of galleries is, therefore, so far from being a difficult problem, one of the most simple an architect has to deal with.

In dealing with the laws of light nothing less than absolute perfection should be demanded in all cases, for if the lighting of buildings is found defective in any respect, then the fault lies wholly in ourselves. There is not in any case the slightest excuse to be found for any degree of failure.

The foregoing resumé of my paper presented to the Royal Institute of British Architects in 1912 dealt with the *principles* that should govern the design of picture galleries and museums, and in it were shown sketch-sections for buildings embodying the principles laid down. The principles were evolved from the laws of light enunciated, but no definite proof of their truth was given. To it I can with confidence refer our members and those

beautiful soft diffused light which floods every part of it." Although it is true that an attic-lighted room is better than a top-lighted one for the exhibition of unglazed pictures, it must be condemned because, as I can show by photographs taken in such rooms, the reflections in glazed pictures of the spectators and objects in the room are seen as painfully as in the top-lighted room.

Mr. Gilman refers (page 200) to the "New Pinacothek" at Munich and the Mappin Art Gallery at Sheffield, as being the only "radical attempts to do justice to the Top-Lighting problem," and he states that "Mr. Seager has just proposed the method anew" under the name of the "Top-Side-Lighted method." The system I advocated has nothing in common with these two examples; both must be regarded only as steps in the right direction, but very faltering and feeble steps which do not carry us beyond the failures seen in all British and foreign galleries. They are still top-lighted rooms; the only difference between them and those seen in every art gallery is that the top light is placed *at the sides of the ceiling*, instead of being in the central part of the ceiling as in the old rooms of the National Gallery, in the Academy and hundreds of others, or forming the whole of the ceiling, as in some of the American and Continental galleries.

It must be remembered, that although unglazed

oil and tempera paintings will not reflect the illuminated image of the spectators or objects, but *only the original sources of light*, it does not follow that their lighting is perfect. The true test of a space in which to hang a picture, is whether or not a glazed picture hung in that space will or will not give reflections. If it gives reflections of the primary source of light, *i. e.*, the window, sky or ceiling light, or the lamp, it is, of course, totally unfit for any picture. If it only reflects the secondary sources of light, *i. e.*, the illuminated spectators and objects, then it may be used for any unglazed exhibit without causing any annoyance; but it is only when a dark *glazed picture* is in such a position that it can be seen without any reflection whatever, that an oil painting placed there will be seen at its best.

For although no distinct reflected image is seen in an unglazed picture, on account of its diffusion by the uneven surface of the paint, there would be reflection of light from the secondary sources coming from the picture to the spectator which would prevent the subtleties of the painting from being fully realized and enjoyed. It is, perhaps, not possible to give a photographic proof of this, but the difference in effect upon the spectator when looking at a picture properly placed and lighted is immediately felt.

(To be concluded)

TESTS ON HOLLOW TILE WALLS

WASTEFUL use of building materials, with consequent increase of construction costs, is often due to lack of knowledge of how much load these materials can safely bear. Avoidance of such waste can be brought about by furnishing the building industry with reliable data as to the strength of the different materials used and of the different types of construction. The Bureau of Standards of the Department of Commerce has one of the best equipped laboratories in the country for the measurement of such factors, and for many years past it has been engaged in testing the strength of bricks, tile, cement, and other fireproof materials.

This Bureau has just published the results of 32 tests on walls of hollow tile. These walls were 4 feet long by 12 feet high, and were 6, 8, and 12 inches thick, representing the outer wall of a house. Among other results, these tests showed that a wall with the hollow spaces or cells of the tile set vertically is nearly twice as strong as one in which the cells are placed horizontally.

These tests are described and the results given in Technologic Paper No. 238 of the Bureau of Standards, entitled "Some Tests of Hollow Tile Walls." Copies may be obtained from the Super-

intendent of Documents, Government Printing Office, Washington, D. C. The price is 5 cents in currency.

A COMMUNICATION

To the Editors,
THE AMERICAN ARCHITECT:

I HAVE read with much interest the article by F. S. Marlow on Planning Investment Buildings, appearing in the September 12 issue of THE AMERICAN ARCHITECT.

The economics of planning investment buildings has been followed for many years, as Mr. Marlow suggests in his article, by refrigerating engineers and architects planning cold storage and similar plants where a large amount of insulation is involved. This insulation costs from fifty to seventy-five cents per sq. ft. in addition to the cost of the wall. It is, therefore, very obvious that the most economical cold storage plant is one requiring the least insulation. It is surprising how few architects realize the importance of investigating the amount of wall necessary to surround a given area.

STEWART T. SMITH, Architect
New York City

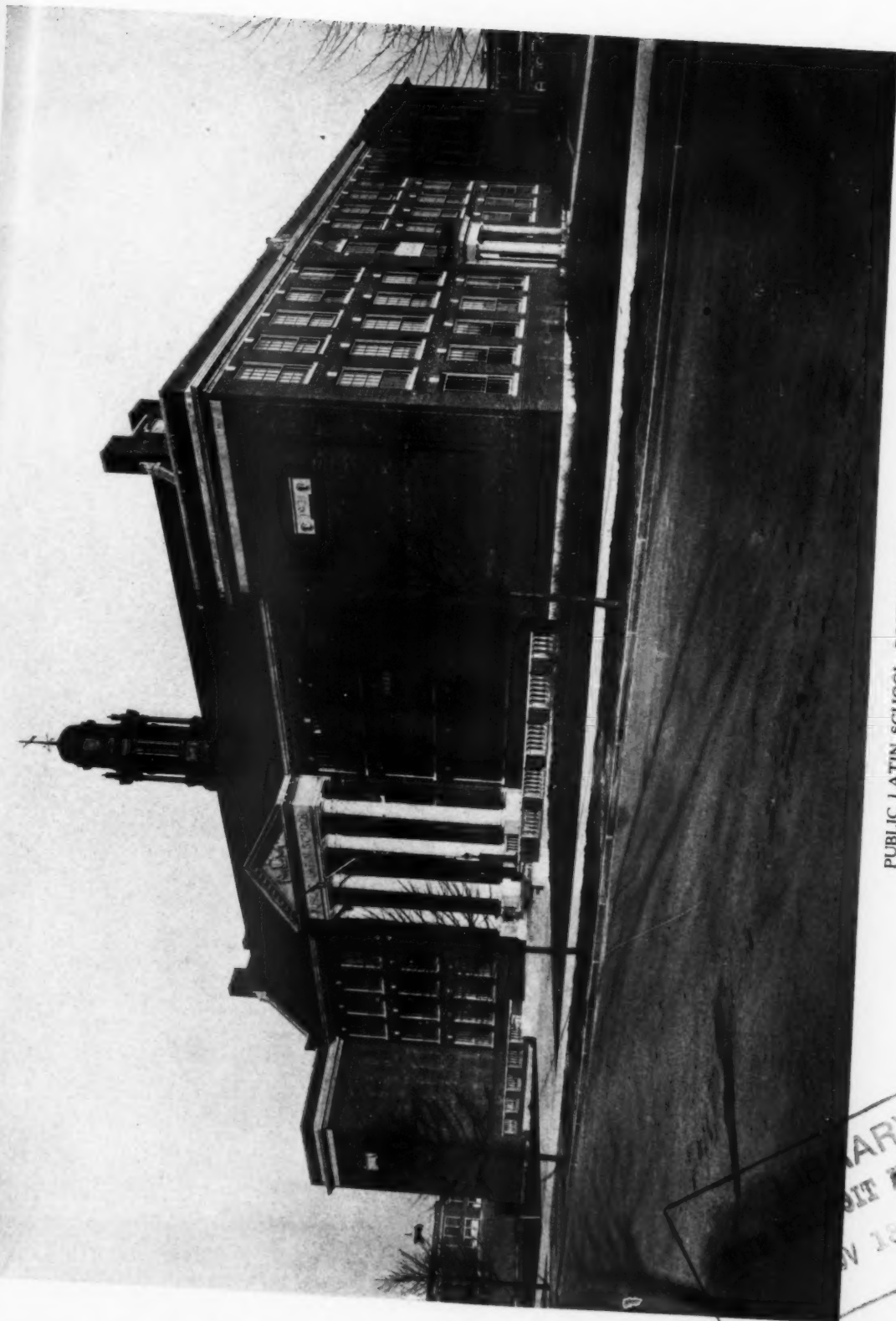
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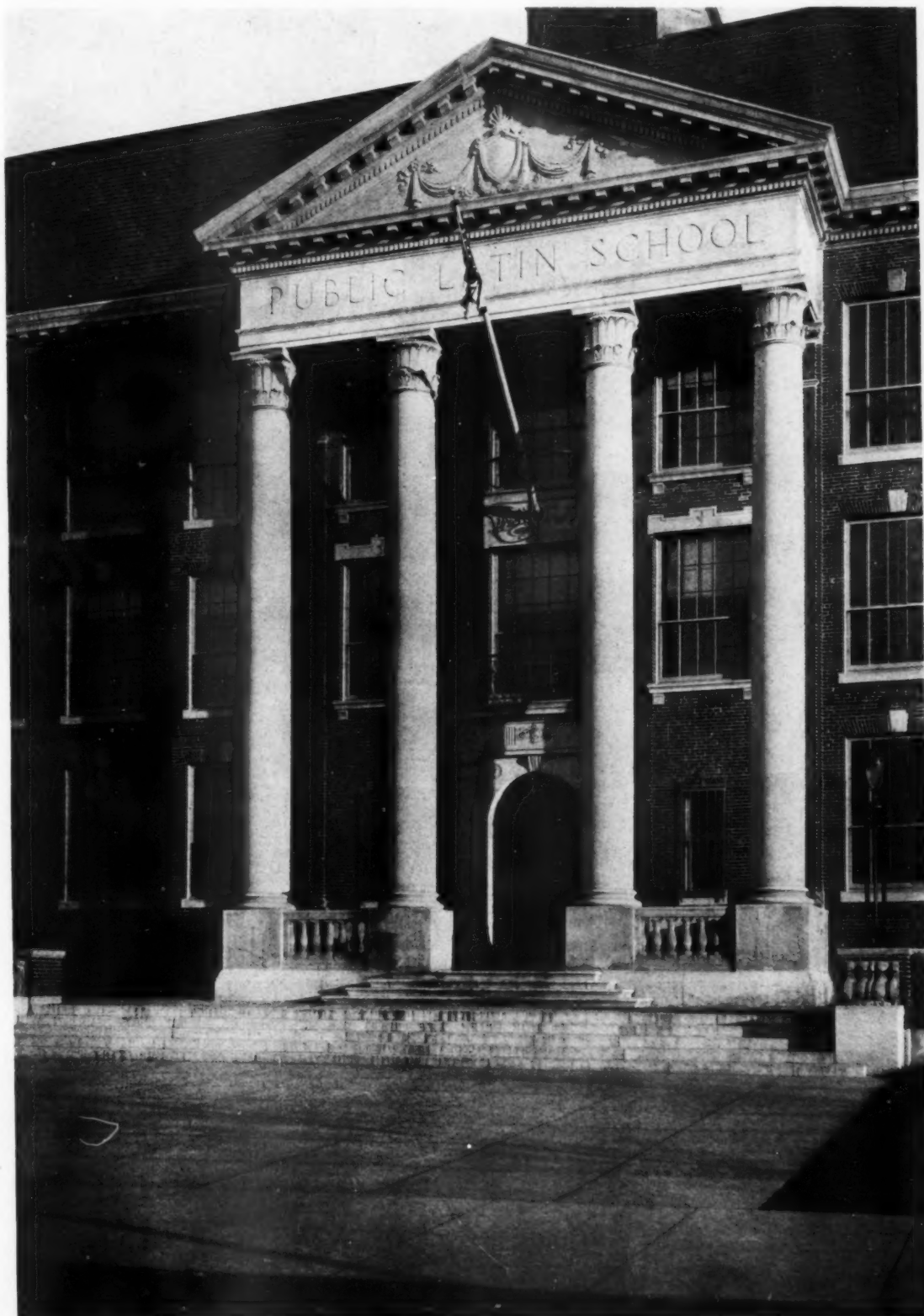
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NOVEMBER 7, 1923



