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SPANISH NOTES

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INTRODUCTION

AFTER thirty-five years of intermittent travel in all parts of Europe, during which anything beyond the Pyrenees was regarded with severe indifference, I at last encountered Spain, and since that eventful six months of revelation, nothing else seems to matter much, not even the little villages of England, the tall cathedrals of France or the hill towns of Italy—not even (and with shame be it spoken!) not even Palermo or Venice or Carcassonne. The only call is “Back to Spain!”

Why? Not wholly for its architecture perhaps, and its other arts, though these are sufficiently compelling. Chiefly it may be because here is a sort of sacred preserve, ringed with seas and rampired by high mountains and so permitted to retain some of the real values in life, lost long since by the highly civilized and progressive communities of this unhappy planet.

Never was a country so lied about (chiefly by historians and French travelers) or so misjudged by contemporary intelligence. All you expected is not there and all you wished for is. Of course this is an exaggeration but it will give the idea. It is not a land of haughty hidalgos and profligate

caballeros lording it over a brutalized peasantry, but the only place I know where there is a true and vital democracy in the best sense. It is not priest-ridden and rotten with superstition, but the one place where religion is thoroughly evangelical

and a sane and normal part of the lives of nine persons out of ten. The people are not made savage by bullfights and black memories of the Inquisition; they are kindly, generous, gentle with children, merciful to animals, courteous beyond belief, self-respecting, austere, ascetic, and disdainful of physical comfort and physical suffering. Spain is not backward and degenerate just because it is not given over to industrialism, covetous commerce and predatory finance, but truly in the vanguard of real civilization because it estimates these things at their true worth and has preserved something of the old sense of comparative values. Finally it is not dirty but as clean (almost) as Holland or Scandinavia.



RALPH ADAMS CRAM, F.A.I.A.

THE first impression is of vast antiquity. One digs down through one stratum below another to the mythical and the prehistoric. Modernism, the gilded Renaissance of the Catholic Kings, the years of crusading against

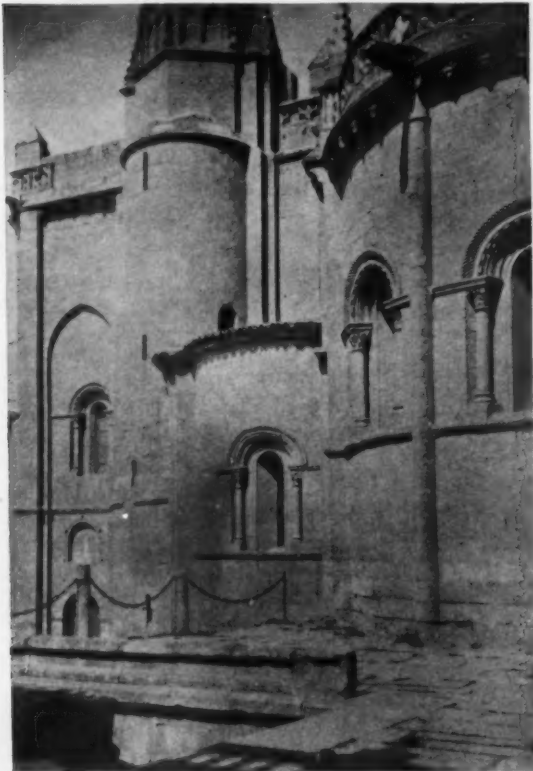
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the invader, the Moorish occupancy, the Visigothic episode, Rome, Carthage, the Greeks, the Phœnicians, and then the unfathomable painting of the caves that tell of unknown culture and dating from—when? We think of the Moorish Kaliphates as a brief interregnum, but they covered equal time with that which has

Then came the Marques de Estrella who "scrapped the lot," gave the government back to the King and the competent, saved Spain and started it on its new career of achievement. He waits with equal patience until another metes out the same justice to the raw industrialism of Barcelona and Bilbao, and crushes communist and profiteer in the same breath, exalting right ideals, old Spanish ideals, Christian ideals, once more to their rightful place. He will not wait in vain.

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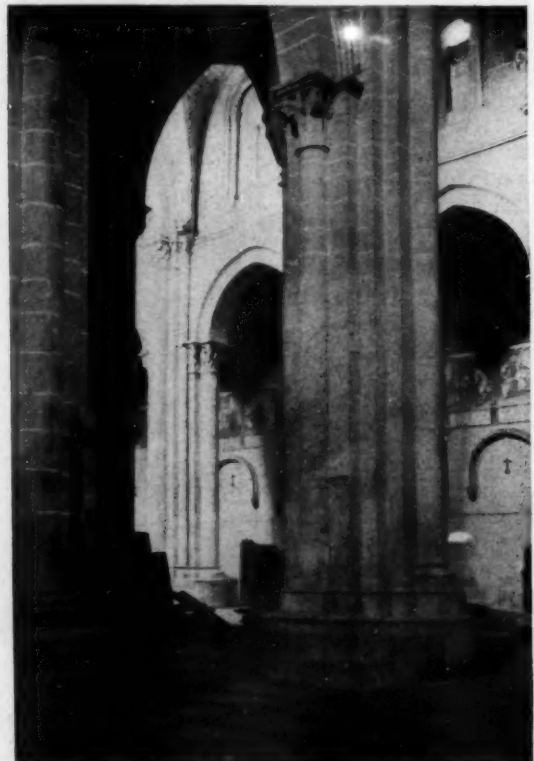
When in the Xth century the Christian remnants in the northwest of Spain began to assert themselves, it was about two centuries before they could fix their recovered civilization after a fashion sufficiently secure to permit of artistic expression. About the year 800 the body of St. James the Apostle had been discovered at Compostella, and as soon as conditions allowed, his shrine became the most popular focus of pilgrimages in all Europe. Some time in the XIth century the roads became comparatively clear, and now across the Pyrenees came swarms of travelers along the great Pilgrim Ways, bringing with them artists and craftsmen from all France, and chiefly from Cistercian Burgundy. Simultaneously the push-



APSE, OLD CATHEDRAL, SALAMANCA
(From a photograph by Arthur Byne)

elapsed—for us—since the Landing of William the Conqueror. We look on the Visigothic Kingdom as a fleeting episode. It was just as long as our history since the Landing of the Pilgrims. And so it goes. Ages piled on ages, and something of the accumulated tradition has buried itself in the strong character of the people. Modernism, our own civilization once so highly spoken of, is just a century and a half old. What is that to the Spaniard who counts the years of his culture not in hundreds but in thousands? All the ephemera of today are dissolved fantasies. They buzz about his ears, sting, and are gone, while he works, plays, smokes his cigarette in the sun—and waits.

He waited patiently while corrupt politicians and profiteers picked the bones of his country, for he was helpless under a preposterous Constitution and a futile system of parliamentary government.



VIEW ACROSS NAVE AND AISLE, OLD CATHEDRAL, SALAMANCA
(From a photograph by Arthur Byne)

ing back of the decadent Moors from the earthly paradise they had made, was begun by the new crusaders, and in their wake came French bishops, monks, priests to organize the recovered lands in Christian fashion. Professor Porter has shown in his amazing book on XIIIth century sculpture, just published (perhaps the most scholarly and erudite work yet produced in America), the immense part played by these pilgrimage roads in the development of Spanish art while Street confined himself to the influence of the tide of bishops and other organizers who lapped like a flood across the mountains and poured down over the redeemed lands, ever increasing in extent. Both were effective, and in the XIIIth century architecture burst into astonishing splendor. Of course it was French Romanesque in impulse but even in these beginnings the indelible Spanish character asserted itself, moulding and transforming the original motives in a thousand ways until the result could never be mistaken for French or Burgundian or any other sort of work.