PUBLIC LATIN SCHOOL, BOSTON, MASS.
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(See Pages 437 and 438 for Floor Plans)

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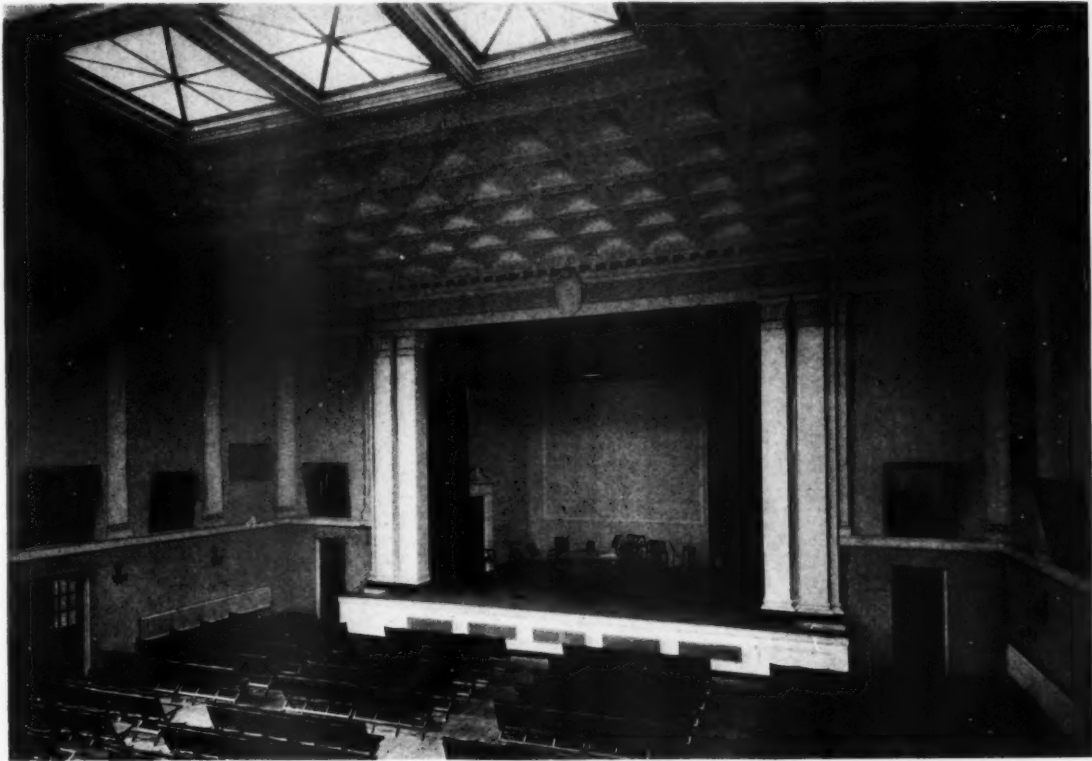
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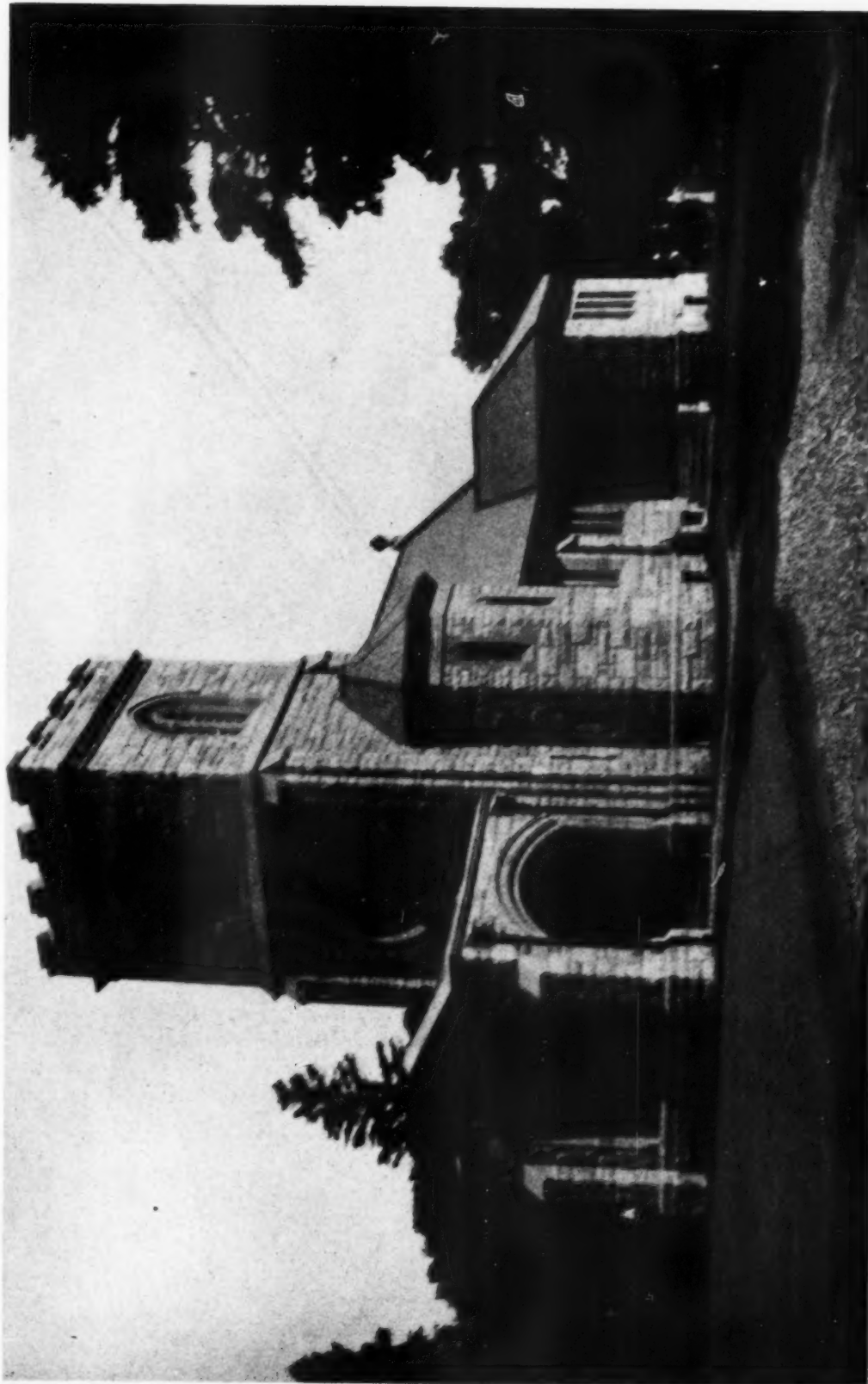
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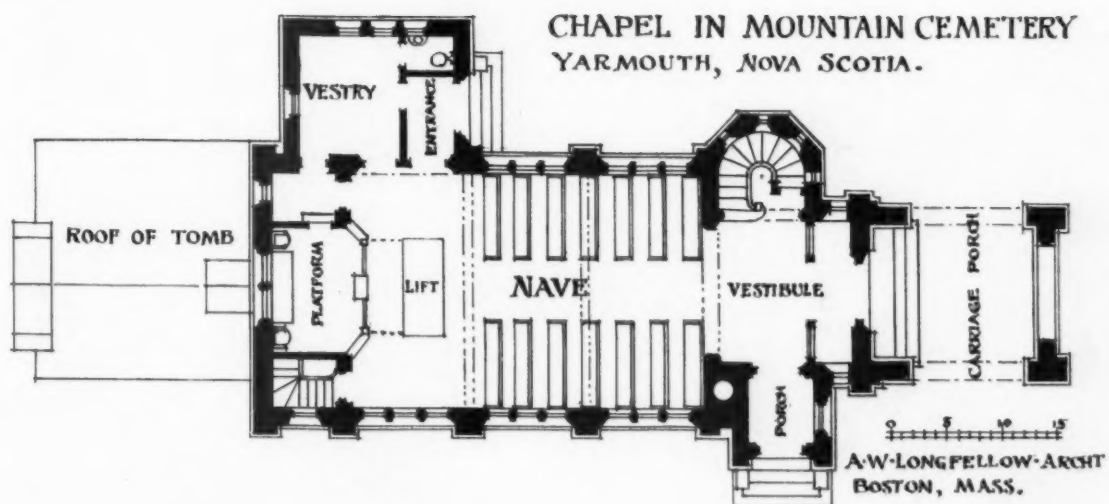
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CHAPEL IN MOUNTAIN CEMETERY, YARMOUTH, NOVA SCOTIA

A. W. LONGFELLOW, ARCHITECT



PAHETI
BUREAU TUNISIEN
1942



HOTEL CLAMAN, WEST 44TH STREET, NEW YORK

GRONENBERG & LEUCHTAG, ARCHITECTS

(See Page 123 for Floor Plans)



DETAIL OF LOWER STORIES ON 44TH STREET
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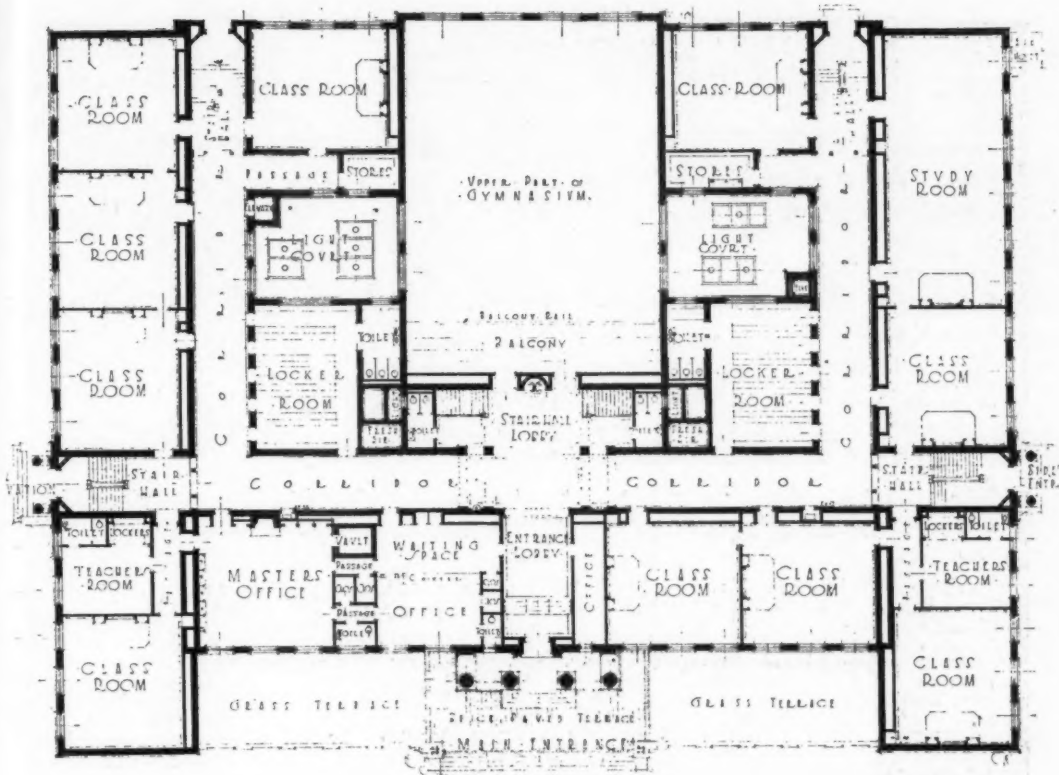


DETAIL OF LOBBY AND STAIRWAY TO MEZZANINE
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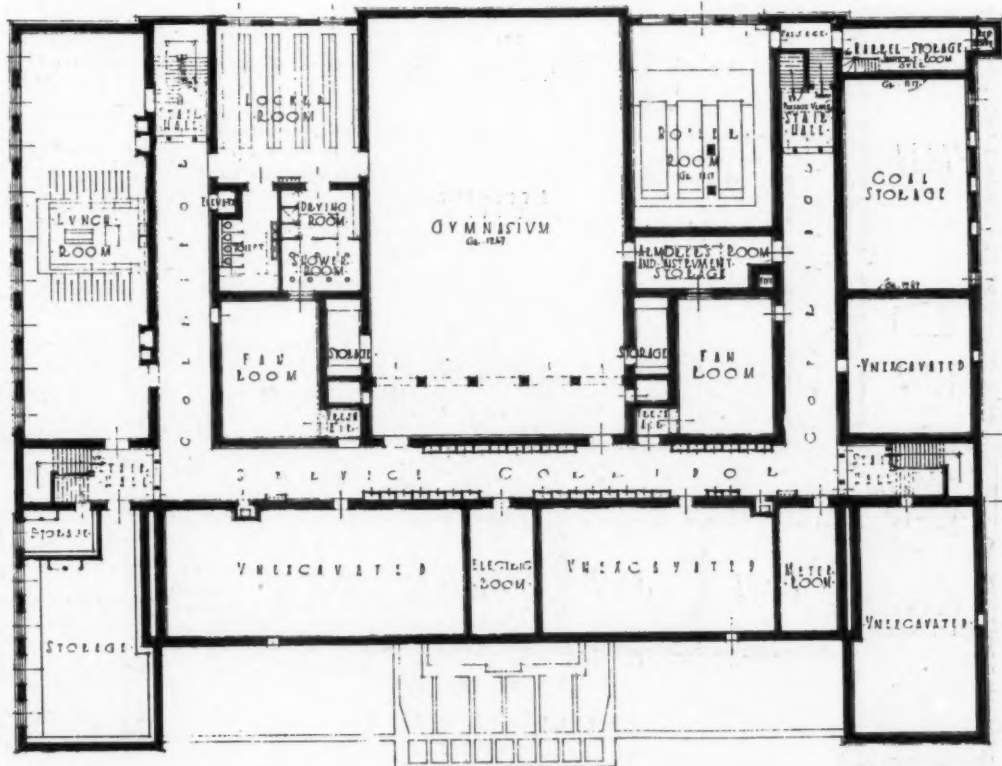


VIEW OF OFFICES

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GRONENBERG & LEUCHTAG, ARCHITECTS