Spain did this to every style. The fragments of Visigothic art are different; Moorish architecture grew up in Spain and was never thought of in Africa or Arabia; the Gothic of Spain, except for a few churches built by French masters and work-

men—Leon for example—is as much Spanish Gothic as English work is English Gothic—or German is German Gothic for that matter. As for Renaissance, it is quite another story here, and I shall return to it in my next article. The point I wish to make now is that Spanish Gothic (like Spanish Renaissance) is one of the great styles of the world and he who knows only the Gothic of



AMBULATORY AND TRASCORO, THE CATHEDRAL, TOLEDO

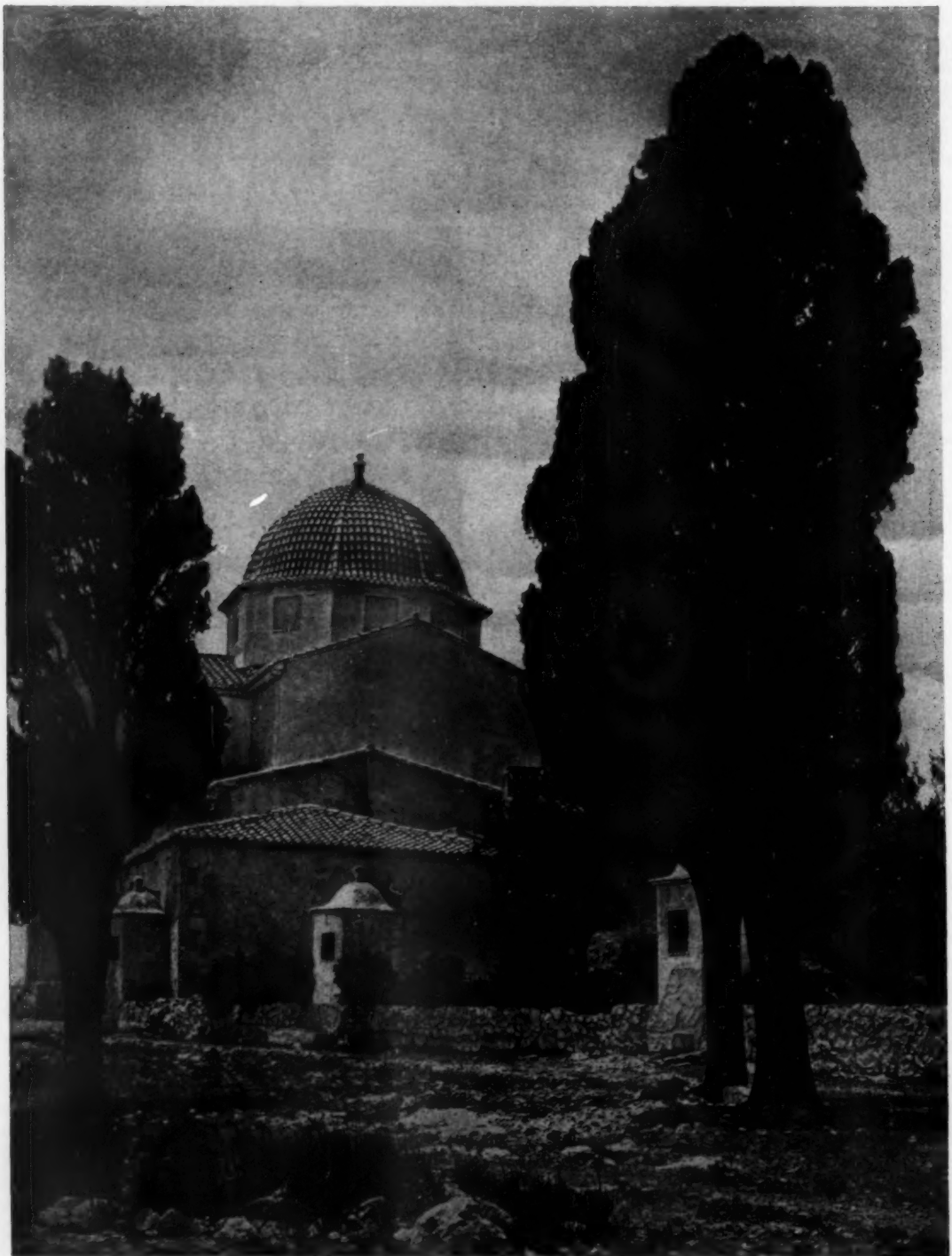
(From a photograph by Arthur Byne)



AMBULATORY AND TRANSEPT FROM SOUTH AISLE, THE CATHEDRAL, AVILA

France and England knows only a part of the story. I knew nothing of this until two years ago, and now I am ashamed that I ever wrote about Gothic at all, even though I had seen practically all the cathedrals and monastic establishments, and a good proportion of the parish churches, in England, France and the Low Countries—let alone Italy and western Germany. It is strange how one escapes his fate for so many years. However, it is sure to come at last.

It is impossible to cover the whole field of Gothic in one article, from the almost pure French of Leon to the pure Catalan of Barcelona; from the dry Cistercian of Poblet to the delicate fantasy of Salamanca, the vast glory of Toledo and Seville. Every Kingdom,—for Spain is less a single state than a *communitas communitatum*—has something approaching a style of its own, and with many



CHURCH OF CALVARY, JAVEA (DENIA), SPAIN

(Reproduced from "Picturesque Spain" by permission of Brentano's)

interior variants, yet through all runs Spanish character, unmistakable, indomitable; magnificence curbed by austerity, adventure that dares anything, but humility that excludes presumption. With it all a wealth of invention and (up to the time of Charles V) an impeccable sense of beauty that transfigure borrowed motives and make them new. The field is so wide, the material so great in quantity that all that is possible here is a few notes on a few distinguished types; for example, the school of Cataluña, the last churches of Juan Gil de Hontanón, Burgos and Seville. This means leaving out Toledo, as well as Leon, not to mention other wonders, but after all the former, Street to the contrary, is not the finest interior in Spain, still less in the world, while the latter is the French tracery of stone to support stained glass raised to the final point of delicate tenuity. Street says that Toledo was the work of a French master mason, but I think not, for the French never erred in point of proportions, while Toledo, wonderful as it is, fails here, and notably. It is vastly impressive but its effect comes largely from its complete setting of fine stained glass and its wealth of altars, shrines, tombs and other garnishing.

This matter is important; I mean the furnishing of Spanish churches, for it is only here that you can still see what a Christian church looked like in the Middle Ages or the time of the Renaissance. Italy does pretty well but there was no Gothic there, and the great works are basilican, Byzantine or Renaissance. Belgium has kept many churches fairly intact, but France and England are hopeless. What the Protestants did not destroy (little enough as a matter of fact) the revolutionists of the XVIIth and XVIIIth centuries obliterated, and the scattered fragments that remained were cast out by the restorers of the XIXth century. Gray, cold, barren, the cathedrals of the North are about as unlike what they were, and

were meant to be, as one can imagine. Gothic art was color quite as much as form, but above all else it was *alive*, and this quality came through incessant use and the piling up of material centers of devotion and commemoration. Architecture was only a part; the shell, the setting of the jewels, and when these are gone, even the architecture loses half its effectiveness.

Is this why modern Gothic is so dull? Partly,

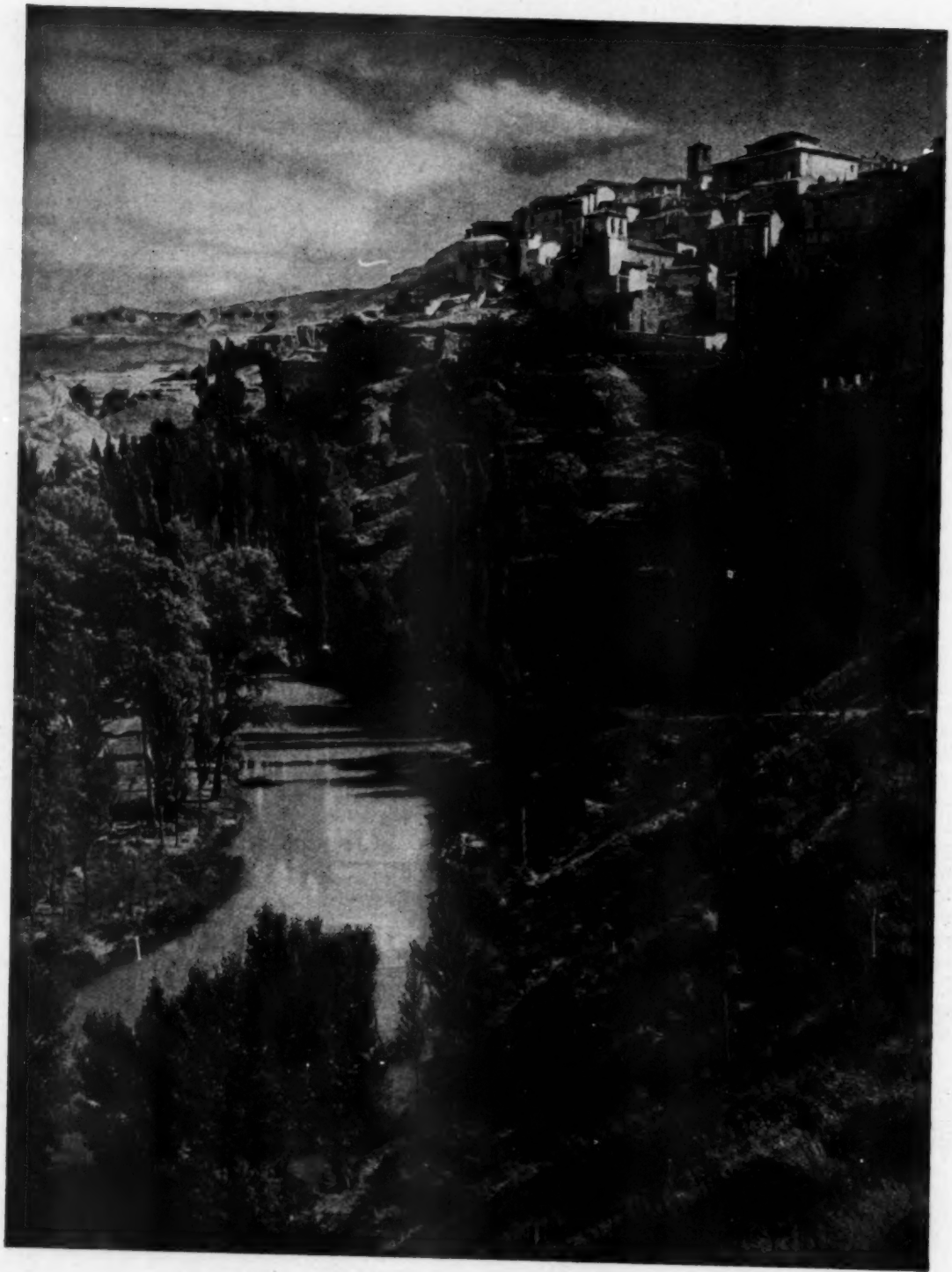
I believe. We build Episcopal churches after the most approved manner, and are allowed perhaps one altar with two candles, no color and gold, and two Prayer Book services on Sundays. We do the same thing (*mirabile dictu!*) for Presbyterians, only without the altar, and with the building closed on week days, and then wonder why the work is not living.

Spain gives the answer. There the cathedrals and churches are vividly alive because they are used all the time, in a dozen different ways, and they are full, until the walls bulge, with marvellous works of art of every kind. Sculptors, painters, metalworkers, cabinetmakers, carvers, embroiderers, goldsmiths, all have worked without stint—and their deeds live after them and record

their glory. Of course the Spanish churches have suffered, but not at the hands of fanatics and iconoclasts, except the monasteries. Puritanism never raged within their walls, nor revolution. What spoliation there was, and it was of no mean order, was at the hands of the French invaders who robbed mercilessly, with particular attention to works in gold and silver, and anything set with jewels. There are almost no Mediæval vestments or goldsmiths' work left in Spain—all of which is one reason why the French are the one people on earth the Spanish cannot endure. Of course during the later Renaissance many marvellous old altars, retables and shrines were demolished to give place to Rococo and Chiruguesque magnificence, sheeted with gold and as amorphous and convoluted as the



TOLEDO CATHEDRAL
LOOKING THROUGH NAVE AISLE, TOWARD HIGH ALTAR
(From a photograph by Arthur Byne)



CUENCA, SPAIN

(Reproduced from "Picturesque Spain" by permission of Brentano's)

art of India, but even this, being Spanish, does not offend like the infelicities of Louis XIV and Pope Leo X. In any case it is better than the gray poverty of Amiens and Coutances or the barren solitudes of Durham and Canterbury.

The general scheme of a Spanish cathedral is very national. Where those of England run to inordinate length, and all in the North (barring Bourges and Antwerp) are narrow, with only a

d'oeil from the west door, is disappointed. The effect is something like that of Westminster and Canterbury, only more pronounced, for Spanish cathedrals, even the greatest, are hardly more than 350 feet in length, therefore the enclosed choirs frequently take up the greater part of the naves.

Baffling as the arrangement is architecturally, it has a great advantage devotionally, for so all the people are gathered close around the High Altar,



THE CATHEDRAL, ZAMORA

nave flanked by single aisles, the Spanish cathedrals run to breadth. Double aisles are the rule and sometimes the vast structures are no less than seven units in width. Frequently the triforium is omitted altogether and the height so gained is thrown into the main arcade with magnificent effect. In altitude they follow the French model, Seville being as lofty as Amiens. The windows, except in the Gallicised models, are comparatively small and parsimonious of tracery. The interior arrangement is most striking and at first repellent, for the sanctuary usually occupies the first bay or two east of the crossing, while the choir is walled in to the west, sometimes taking up most of the nave. Of course this blocks any long central vista with the high altar as the focus, and the tourist who wishes to be struck dumb by a general *coup*

in the crossing, transepts and eastern aisles. The sanctuary is screened by open rejas of gilded iron so an immense multitude has a clear view of the altar and is close to it. It is the most intimate and (in the good sense of the word) democratic arrangement possible, while attention is not distracted by long intervening rows of clergy and choir. The English system which grew out of the fact that most of the cathedrals were monastic churches, stolen from the religious orders, is the least fortunate and the most undemocratic. It is curious how this arrangement, so out of harmony with Christian ideals and practices, has established itself as a *sine qua non* in most modern cathedrals. It obtains nowhere except in England and America, and only in the former because it is an accidental inheritance from monasticism.

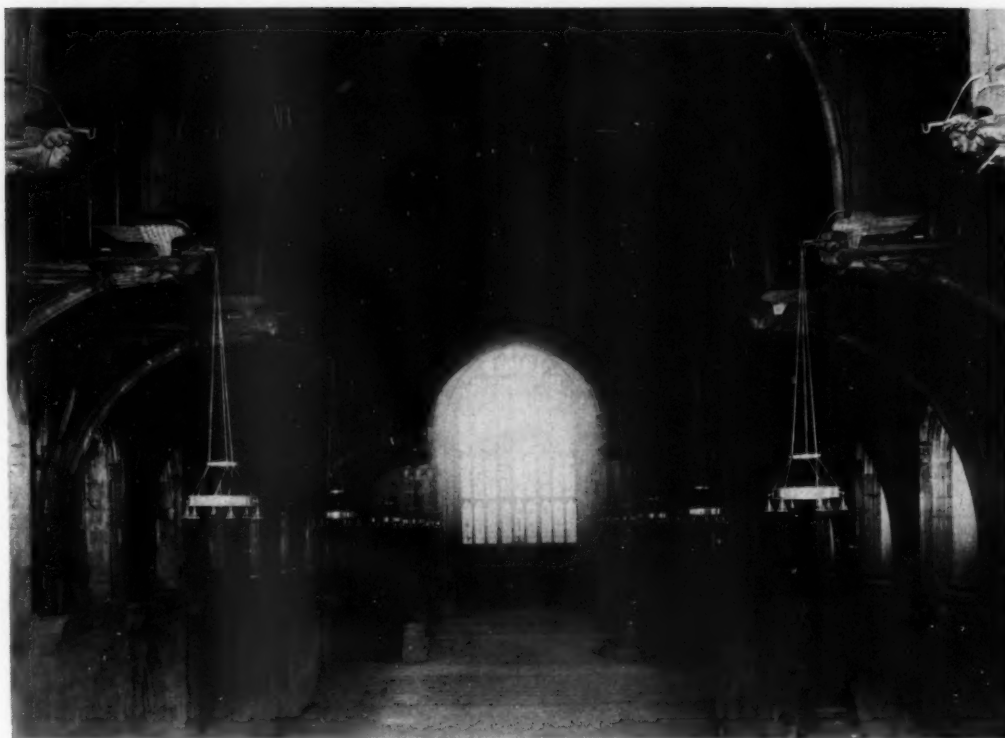
In Spain also the high altar is but one center amongst many, and is used only for the most solemn functions. In addition, there are literally scores of minor altars in the great churches; I counted fifty-two in Seville Cathedral, many of them in use from five in the morning, on. It is said that sometimes as many as forty masses are said simultaneously in Barcelona Cathedral. As for the parish churches where small size prevents the enclosed nave choir, this is usually placed in the western bay of the nave, but never, so far as I know, are choristers intruded between the altar

and the people. Some of the monastic churches have developed a plan unknown elsewhere. At Santo Tomas in Avila, for example, the monastic choir is in a great gallery, three bays deep, at the west end, while the sanctuary is in a corresponding gallery at the east, the floor of the church down below being given over to lay worshippers. Altogether, Spain is the land of surprises, not alone along architectural lines, but in respect to its people, its culture and the promise of its future influence.