GROUND FLOOR PLAN

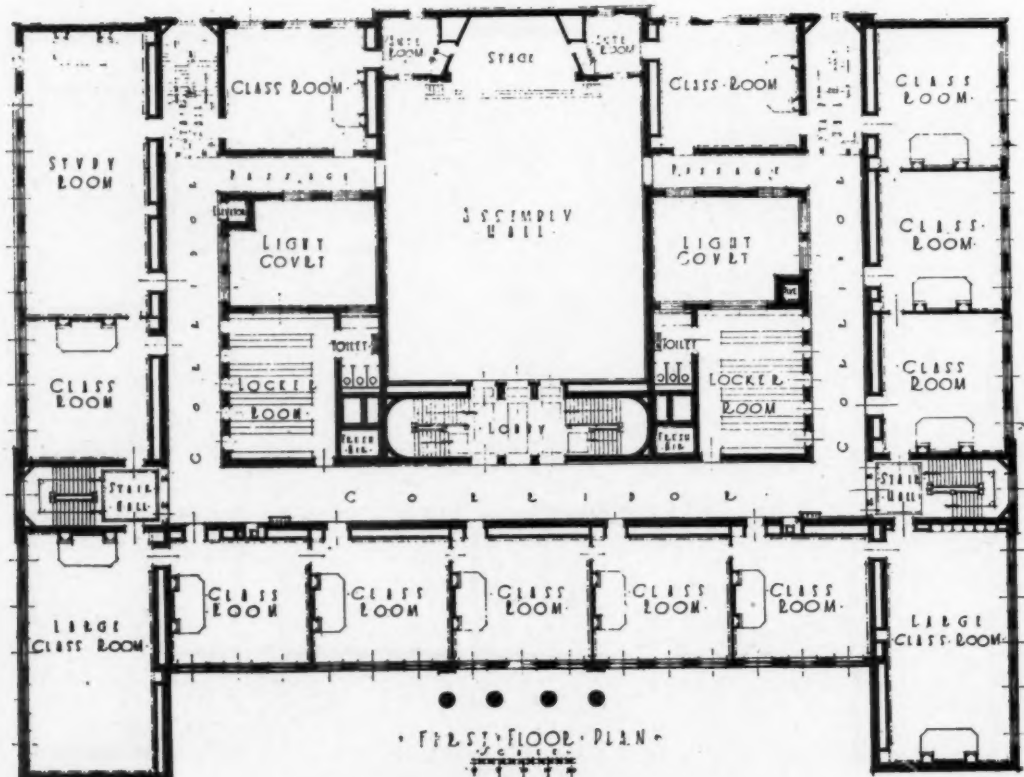
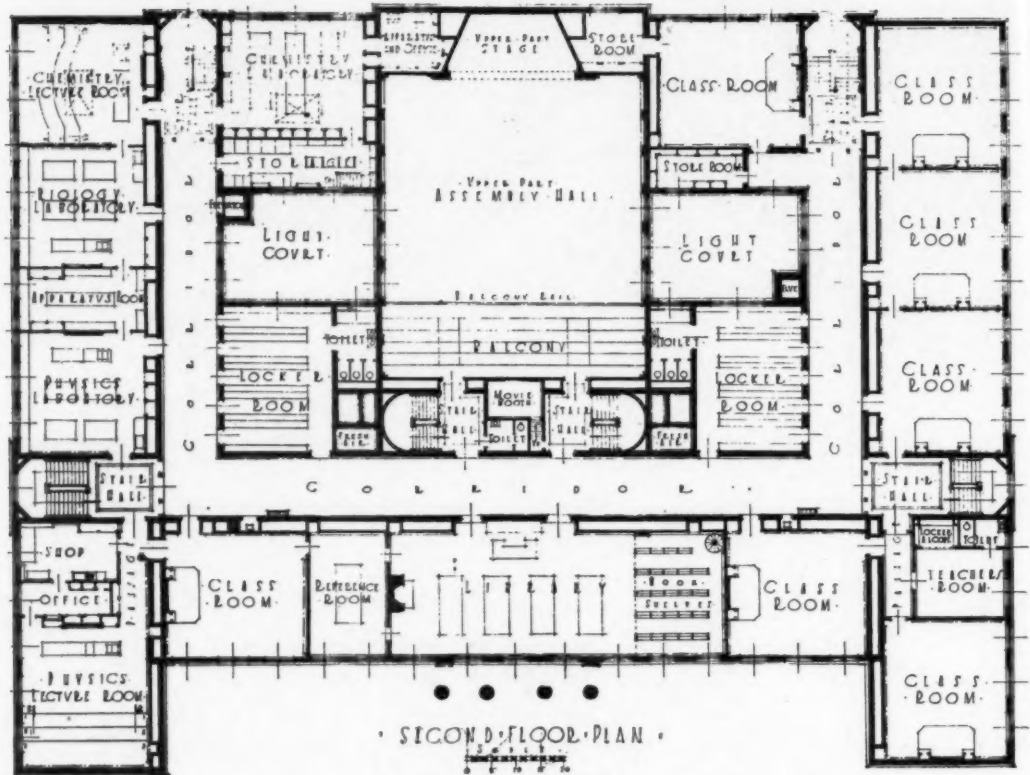


BASEMENT PLAN

PUBLIC LATIN SCHOOL, BOSTON, MASS.

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(For exterior and interior views see Plate Section)

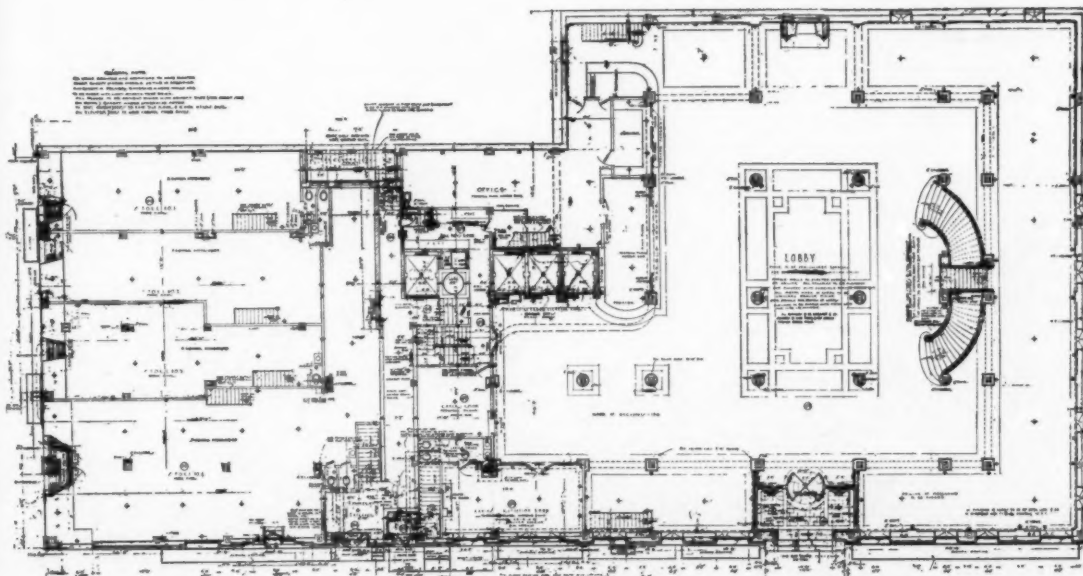


PUBLIC LATIN SCHOOL, BOSTON, MASS.

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TYPICAL FLOOR PLAN



FIRST FLOOR PLAN

HOTEL CLAMAN, WEST 44TH STREET, NEW YORK

GRONENBERG & LEUCHTAG, ARCHITECTS

(For exterior and interior views see Plate Section)

DEPARTMENT of SPECIFICATIONS

ALTHOUGH this department has in the past expressed certain fundamental ideas respecting the principal phases of specification writing that the specification writer should be familiar with, it is thought that the following matter which is taken from the book of "Specifications in Detail," by F. W. Macey, published in England, will be of very great interest to the readers.

This book is prepared with a great deal of attention given to the detailed factors involved in the writing of specifications, and not only the care with which it has been prepared, but also the mass of material presented for study, are unusual in any book on specification writing. This is not intended as a review of the book, but because it is perhaps the best of its kind that has been written, even though the finer points present many thoughts peculiar to the American mind, the general points that must be understood before a good specification can be written are as applicable to American practice as they are to English practice or practice in any other foreign country, no matter what language is used.

"A specification may be either longer or shorter according to the particulars given upon the drawings. Some engineers favor a short specification and prefer to put as much written information as possible upon the drawings. One reason for this is that engineers usually supply a number of details with their contract drawings which enables them to put many notes upon those drawings. On the other hand, architects do not usually supply many details with their contract drawings, consequently somewhat lengthy specifications are necessary. Either method may be adopted if the requisite information be clearly given.

"A specification should not supersede the particulars given upon the drawings, but should more fully explain those parts which the drawings do not clearly illustrate, or which are in any way obscure. It is impossible to show every detail upon the drawings, consequently a full description of those parts becomes absolutely essential in the specification.

"Drawings give the general arrangement of the building, and the specification should describe the details of that arrangement. These drawings should have figured upon them all important dimensions, such as the lengths, widths, and heights of the various distinct parts of the building; the thickness of walls; the depth and width of the concrete foundations; the sizes of floor joists, roof and flat timbers; the widths and heights of doors and windows; and all other similar and important parts and items. It is seldom

that drawings to a small scale are so accurately drawn as to be quite clear with regard to the sizes of certain parts unless these parts are given in figures. The only other particulars to be put in writing on the drawings would be the names of the rooms and other parts of the building, together with any notes or references which might assist the description in the specification. With regard to small scale drawings—these must not be labored by showing every brick and slate. Working drawings will be far clearer without too many lines.

"But in the specification everything must be included except the general dimensions of the various parts of the buildings. The sizes of the joists and roof timbers must always be described, as well as sometimes being given on the drawings, and there is no harm in specifying the thickness of the various walls, the depth and width of the concrete under the walls, or any other detail of the building. A specification which is full, but at the same time concise and to the point, will prevent mistakes and misunderstandings when the building is in progress, and of course the specification should always agree with the drawings.

"Presuming, then, that the drawings have been prepared and it is necessary to write a rather full specification—what is the first consideration? A complete knowledge of the subject matter must be had, that is, of the details of building construction and of the value and properties of materials. In other words, it must be known what has to be described. And until this point is mastered it will never be possible to commit to writing the proper descriptions needful to the erection of a building. Therefore, a complete knowledge of all the requirements and details of the various trades coming within the scope of the architectural profession is the first consideration in efficient specification writing. And in addition to this, a knowledge must be had of the various acts and by-laws relating to buildings.

"But it is impossible to know everything at once, and when in doubt upon some point, the only way is to insert a Provisional Amount to cover the item, and to obtain the requisite information afterwards. There are only two ways to gain this information—study and observation. First, to read any works obtainable which bear upon a doubtful point (and much useful information may sometimes be obtained even from trade catalogs) and then to discuss the matter on every possible occasion with anyone who has any knowledge of the subject, and further, to notice what is going on around. Many practical hints may be obtained merely by observation whilst passing down a street where building operations are in progress.

"A draft specification must not be hurriedly written, with the intention of altering and supplementing it when revising for fair copying, but it should be written with great care and thought. Being fresh to the matter, even so dry a subject as specification writing creates a certain amount of interest, and while the mind is concentrated upon the matter there will be less likelihood of omitting many small items. Therefore, the first draft must be as complete as possible. And while engaged upon the drawings, much assistance will be gained if notes are made of any obscure item coming under observation at the time.