This is the first of a series of articles by Professor Cram. The second will appear in a later issue.



A TYPICAL COUNTRY CHURCH, SIGÜENZA, SPAIN



GENERAL VIEW IN HALL AFTER REPAIRS

The main adjustable steel tie rods of the new trusses can be faintly seen above the haunches of the old oak rib. The illustration shows the southern end of the Hall and steps to the Houses of Parliament

(By permission of H. M. Office of Works, London, England)

WESTMINSTER HALL ROOF *and the* RECENTLY EXECUTED REPAIRS

BY WILLIAM HARVEY, Architect

THE open timber roof of Westminster Hall was constructed in the last years of the reign of Richard II under the direction of Hugh Herland, the King's carpenter. The roof is the largest as well as the finest of its kind and spans from 67'-6" to 68'-8", the long side walls bowing out in the center of the Hall. As originally designed, it contained no iron except in the form of nails for attaching minor traceries, the main timbers of 27 inches by 27 inches being joined together by stub tenons and oak pegs and depending for their stability less upon their jointing than upon their mutual compression and balance under their load and their own enormous weight.

On the examination of the roof in 1913 by H. M. Office of Works the timbers were found to be in an advanced state of decay, partly owing to shrinkage incurred in the course of more than five centuries which had passed since the completion of the roof in 1399, but principally owing to the

attacks of the wood boring beetle known as the Death Watch or *Xestobium Tessellatum*. The larvæ of this insect had eaten away the internal substance of the timbers, particularly at their important joints and seatings, until insufficient sound material was left to withstand the pressures generated in the structure by the weight of the trusses, the roof covering, and the pressure of wind or snow.

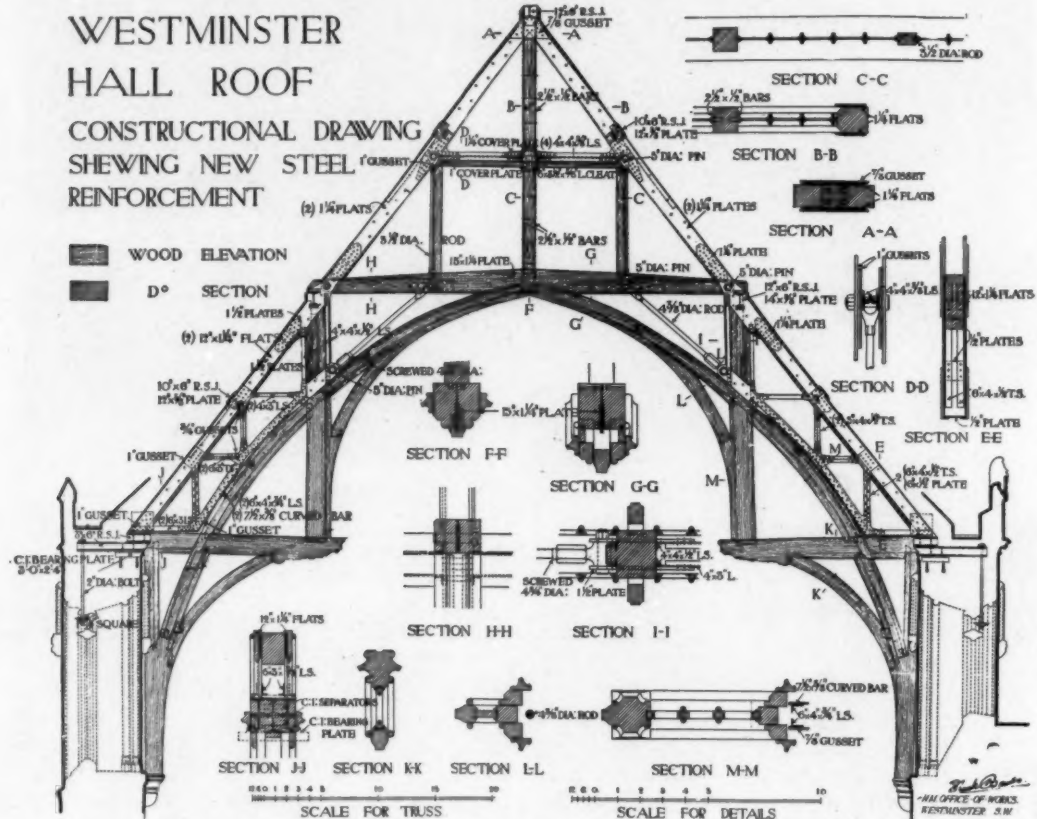
The apex of the roof had descended some eighteen inches and the free inner ends of the hammer beams were found to be drooping from 5 to 10 inches below the horizontal instead of rising in a bold upward camber as had been originally designed.

The admirable planning of the roof admitted of great freedom for the timbers to adjust themselves to their own shrinkage, but the movements had gone far beyond anything that could be set down to reasonable settlement and were accompanied by ominous signs of distortion in the tim-

bers themselves. An undue proportion of the load was being borne by the great arch rib in each of the thirteen trusses and most of the ribs were crippled in curvature both in side elevation and section so that the truss no longer lay in a vertical plane or stretched in a straight line from support to support on plan.

The three principal timbers of which the cross section of the rib is made up, were in every case

and may have been undertaken by Sir Christopher Wren who has left a record of his inspection of the roof. He mistakenly supposed the timbers to be chestnut wood, an error in identification which has persisted until recent times and was probably occasioned by the extraordinary bright rich color of the outer surface. The fact that the timber is undoubtedly English oak was only finally established during the investigation which preceded



(By permission of H. M. Office of Works, London, England)

sprung apart from one another. The hammer beams, which had the function of double cantilevers acting about a fulcrum upon the lowest section of the great arch rib, were in many cases broken across at this critical point and the ingenious Gothic design was poorly eked out with inadequate patches and roughly made iron bolts inserted at various repairs from the seventeenth century onward.

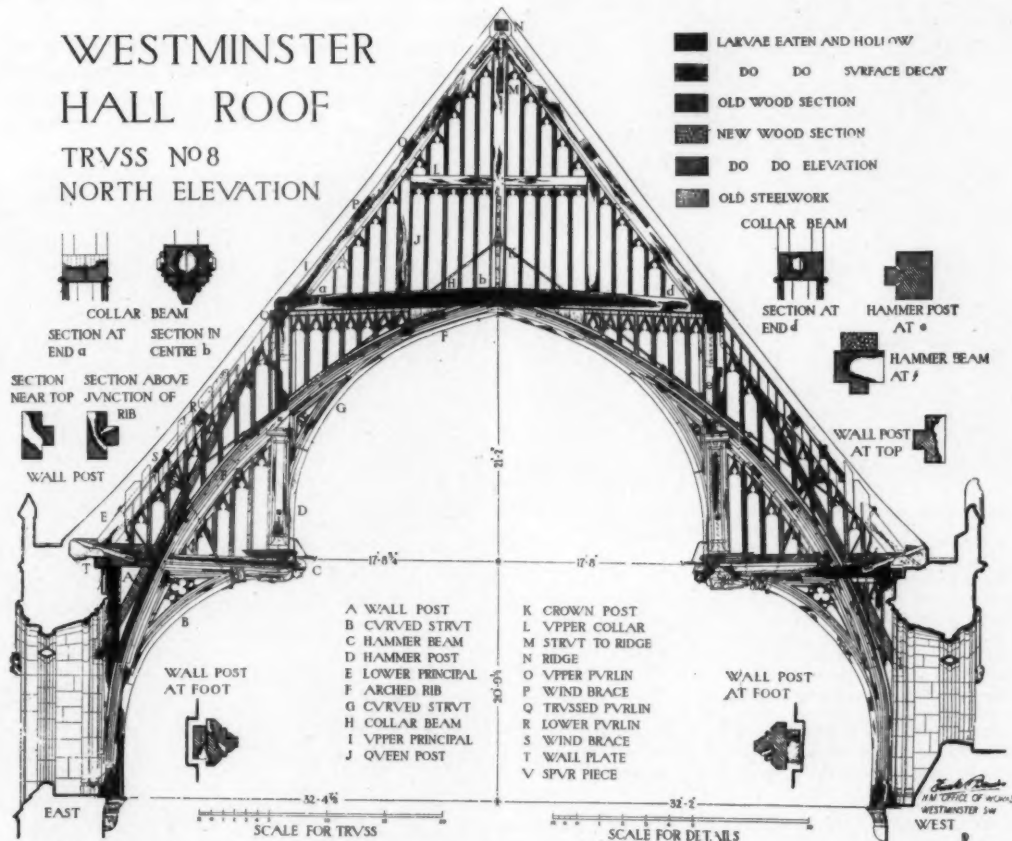
Few of these repairs could be said to have been designed with any sympathy with either the artistic or the constructional value of the old design. All were fragmentary and inconsistent, some burdensome and calculated to do the structure more harm than good. In general, the earliest repairs showed evidence of the most intelligence

the repairs when references to oak grown at Kingston and other places in the neighborhood of London were discovered in ancient accounts dealing with the construction of the roof. Microscopic examination of specimens taken in different parts of the roof confirmed these statements and the chestnut color of the timber was found to be caused by a minute fungoid growth which has attacked the wood to a depth of about 1/8 inch. The color was considered so characteristic that every effort was made to retain it and the two reagents successively applied as insecticides, Tetrachlorethene and Ortho paradichlorobenzene, were chosen from among others partly on account of the fact that they would not darken the wood. Other important considerations were freedom from danger by fire

and the possibility of application without danger to the health of the workmen. The first proving objectionable in this respect, since it is a violent liver poison, the benzene preparation was substituted. Both were sprayed forcibly upon all faces of the timbers after they had been previously cleaned by a blower which removed the dusty detritus left by the digestive processes of the beetle.

in the dark interior of the wood and leaving a fair outer surface had deceived the optimists.

Mr. Baines' report on the condition of the roof was presented to Parliament in due course and contained suggestions for eradicating the insect and for upholding the original timbers upon a steel frame or truss capable of supporting itself and them together with all roof loads. The proposal



SURVEY DRAWING MADE BEFORE ANY OF THE RECENT THOROUGH REPAIRS WERE COMMENCED

The decay due to the action of the Death Watch Beetle *Xestobium Tesselatum* was even greater than is here indicated. Note positions of straps and bolts put in at earlier attempts to repair the roof, also large quantities of modern timber in props, struts and patches. The unsightly modern patches on the hammer beams and the raking timbers at each side of the roof were removed during the recent repairs. The tie rods and cast iron shoes were also abolished

(By permission of H. M. Office of Works, London, England)

The proposal to examine the roof originated with Frank Baines (now Sir Frank Baines, M. V. O., C. B. E., Director of H. M. Office of Works) who had discovered evidences of the devastations of the beetle. Some opposition was encountered from influential persons who protested that they had themselves examined the roof and found it in a thoroughly sound condition, but facilities were granted and the immediate peril of the roof recognized as soon as it could be adequately inspected. The peculiar habit of the "wood worm," larva of *Xestobium Tesselatum*, in eating

to make use of a steel reinforcement met with violent protests from those who had not seen the terrible state of the timbers and who lamented what they described as a proposed "violation of the ancient principle of the roof." This, they asserted, had originally been made of wood and should be repaired with wood alone or, at all events, with wood spliced into position with the minimum of added steelwork required for fish plates and bolts. They quite ignored the fact that for more than two hundred and fifty years such repairs as they advocated had been inserted from



VIEW TAKEN AT WALL TOP LEVEL SHOWING ROOF TRUSS OF ENGLISH OAK BEFORE RECENTLY EXECUTED REPAIRS

The large trussed purlin seen at the top of the illustration is approximately midway up the slope of the roof between wall top and apex. The iron nuts and bolts are not original, but date from repairs executed in the seventeenth century and later. The wall top was at one time supplied with a projecting cornice in oak supporting vertical ashlar timbers comparable to those still existing above the trussed purlin above. The sloping ashlar timbers are comparatively modern. The timber showing tower on the left was built as a temporary measure of support until actual repairs could be put in hand. The condition of all the trusses proved so bad as to require this precaution

time to time and that the period when such patching could meet the case had already passed. Any argument upon the "principle" of the roof was at that time made ridiculous by the fact that of the many writers who had analyzed the construction, no two could be found who did not mutually contradict one another. No opportunity, indeed, for really detailed examination of the joints and building methods employed by the carpenters of Richard II's time had been afforded until the works of repair were actually put in hand. The method of repair by splicing was shown to be impracticable since the remaining old wood had been hollowed to a mere shell in a great many places and would have been whittled away in an attempt to prepare junctions with the new patches.

The proposals put forward in the report were based upon the recognition of the importance of conserving every particle of the old work in all its time-worn beauty and though the relation of

the proposed new works with archaeological considerations often raised difficult problems they were generally satisfactorily solved by taking as guiding principle the maintenance of all ancient work with the least practicable addition of new.

The application of the new steel trusses to the old timbers received attention in minute detail and while absolute concealment of the steel was not attempted, great care was taken that it should not obtrude itself upon the view of persons standing on the floor of the hall.

The whole design was affected by this respect for the amenity of the old work. To be unobtrusive, the steel had of necessity to be kept to the upper side of the timbers and the main ties of



VIEW TAKEN FROM LEVEL OF GREAT COLLAR AND TRUSSED PURLIN BEFORE RECENTLY EXECUTED REPAIRS

The steel staging has already been erected for an adjoining truss on the left. The timbers, though distorted by age and pressure, do not betray the fact that they have been hollowed out by the wood worm larva of *Xestobium Tesselatum*. A slight outward sign of the cavity within appears in the dark horizontal line at the upper edge of the lower member of the trussed purlin to right of the illustration. The excessive droop of the hammer beam on the right and the inartistic former patches to the collar beam are well shown in this illustration

the new truss slope steeply up in lines tangent to the extrados of the great arch rib forming what is known as a scissors truss. This is, of course, less direct in its action than a truss with a tie bar crossing the span in an approximately

horizontal line, but by the normal horizontal tie bar the artistic upward curving lines of the timber arch would have been brutally cut across.

Even the temporary displacement of timbers was avoided as much as possible and the scissor leg type of truss was adopted as requiring the least interference with the ancient roof. A scheme whereby the great arch rib and other original members should have been outlined with steel, a development of the suggestion that the timbers should be spliced and fish-plated, was abandoned for the double reason that a great deal of cutting and moving of timber would be demanded by such an arrangement and also that there would be no possibility of calculating the stresses in the struc-



SIDE ELEVATION OF CARVED ANGEL ON INNER EXTREMITY OF HAMMER BEAM

The foot of the hammer post rests on the angel's back. The overall dimensions of this oak baulk are still 25" x 25" after more than five centuries of shrinkage. The iron bracket over the angel's head was applied to support a chandelier at the festivities of George IV's coronation. The wooden platform and the triangulated steel structure on the right formed part of the temporary movable staging from which the repairs were executed. Two bolt heads and a few small patches of new wood are all that can be seen of the recently executed repairs to this part of the roof

ture or any assurance that the structure would be materially benefited. The great size and weight of the roof and the weakness induced by the advanced state of decay made it absolutely necessary that every step in the proceedings should admit of calculation beforehand, especially in regard to the control of thrusts applied to the old side walls of the Hall.