"When a Bill of Quantities is prepared, it is usual for the quantity surveyor to make notes of any item omitted from the architect's specification. If this be not done, then the architect must run through the Bill of Quantities and adjust the specification to it before the contract is signed. And here it will be well to note that when sending out a number of fair copies of a specification, see that they all agree.

"A full specification will save many an anxious moment. Constant disputes occur with the builder and many extras crop up owing to omissions and imperfect working, which ordinary care would prevent. A specification is a legal document to be followed only so far as it goes.

"In many specifications the descriptions frequently given are incomplete; thus wording to this effect may often be seen:

'That the builder is required to perform a certain work all complete' or 'all as required' or 'as necessary.'

"Generalizing in this way merely shows that the architect does not know what is required, and the consequence is that either an unfair estimate is obtained, or an incomplete work is performed, or else a dispute ensues with the builder as to what was intended or required. When a difficulty arises of not knowing the proper description of an item, the only plan is to put in a Provisional Amount, and to let the item work itself out in execution. But as far as possible let the descriptions be definite, clear and comprehensive.

"There are two words which are often employed promiscuously in a specification, and these are 'provide' and 'supply.' It is immaterial which is used. It is better, however, to keep to one word or the other throughout, and then there will be no ambiguity.

"But there is another word used in a specification, the meaning of which is often disputed. It is the word 'best' as applied to workmanship and materials, and more especially to the latter. Such terms as 'best finish,' 'extra best,' 'super best,' 'best best' and so on should not be employed at all, but merely the one word 'best' coupled with a definition of the word.

"Here is a suggested definition of this word:

The word 'best' as applied to materials, articles, and workmanship shall mean, that in the opinion of the architect there is no superior quality of material or finish of article on the market, and that there is no better class of workmanship obtainable.

"In fact, by describing this word 'best' it need only be mentioned in the one clause stating that all materials, articles and workmanship are to be of the best quality, class and description.

"There are several ways to curtail the descriptions in a specification without detracting from the merits of the document. Many items which apply under similar conditions to several parts of the building may be generalized; thus, take, for example, the skirtings to a building. A general clause applicable to all skirtings may be inserted somewhat to this effect:

All skirtings to be rebated to floors, tongued and mitred at angles, tongued at heading joints, housed into architraves, returned and mitred at ends, and fixed to double splayed narrow framed grounds with dovetailed backings and filling out blocks, and plugged to walls.

"The only further description then necessary will be to refer to each particular skirting, such as:

Attic skirtings 7 in. x 1 in. plain deal.

First Floor skirtings 9 in. x 1 1/4 in. moulded deal, and so on.

"By this means repeated descriptions of the fixings and backings to each separate class of skirtings are avoided. In the same way the backings and fixings to door and window linings and many other items where the conditions are similar may be generalized.

"Further, if any detail drawings are supplied with the contract drawings (which is not always the case) a specification may be much shortened without detracting from its efficiency by merely referring to the detail drawings in question, and at the same time mentioning any particular feature not readily to be gathered from those drawings. Thus, take an ornamental carved screen across a hall with doors and glass, full details of which have been provided with the contract drawings. It will simply be necessary to refer to the screen in question, and to mention the class of wood of which it is to be formed, together with the ironmongery and glass, and perhaps to give a Provisional Amount for the carving, and thus avoid describing the sizes of all the parts, such as the thickness of any pilasters, or the sizes of any mouldings, architraves, or cornices, provided these particulars are all to be gathered from the drawings. Thus in about three lines may be stated all

that is necessary which otherwise would perhaps occupy a dozen or twenty lines.

"There is another way to shorten a specification. Take, for example, the windows to a building, one or two of which are dissimilar to the rest. First describe the special windows; and then refer to all the other windows throughout in one item, and do not describe them to each floor separately. Take again the external facings to brickwork; describe any special facing first, and then the whole of the other facings to all parts in one item without reference to position. There are many other items which can be similarly treated. One more suggestion—the wording itself of a specification may be much curtailed by care and practice. It will not be possible to write concisely and to the point until many specifications have been written. Therefore the wording must not be labored needlessly nor the items repeated unnecessarily. In time the requisite language will come simply and quickly.

"Another important point in a specification is that it should be clear and readily understood. To avoid confusion the various parts of a complete item of work should be tabulated as much as possible by placing each separate particular under the preceding one. It will take more paper, but there is no objection to that, for it will make the description clear at a glance. The form of tabulation should be somewhat as in the following illustration describing a roof formed with trusses.

The roof to be formed of (say) six whole trusses and two half trusses. The trusses to be placed 10 ft. apart and composed of the following scantlings, and the whole to be notched, framed, spiked, and strapped together.

Tie beams 12 in. x 6 in. resting on 2 ft. 6 in. x 12 in. x 3 in. tooled York templates.

King posts out of 6 in. x 5 in.

Principal rafters 6 in. x 4 in.

Struts 4½ in. x 4 in. and so on.

"Here each separate component part of the roof is placed immediately under the preceding one until all the items have been described. Thus at a moment the sizes and particulars of any one special part of the roof may be seen.

"This form of tabulation will be found much

clearer than the method so often adopted of running on the particulars of the various items line after line without a break. In the same way may be tabulated the description of floors, windows, doors and many other distinct items, severally composed of many parts.

"Another aid to the clearness of a specification is to divide the descriptions into many clauses, and not to make them too long. Also, the clauses should be kept well apart and not crowded together; any item will then be quickly seen, and there will be no question as to the part of a building to which a description belongs.

"As a general rule a specification should be divided into separate trade headings, but very many distinct items of work would be clearer and more comprehensible if the various trades relating to them were not separated, but the complete item of work described under the one heading placed in whichever part of the specification seemed most desirable, thus:

"Take an iron casement window with wood frame, linings, and the usual glass and fittings. Ordinarily this would come under several trades. But it would be better to describe everything connected with that window under the one heading of (say) Joiner, that is, the iron casement, the wood frame, linings, shutters and finishings, the ironmongery and glass, with a cross reference under Smith stating that the iron casement was described in Joiner. The builder will see at a glance all of the requirements of that window, and the employer would also have an idea how it will look when finished.

"Again, take an iron girder; this should be described under Smith and Founder, the girder itself, the templates, cover stone, any cement packing, felt or lead seating, and the painting. But perhaps it might be better to generalize the painting under Painter in the one description applicable to all girders and covered up ironwork, and in that case a reference to it should be made under Smith and Founder; there will then be no excuse for the painting to this work escaping the builder's attention.

"When describing the work to small alterations, repairs or decorations, it is almost essential to adopt this order of running on the descriptions regardless of trade headings and formalities. Of course, when work is let to separate tradesmen this method cannot be adopted."

The VALUE of TRADITION*

SOMEWHERE, in one of his entertaining essays, Mr. Hilaire Belloc discusses the altered attitude of mind toward change or development now manifest, as compared with that which prevailed when he was a student, not so very many years ago, at Oxford. Then, he says, all change or development was regarded as progress toward an ultimate perfection. Now, and particularly since the war, a change is looked upon with doubt and apprehension. This thought suggests that perhaps modern progress has been too rapid, or, perchance, that it has not all been in the direction of perfection. Architecture is essentially a conservative art. It is true that there have been at various times, revolutionary changes; but, for the most part, development has come through a process of evolution. The change that took place in England when the vernacular mediæval Gothic passed, was in one sense revolutionary, because it shed the ideals of four or five centuries, and substituted those of the Renaissance. In another sense, it was evolutionary; the Gothic had ceased to be the natural expression of the day. The ideals that it represented no longer existed. The mundane glory of the mediæval church had given place to the secular order. Through this evolutionary process, for there was a transitional period, came the Renaissance into these countries. The Gothic Revival of the nineteenth century was in one sense a revolutionary movement, with all its striving after truth, was artificial, and therefore a failure—a phase which, for all its admirable effort, did much mischief, for if it did not kill the then existing tradition of England, it inflicted grievous wounds. Nevertheless, tradition still lingered, and a remnant was preserved. The Gothic Revival was a resurrection of ancient things, and in this wise a stirring of tradition; but they who directed it made the mistake of taking up certain phases or periods, and more or less accurately copying or adapting them. In this way, the majority in those early days of the Revival tried to recreate the work of the thirteenth century; again, the early French Gothic; and, yet again, the Lombardo-Venetian Gothic—forgetful that it was the spirit, rather than the dead and dried bones of particular periods that mattered and should be sought after. In our own day, this has been more freely recognized—Liverpool Cathedral is an example of the truth, that it is not the form but the spirit that matters, and in it, and in other modern works, we get closer to the feeling and the tradition of Gothic than in the older and more correct reproductions of Gothic art. Reproductions are comparatively easy to

create, but are of little account. Like "Period" furniture, they are of small value. Nevertheless, the Gothic Revival is entitled to respect for its great ideals and its recovery of mediæval principles. Its chief fault was that it overlooked the fact that centuries had elapsed from the death of Gothic to its attempted revival, and during that time another tradition had been created. Taking it all in all, the Gothic Revival was the most outstanding movement of the nineteenth century in English architecture, just as the pre-Raphaelite was in painting. Indeed, the one was the counterpart of the other.

The greatest ill that the Gothic Revival brought about was its after effects. So long as the original movement subsisted, law and order prevailed; but, when a further development followed, it took on the form of what some people dignified by the title of "Eclecticism." It laid on one side the still living tradition, and endeavored to combine the ideals of two opposite forces, and thereout, to compound a new style—an impossibility. The result was the loss of tradition, the decay of scholarship, and the rise of a school that grew more and more lawless in its tendencies.