While the same general type of truss was adhered to throughout, each old truss was treated on its merits and the templates taken as patterns for the new steelwork differed slightly from one another in order to avoid unnecessary cutting and trimming of the timbers or excessive packing out with new wood. By this course awkward conflicts between the undulating waving lines of the warped timbers and the hard rigid edges of the

new steel were avoided and some sort of harmony established between the repairs and the work repaired. It was realized at the outset that the assembling of new steelwork upon the faces of the old framing would present great difficulties and a special method was therefore devised to insure that the pressures communicated by the steel pin joints should be applied uniformly to all the members connected. Wherever a steel pin was used and had to be inserted through bore holes in several plates only, the first two holes were drilled to exact bore in the workshop and the last was drilled after erection by means of a cutter bar worked by hand and guided by removable collar bushes placed in the holes already prepared. Extreme accuracy of alignment was obtained and the great turned pins were made to fit so tightly in all parts that heavy sledging was required to insert them notwithstanding the provision of tapered conoidal leading thimbles screwed upon their points.

Nothing could be taken for granted in dealing with the old structure and every detail of the work was liable to revision as more complete knowledge of its nature was revealed from day to day. The early design for the bearings at the wall head was materially improved in execution after the masonry of the side walls had been laid open to inspection. Both faces of the wall had been affected by carelessly executed former repairs, the inside having been refaced with thin slabs of Huddleston stone stood up on edge and cramped to the core of Norman rubble remaining from the time of William Rufus for whom a Hall was built on this spot in 1099, three hundred years before the extensive renovations of Richard II were completed. A substantial grillage of steel girders was designed to spread the weight over a larger area of the feeble masonry in which chalk and other extremely soft stones figured largely. The position of the foot of the truss was dictated by the line of the existing oak principal rafter and as this line met the wall top excessively near the inner face of the wall, a cantilever bearing was employed with a holding down bolt 2½ inches in diameter and five feet nine inches long and anchor girders four feet long buried below the wall top near the outer face of the wall in a pit excavated for the purpose and filled with cement concrete after the anchor had been placed in position. The anchor was designed to withstand a calculated maximum upward pull of eleven tons. After the bed plates were in position and the concrete around the anchor thoroughly set, and after the steelwork of the truss had been completely assembled, the process of setting the truss on the bed plates was put in hand.

The main adjustable tie rods were first tightened to the extent of 1/10 inch by a circumferential movement of 2 3/8 inches in order to reduce the outward spread of the scissor legs when com-

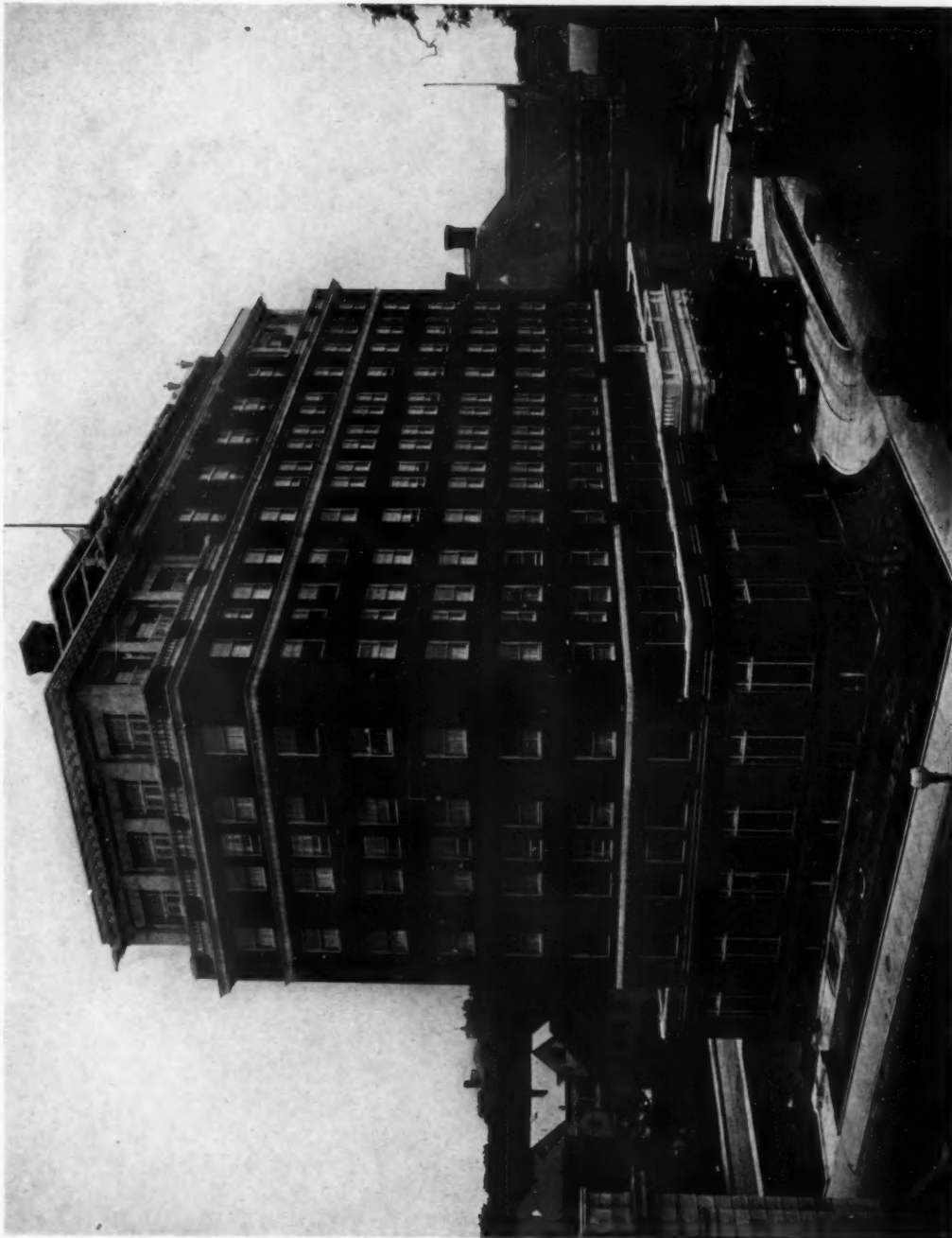
pletely loaded. The screw coupling was revolved by means of a spanner strapped onto the work and the shank, some five feet long, was slowly pulled round by means of screw tackles made fast to the strong triangulated steel gantry from which the operations were carried out. The spread of the truss under its load was then determined both theoretically and experimentally and mathematical calculation indicated that the spread when the load was complete would amount to about $1\frac{5}{8}$ inches. The practical test consisted in actually raising the feet of the truss simultaneously upon hydraulic jacks and also permitting them to spread upon roller bearings. The number of tons lifted as indicated on the dials attached to the jacks and the spread of the roof measured in $\frac{1}{64}$ inch at the same instant afforded data for checking the purely theoretical calculation made in the first place. The figure arrived at was adjusted for the temperature at the time of the setting, for the position of the jacks, which were not applied at the extreme bearing points of the truss, and for any pull or push that it was considered advisable to impart to the old side walls to improve their stability. The feet of the truss were then again forcibly spread by means of hydraulic rams and held in the desired position by temporary bolts and packings fixed to the steel staging until firmly bolted down to their bed plates. From this point until their full load was applied, the trusses had necessarily to remain bolted to the staging to prevent an initial pull upon the side walls of the Hall.

The necessity for caution in the application of pressures and the risks that have to be run in work upon historical monuments were demonstrated during the course of the proceedings when large cavities were accidentally and quite unexpectedly discovered in the side walls. A wall passage and ornamental arcade had existed in the side walls of the Norman building and had been hidden from sight in the time of Richard II's repairs by superficial facings in perpendicular style. Only just sufficient rubble core had been thrown into the pas-

sage to serve as backing to the exposed ashlar masonry, and ragged holes partly enclosed by Norman masonry and Norman vaults and partly by heaps of indifferent unbounded rubble, had been allowed to remain in the piers immediately behind the points of application of the pressure from the great arch-like trusses.

The repair of a stone corbel supporting the foot of one of the oak wall posts was the occasion of the first discovery of one of the cavities. The corbel had been broken through near the wall face by movements in the decaying oak truss between the time of the survey in 1913 and the time when repairs to that particular truss could be put in hand. The detached portion of the stone corbel decorated with its original carving was saved from falling by the curious accident that the oblique thrust of the old arched truss held it forcibly pinned against the wall where it was crushing and splitting the adjoining ashlar facing slabs with the casually applied pressure. The load was relieved as quickly as possible by shoring up the truss from the ground and a design was prepared by which the corbel was to be reinstated in position. As the broken stone, while of historical and artistic interest, was no longer structurally capable of carrying weight it was proposed to insert a steel cantilever into the wall at a slightly higher level to carry the wall post and avoid pressure on the corbel. While the hole for the insertion of the cantilever was being excavated the mason's crowbar shot forward into an empty space some two feet wide, which proved on examination to be part of the Norman wall passage.

The whole question of the stability of the side walls had to be calculated afresh and the cavities were made good with sound new material after the immense archaeological interest of the discovery had been recognized in a careful set of survey drawings recording the actual state of the Norman work. Several of the more accessible specimens of Norman capitals and arches were provided with doors in the stone facings of the Hall and are still available for study and measurement.



NEW BEDFORD HOTEL, NEW BEDFORD, MASS.

CLINTON & RUSSELL, ARCHITECTS

Red brick, trimmed with white marble



DINING ROOM

The hangings of the dining room are in keeping with the character of the building and give the principal interest to the room. The Windsor chairs are well chosen



MAIN OFFICE

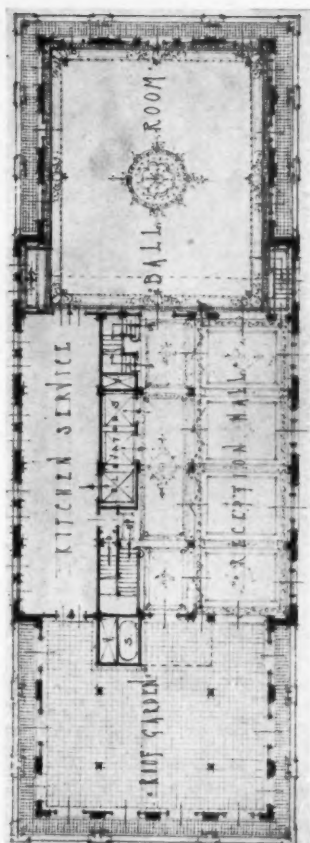
In the placing of the furniture in the main office, the atmosphere of cordiality is well preserved. The rugs add color to the simple decorative scheme

NEW BEDFORD HOTEL, NEW BEDFORD, MASS.

CLINTON & RUSSELL, ARCHITECTS



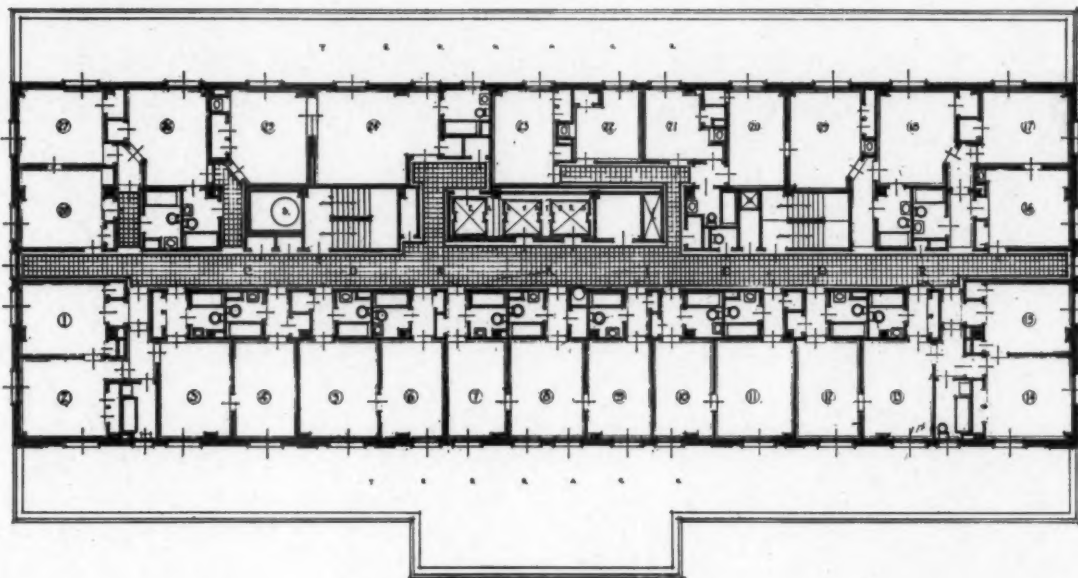
The design and colors of the carpet which covers the entire floor relieve the severe panelled walls, which are ornamented only by a delicately designed frieze



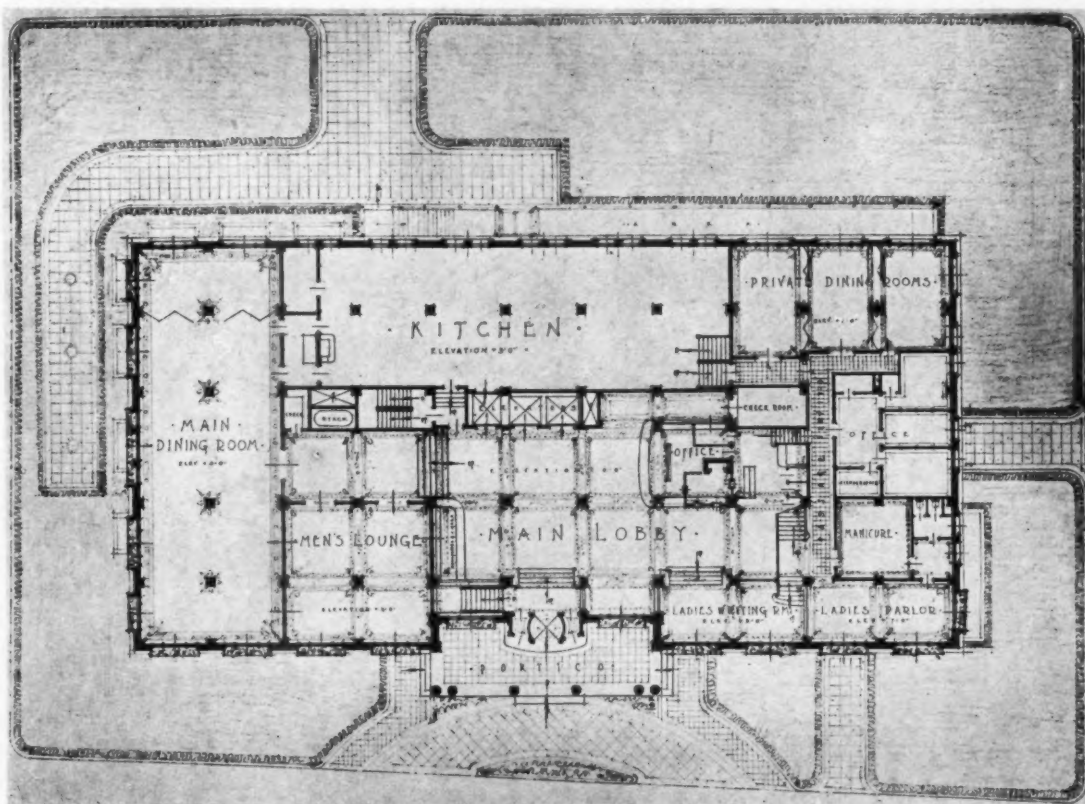
ROOF PLAN

NEW BEDFORD HOTEL, NEW BEDFORD, MASS.

CLINTON & RUSSELL, ARCHITECTS



TYPICAL FLOOR PLAN



GROUND FLOOR PLAN

NEW BEDFORD HOTEL, NEW BEDFORD, MASS.