The Gothic Revival itself was a remarkable movement to recover tradition, and, despite its failure as a whole, accomplished very much in sound scholarship and academic feeling in design, especially in its latter phases, both in England and America, so long as it was confined to purely ecclesiastical design, the only form of work remaining in modern times with any affinity to mediæval conditions. Take one of those plates of English or French Cathedrals from Sir Banister Fletcher's "History of Architecture on the Comparative Method." Could anything be more "academic" than these ground plans? They are symmetrical, scholarly, shapely, absolutely conforming to Mr. Thomas Hastings' description of a good plan that "builds well." The great mistake of the Revivalists lay in their taking particular phases of Gothic and more or less accurately copying or adapting the style of the period, instead of laying hold of the spirit and the tradition and developing it. The difficulty of this was, of course, enormously increased by the hiatus of several centuries, almost without any link.

The preservation of tradition, which is the knowledge, skill and practice handed down from generation to generation, has been variously regarded in different countries at sundry times. In some, it has been strong; in others, weak. Architectural tradition prevailed strongly in England until the Gothic Revival. It has been strongest perhaps in France, owing no doubt to the influence

*Reprinted in part from *The Architect*, of London.

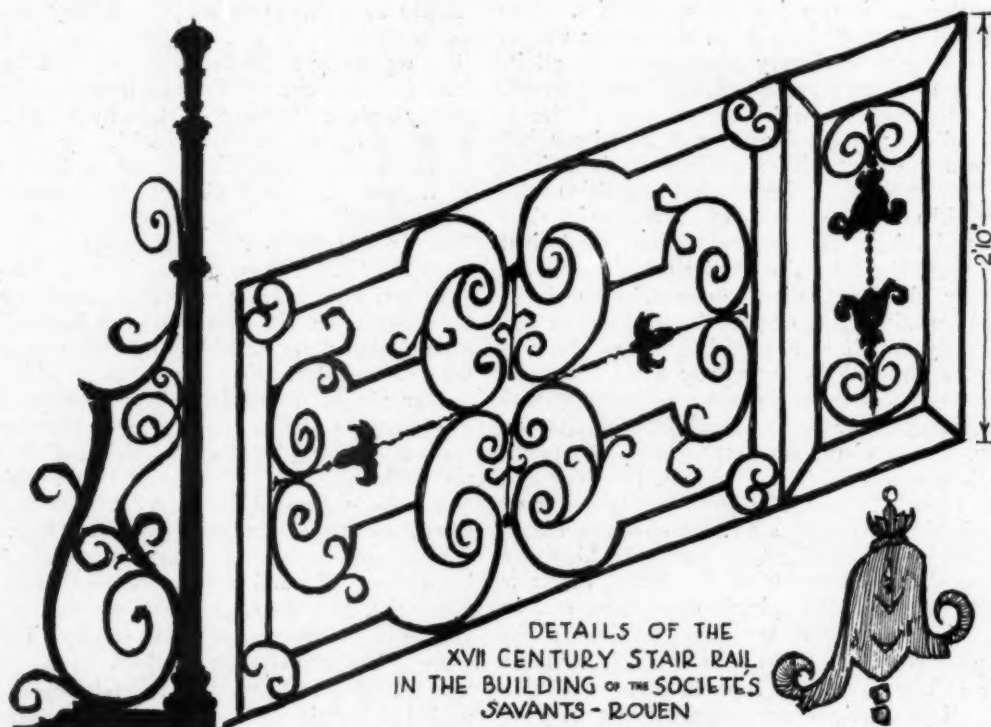
of the Ecole des Beaux-Arts and the association of the State with Art. America, a young country with no great traditions of its own, has in its wonderful architectural revival of today had recourse to two sources of inspiration—the one its own gracious eighteenth century "Colonial" architecture, with the old Spanish "Missionary" style of California; the other, the strong influence of the Ecole des Beaux-Arts, with its marked adherence to French Renaissance traditions, leading in America ultimately to the development of a great modern and scholarly treatment of architecture, based on a profound knowledge of Classical and Renaissance art.

In Ireland, there is the absolute opposite to be seen, namely, the complete rejection and anarchic discarding of the splendid native eighteenth and early nineteenth century tradition after about 1850 and the substitution of a weak imitative tendency that has neither relation to the country nor any tangible inspiration.

The value of tradition to a nation was well expressed by Mr. Thomas Hastings, of Messrs. Carrere and Hastings, of New York, on whom the Royal Institute of British Architects conferred the most signal honor in their gift of the 1922 Royal Gold Medal. Mr. Hastings, tendering thanks to the Institute, said "that he believed we should return to tradition, and so do away with all the modern confusion. The practicing architect, if he continued as he should do—to be a draftsman

all his life—must realize that beauty of design and line build well in construction, and with greater economy and endurance than construction which was mere engineering. The practical and the artistic were inseparable. The science of modern engineering had often divorced the architect from many of the larger and more interesting so-called utilitarian problems of construction. Architecture and all construction should be inseparable. The laws of the survival of the fittest would cause beauty to be predominant. When the plan looked well, it would build well. He believed that our old buildings had stood so long because the plans looked beautiful. Americans, too, realized that they came to Europe because of what man had done by art to beautify nature. For the art of man had made nature more beautiful."

When the history of architectural development in England during the twentieth century comes to be weighed, probably the most outstanding feature will be the effort to recover tradition manifested during the past twenty years. It cannot be described as in any sense a general national movement; it is due to the teachings of a very few men, who realized that English tradition had not been wholly lost with the opening of the nineteenth century, nor even with the rise and fall of the Gothic Revival, but continued down to our own day. It is only during more recent years that the real value and importance of tradition and its correct interpretation have begun to be realized.



DETAILS OF THE
XVII CENTURY STAIR RAIL
IN THE BUILDING OF THE SOCIÉTÉ
SAVANTS - ROUEN

(From the original sketch by Samuel Chamberlain)

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PERSONALS

Theo. C. Kistner, architect, has moved his office from 307 Bancroft Building to 537 Spreckels Building, San Diego, Cal.

Tooker & Marsh and William F. Kussin, associated architects, have moved their office from 119 Water Street to 11 Beacon Street, Boston, Mass.

Oldefest & Williams, architects, have moved their offices to Suite 304, Lake Shore Bank Building, 605 North Michigan Avenue, Chicago, Ill.

Courtland L. Butler, architect, has moved his office from 804 Kennedy Building, Tulsa, Okla., to 119 South Highland Avenue, Pittsburgh, Pa.

John Graham, architect, announces the removal of his offices from the L. C. Smith Building to 1351-1362 Dexter Horton Building, Third Avenue and Cherry Street, Seattle, Wash.

J. Meyrick Colley was recently appointed architect for the Board of Education of Louisville, Ky., and has his office located in the Administration Building, that city.

Pollmar & Ropes, architects and architectural engineers, have moved their offices from 213 State Street to 704 Hofman Building, 2539 Woodward Avenue, Detroit, Mich.

It is announced that E. J. Wolpert, architect, has opened an office for the practice of architecture at 418½ Main Street, Jonesboro, Ark. Manufacturers are requested to send catalogs and samples.

Ralph E. Griswold, fellow in landscape architecture, American Academy in Rome, announces that he will be associated with A. D. Taylor, landscape architect, 4614 Prospect Avenue, Cleveland, Ohio.

Ross Shumaker, architect, has opened an office for the general practice of architecture at 14 Enterprise Street, Raleigh, N. C. Manufacturers are requested to send catalogs and samples.

Announcement is made that Beck & Tinkham, architects, are now located in the Phillips Building, corner Cherry and West Second Streets, Jamestown, N. Y.

J. A. Altschuler, architect, formerly located at 8 Dean Block, New Castle, Pa., has opened new offices for the practice of his profession at 115 East North Street, that city. Manufacturers' catalogs and samples are desired.

It is announced that Joseph H. Roberts, architectural designer and engineer, has moved into permanent quarters at 312 Marine Bank Building, Broadway and Pine Avenue, Long Beach, Cal.

H. W. Charlton, architect, and H. D. Charlton, associate, have moved their office from 333 San Fernando Building, Los Angeles, to 18 Central Building, 111 East Broadway, Glendale, Cal.

S. Tilden Norton and Frederick H. Wallis, architects, announce the removal of their office from the Pacific Finance Building, to the entire second and third floors at 716 South Spring Street, Los Angeles, Cal.

J. C. Walsh & Company have opened an office for the practice of architecture in Room 311, Phillips Building, Fifteenth and K Streets, N. W., Washington, D. C. Manufacturers' catalogs and samples are desired.

A. Klingensmith and Haralson & Nelson have combined their offices for the practice of architecture under the firm name of Klingensmith, Haralson & Nelson, architects, with offices at 413-15 Merchants National Bank Building, Fort Smith, Ark.

M. Leo Elliott, A. I. A., architect, of Tampa, Fla., announces the opening of a branch office for the practice of architecture at 316 Central National Bank Building, St. Petersburg, Fla. Carl N. Atkinson will act as manager of this newly opened office.

The W. E. Doud Building Corporation of Fort Wayne, Ind., has engaged the services of G. F. Bennett to handle their architectural service. He would be pleased to receive manufacturers' catalogs and samples pertaining to construction and design of small houses and country work.

George Herbert Gray, successor to L. W. Robinson, of New Haven, and Clark J. Lawrence of New York, announce the formation of the partnership of Gray & Lawrence, for the practice of architecture and community planning at 42 Church Street, New Haven, Conn.

G. F. Ashley and Albert J. Evers, San Francisco architects, have opened an office at 518 Mortgage Guarantee Building, 626 South Spring Street, Los Angeles, Cal. Mr. Ashley will have charge of the Los Angeles office, while Mr. Evers will continue at the San Francisco office, 58 Sutter Street.



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The purpose, simply stated, is to afford an organization which, it is believed, will become a most important element in architectural practice and building operations, a medium through which it may, without expense to itself, reach a class of readers that are most intimately identified with the field of the activities of The American Specification Institute.

Publishers, THE AMERICAN ARCHITECT AND THE ARCHITECTURAL REVIEW.

OUTLINE FOR TENTATIVE SPECIFICATIONS FOR TRAVELING CRANE

(The form of this bulletin conforms to the arrangement of Elements of a Specification as given in Bulletin No. 5, ANALYSIS OF A SPECIFICATION, as revised January 20, 1923.)

I. CONTRACT AND LEGAL

1. Parties:
2. Agreement:
3. Terms of Payment:
4. General Conditions:
5. Regulations and Codes:
6. Standards:
7. Payments:

II. ECONOMIC

SCOPE OF CONTRACT:

8. Drawings:
9. Work Included:
10. Methods of Analysis and Comparison of Bids:
11. Conditional Payments:

III. GENERAL DESCRIPTIVE

12. Characteristics, Service Conditions and Ultimate Requirements:

IV. PRELIMINARY PREPARATION

13. Drawings:
14. Shop Drawings:

V. MATERIALS

15. Properties:

VI. METHODS:

16. Press Fits:

DESIGN REQUIREMENT:

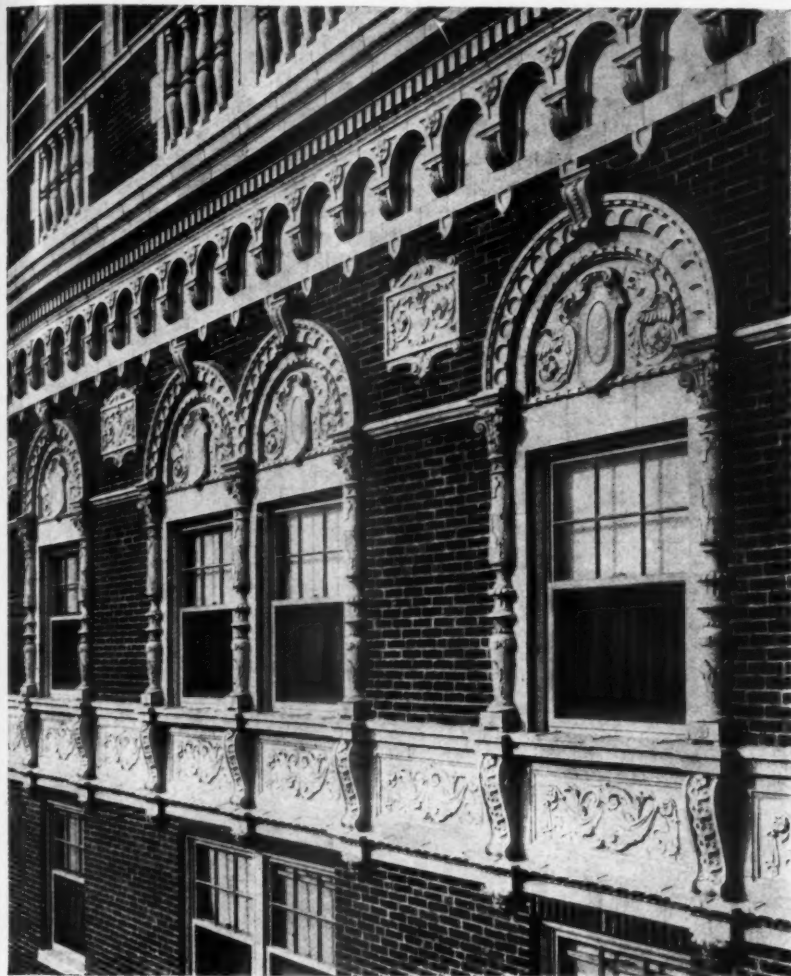
17. Strength:
18. Safety Factor:
19. Accessibility:
20. Gears:
21. Shafting:
- 22.
23. Bearings:
24. Couplings:
25. Bolts:
26. Wheels:
27. Bridge:
28. Drums:
29. Brakes:
30. Finish:

VII. SCHEDULES

31. Erection:

VIII. RESULTS

32. Guarantees:
33. Tests:
34. Rejection:



*Detail of Terra Cotta,
Upper Stories, Chase Hotel,
St. Louis, Mo.*

Preston J. Bradshaw, Architect

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FRANK L. PACKARD DEAD

FRANK L. PACKARD, architect, died suddenly in his home at Columbus, Ohio, on October 26.

Mr. Packard was widely known throughout the profession of architecture, and in his own state where for many years he efficiently served as State Architect he was held in the highest esteem and affectionate regard. His fine ability early brought him into prominence. His sturdy manhood and genial presence gained him friends everywhere. His passing will be widely mourned. He set a fine example as a model for young men in the profession, to whom he was always a firm friend and a wise counsellor.

Mr. Packard was fifty-seven years old.

COMPETITION FOR HOUSE BEAUTIFUL COVERS

THE success of the competition for cover designs held last year has led the *House Beautiful* to repeat this event, and again to offer two prizes, one of \$500 and one of \$250, to the successful contestants. The competition closes February 9, 1924. Full particulars regarding the competition may be had on application to the Competition Committee, *House Beautiful*, 8 Arlington Street, Boston, Mass.

PAWNBROKERS TO HAVE GUILD HALL

THE pawnbroking trade is to have a hall in London the design of which is in keeping with some of the famous City Halls of the seventeenth and eighteenth centuries, according to an announcement by *The World's Bureau*. It will be known as Lombard Hall and will be erected in Little Britain, E. C. Plans have been prepared by J. J. S. Naylor, architect.

There will be a reception room on the ground floor and a council chamber and offices on the first floor, where several societies devoted to trade interests will have their headquarters.

FRIEZES AT POMPEII

AN account from the pen of Professor Ros-tovtseff in the *Times* of his archaeological investigations at Pompeii reveals information with reference to the decorations which its dwelling houses included, states a recent issue of *The Builder*, London. The Strada dell' Abbondanza, which extends from the Forum, one of its principal streets, reveals particulars of extraordinary interest in regard to the decorations included in the dwelling houses. The mural work of these underground rooms represents the art of the Augustan period, when the subject matter illustrated was mostly drawn from famous episodes in the Iliad, though we are told that landscape predominated. One particular room described by the Professor seems

to have more directly illustrated the Homeric poems. A comment about these mural paintings, etc., illustrates an aspect of wall painting which belies that very modern and theoretic view of the necessity of "flatness," for fear we should forget we were looking at a wall—a view which has fostered in our own time such an attenuated expression, and so limited its scope. As stated in the course of a leader on the subject in the same journal: "The artists' primary object seems rather to have been to paint landscape than to illustrate Homer, and to create as part of the architectural plan the illusion of windows looking out upon Nature." How much more interesting than the "flat" pabulum, the studio substitute! Conventions such as these are the growth of preconceptions little related to practice, and when the practice of mural painting really takes hold of our artists, as well as our art schools, they will not be content to withhold the richness of real painting quality, or fear lest the spectator should not know a wall when he sees it.

NATIONAL POSTER COMPETITION

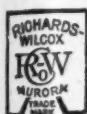
THE Women's International League for Peace and Freedom, are offering cash prizes, totaling \$500, for a "World Peace" poster to be used in propaganda to further the objects of the League. This competition will close January 15, 1924. The Jury of Award is composed of Daniel Garber, Elizabeth Shippen Green, George Harding, Elisabeth Johnson, Rockwell Kent, Charles E. Klander, Jessie Wilcox Smith, Alice Barbour Stevens.

For conditions of this competition address Women's International League for Peace and Freedom, 1403 H Street, N. W., Washington, D. C.

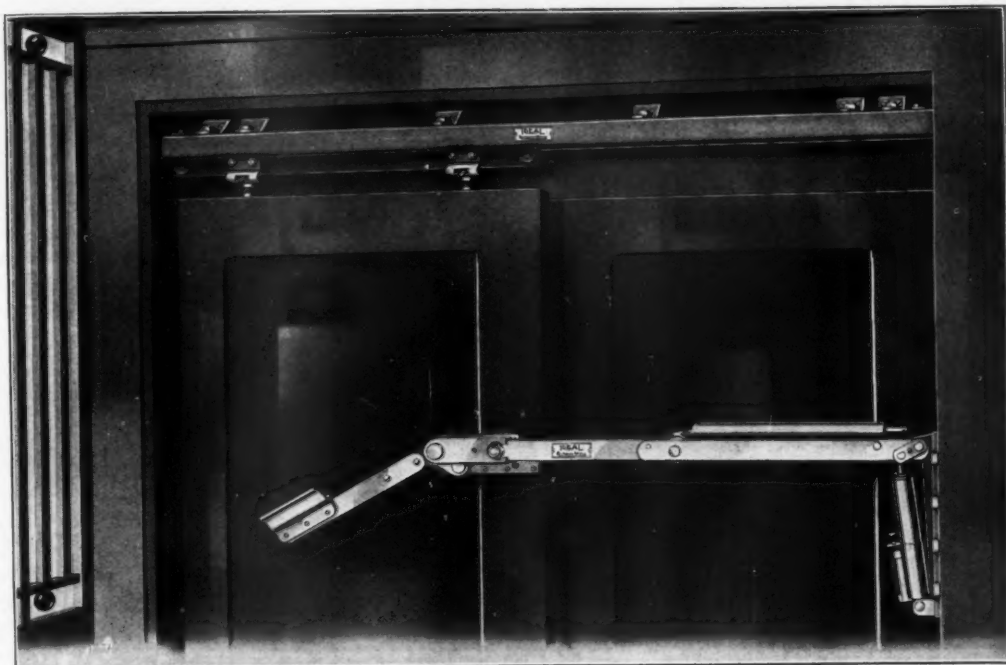
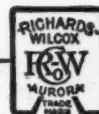
CHURCH ARCHITECTURE IN THE UNITED STATES

A MOST serious and well directed effort is being made by the American Lutheran Church to improve the architectural character of its churches, wherever built in this country. The American Lutheran Publicity Bureau, located in the United Charities Building, 289 Fourth Avenue, New York, issues monthly a magazine called *The American Lutheran*. The October issue, recently received, is an architectural number. It constitutes a well considered attempt to present the reasons for the need of better designed and equipped churches.

Ralph Adams Cram, who has written the leading article, writes on the Regeneration of Protestant Architecture. It is Dr. Cram's opinion, as expressed in this article, that in our church architecture, we stand in the first flush of a great awakening, a great discovery. He sees in this awakened



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appreciation for good ecclesiastical art, a great solvent, a great agency of sympathy and approximation.

R. Toland Wright has contributed an informing article on The Revival of the Use of Painted Glass, and A. F. Bernhard discusses Structural Honesty in Church Building.

Other articles pertinent to church architecture have been contributed by E. Donald Robb, J. W. C. Corbusier, the Rev. Luther D. Reed and John Edward Tarbox.

This issue should be of particular interest to architects who specialize in church architecture.

THE COLLECTOR

IN his new book, "Masters and Men," Philip Guedalla gives this interesting description of the collector:

"It is an odd, industrious little figure that goes about, in his favorite phrase, picking things up. There is something faintly perverted about many of his preferences. You will find him, in the dark corners of bookshops, buying books for their misprints. He has been seen admiring prints because of some error that remained uncorrected on the plate. The fatal lure of rarity obscures for the collector the facile charms of perfection. It is enough for him (one is back again in the era of the two-headed lamb) that the specimen is unique. The collector, scavenging indomitably in the wake of our civilization, will leave nothing whatever for posterity to find."

COURSES AT THE U. S. FOREST PRODUCTS LABORATORY

THE U. S. Forest Products Laboratory, Madison, Wis., which since 1919 has been giving demonstration courses in Kiln Drying of Lumber, Boxing and Crating, Gluing of Wood, and Wood Properties, announces a new course covering wood as a building material. This course is designed for architects, construction engineers, contractors, and others interested in the use of wood in building construction.

The subject matter will be presented in lectures and demonstrations by the experts of the Laboratory, many of whom are well known to the building trade. The course will include some of the subjects that have been presented in the kiln drying, gluing, and other courses, which have been attended by hundreds of men from all parts of the country. In addition, the new course will take up the properties and uses of various species of woods in building construction; methods of determining the strength of wood; safe working stresses for structural timbers; effect of varying dimensions and of form of beam and joist on

strength; decay in wood, its effect and methods of prevention; grading rules; moisture-resistant coatings; and fire prevention in wood construction.

The course for architects will be given at Madison December 10 to 15, inclusive. A co-operative fee of \$100 per man will be charged to cover the cost of instruction. Further information in regard to the course may be obtained from the Director, Forest Products Laboratory, Madison, Wis.

APPOINTED PROFESSOR OF ARCHITECTURAL DESIGN AT CARNEGIE TECH

CAMILLE E. GRAPIN, a distinguished French architect has recently been appointed Professor of Architectural Design at Carnegie Institute of Technology for the coming year, according to an announcement from President Thomas S. Baker.

Mr. Grapin was born in France in 1886, and was graduated from the National School of Beaux-Arts in 1914. While a student at the school, he was awarded the Jean Leclerc Prize, given to the student receiving the greatest number of medals and prizes at the school. For the year of 1919-1920, he was given the Equal Second Prize in the Detouches, Delages and Roux Competition, one of the most important competitions in France.

Among other honors conferred upon Mr. Grapin were the Destors Prize, given to the student having the greatest number of values in problems, and the Chaplain Prize, which is given to the student winning the most values in design. Both of these awards were made by the Central Society of Architects in France. He has also been awarded a diploma by the French Government to practice architecture.

AN INTERESTING HOUSING EXPERIMENT

THE question of housing is not unrelated, believes *The Architects' Journal*, London, to another question of some importance, namely, the lack of public interest in architecture. The great majority of the people of England live in houses that are not their own. Consequently it is not reasonable to expect them to take much interest in these houses. How much less reasonable is it to expect them to take an interest in building or architecture in the abstract? But the moment a tenant becomes the owner of a house, he automatically becomes interested in it, first of all from the point of view of its stability—for above all else he wants it to last—and then, by a logical process of development, in its appearance, which he will compare with that of others to satisfy himself, so far as he is able, that the house is not only right, but looks right. And the moment he gets to this state he is interested in architecture, though he may not know of the spiritual change

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that has taken place within him. If this reasoning is sound, then the sooner every man owns his own house the better. Possibly without thinking much about architectural aesthetics, Lord Londonderry is doing something to help the cause in his collieries at Durham. He has arranged to build a number of houses which he will sell by hire purchase to any official or workman in his employment who wishes to acquire a house of his own. The purchaser will pay a deposit of £5 on account of the price, and will get the benefit of the Government subsidy, which is calculated at about £75 per house. The cost of the house, less the deposit, and after giving credit for the Government subsidy, will be payable by weekly installments of 10s., which will pay for both principal and interest in a period of fourteen years. This period may be shortened by a larger weekly payment. The experiment is one that has distinct possibilities in several directions. It is calculated to promote thrift, to give a number of men a material stake in the country, to produce that mental satisfaction which inevitably goes with the knowledge of a sure roof to one's head, and, last but not least, to stimulate the interest of private citizens in building and architecture.

JAPAN LIFTS TARIFF

THE Japanese tariff on building materials and necessities of life has been suspended until March 31, 1924, as a result of the recent catastrophe in that country and the immediate need of materials from various countries, the foreign trade bureau of the Chamber of Commerce has been advised by the Consulate General of Japan.

The import duty on other articles will also be reduced one-half during the same period.

WHAT GROWS ON STAINED GLASS

IT has long been known that stained glass decays, as well as the leadwork that holds it in place. Like the Alps, like the heat of the sun, like the speed of the earth's rotation, the glories of York Minster are passing away, states the *Manchester Guardian*, of England. But not till lately have we learned that one of the agents engaged in this bad work is vegetable. Certain flying spores of lichens contrive to find at some spots on the outside of a church window the little dampness that they need for a start in life. Once started, they can retain a tiny supply of water between their tissues and the glass. Worse, their polluted breath increases the proportion of carbon dioxide normally contained in the water of these small reservoirs and enables the water to set up a more rapid chemical action on the glass. One of the few cheering details is that, like other trees, these squatters do not like town air. Stained glass might live almost

forever in Hulme. Another point, but one about which we feel less happy, is that glass of certain colors resists the enemy better than others. Purple, green, blue, red, amber, and particularly amethyst, are all bad resisters, but gray and yellow, confident in the vitrification of their silver salts, hold out gamely. Whistler certainly played some pretty tunes in gray and yellow; so did Turner too, and yet it seems a somewhat meagre palette for a stained glass artist who is enamoured of immortality for his works. Better perhaps to risk it and concentrate on churches in the slums, where the air is a weed killer. Or induce the architects to put their receptacles for stained glass in places where a mop and duster can reach them without the mercenary assistance of a contractor for scaffolding. For all this wild life can be kept down by the old, old nursery method of regular washing and brushing. A large rose window on the ground floor level in a new cathedral might certainly look "interesting and suggestive," as the reviewers say of books for which they can say nothing more.

THE IDEAL BATH ROOM

THE *Daily Mail* recently published a letter, states *The Architect*, of London, on the delights of the American bath room, in which one can really use water freely and which is equipped with every kind of douche and spray, while a raised island of cork enables the bather to escape from the floods he has created. Anyone who has bathed at Singapore, where a rough earthenware bowl and a concrete floor replace the luxurious fittings described, and the bather stands outside the tub splashing water over himself, will recognize that there is a good deal to be said for the "American bath." There is also a good deal to be said about its price, but notwithstanding this we should not be surprised if the *Daily Mail* incorporated the idea in its next "Ideal House" Competition.

HIGHEST TOWER FOR SESQUI-CENTENNIAL EXPOSITION IN PHILADELPHIA

ERECTION of the tallest structure in the world—a gigantic tower rising 1,500 feet above the Schuylkill River—is under consideration by the Sesqui-centennial Association as a permanent addition to the exposition in Philadelphia in 1926 to mark the one hundred and fiftieth birthday of the United States.

Plans for the tower, suggested by two New York engineers, include a platform 1,250 feet above the ground, a large beacon searchlight visible in Washington and New York, elevators to carry visitors 300 feet higher than the Eiffel Tower in Paris and wireless antennae.

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