CLINTON & RUSSELL, ARCHITECTS

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A TEMPLE AND COMMUNITY HOUSE IN NEW YORK CITY

TACHAU & VOUGHT, ARCHITECTS

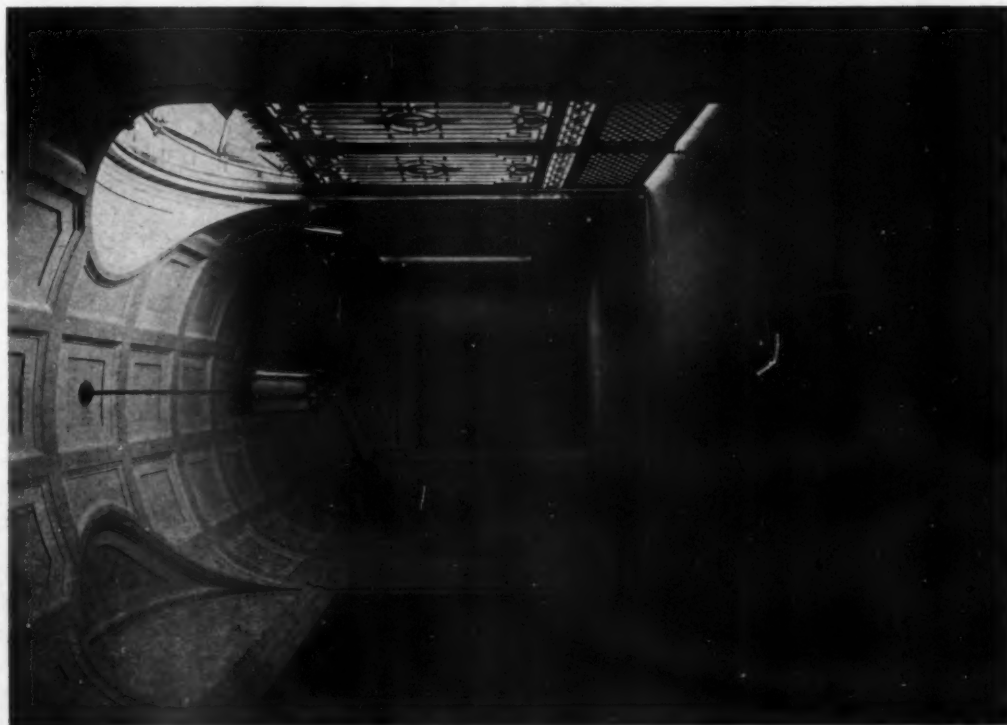
An adaptation of classic style to modern construction. Building is of Indiana limestone, cornice of terra cotta



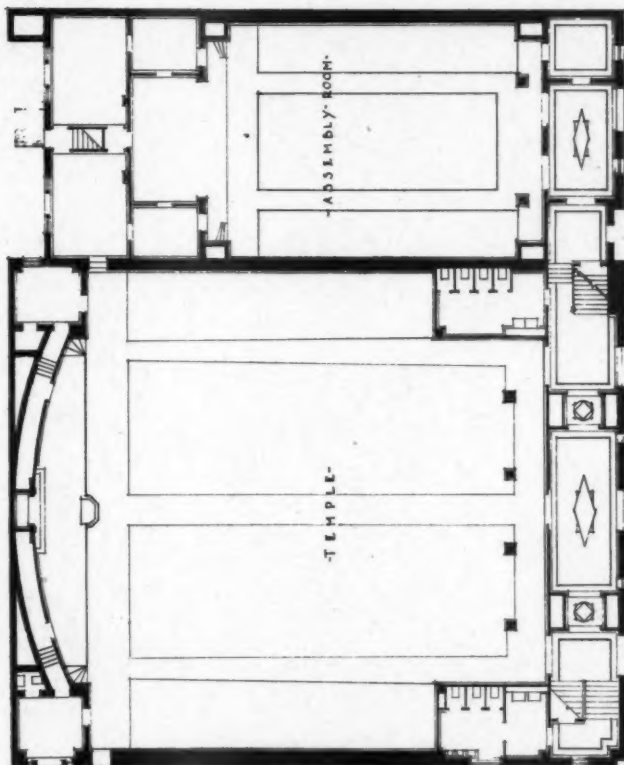
A TEMPLE AND COMMUNITY HOUSE IN NEW YORK CITY

TACHAU & VOUGHT, ARCHITECTS

The severe and dignified wall treatment is relieved by the ornamental furnishings of the platform. The reading desk is well designed as the center of attraction



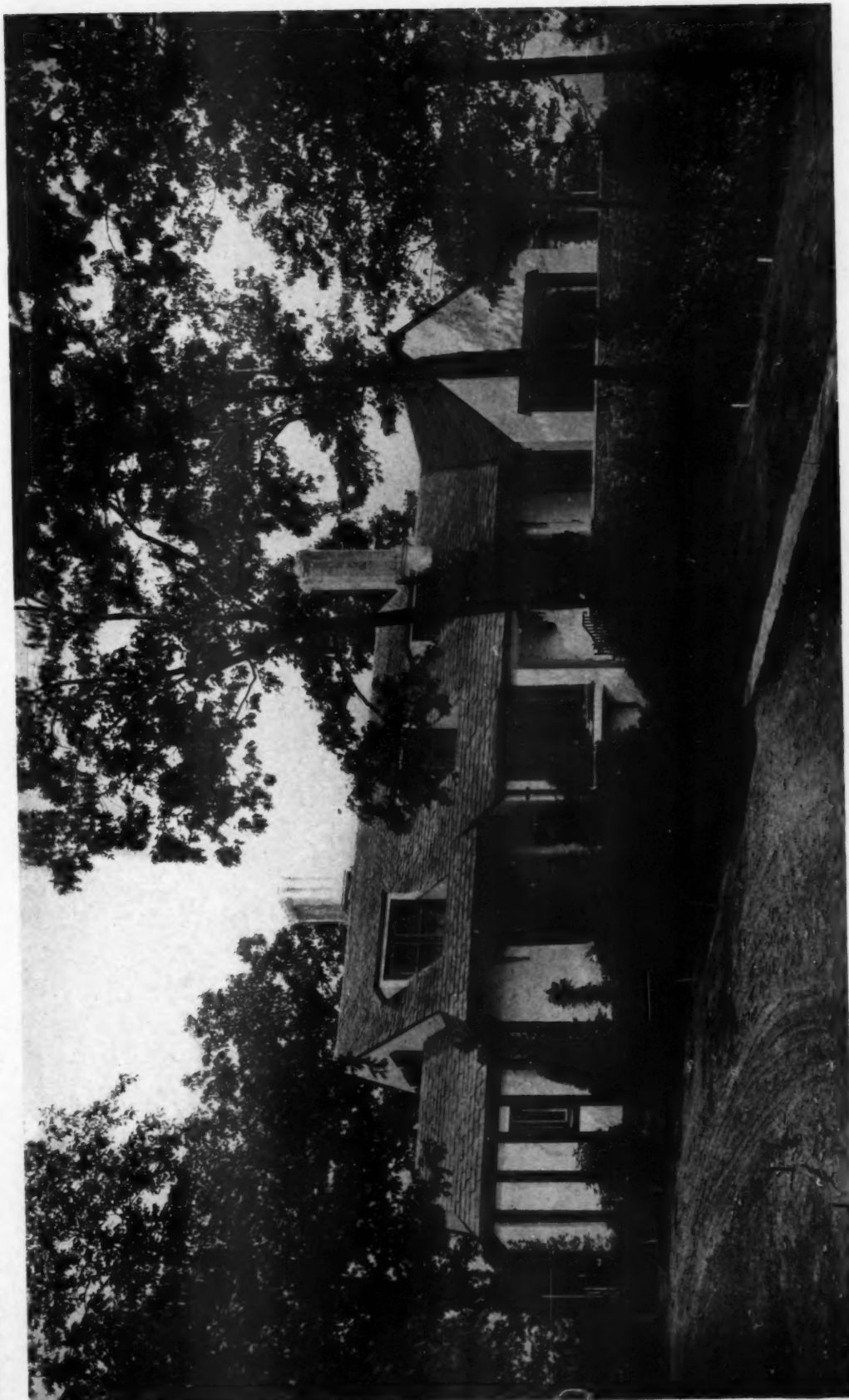
The entrance hall is entirely of stone effect with a vaulted panelled ceiling



GROUND FLOOR PLAN

A TEMPLE AND COMMUNITY HOUSE IN NEW YORK CITY

TACHAU & VOUGHT, ARCHITECTS



ALTERATIONS TO A HOUSE AT PEKSKILL, N. Y.

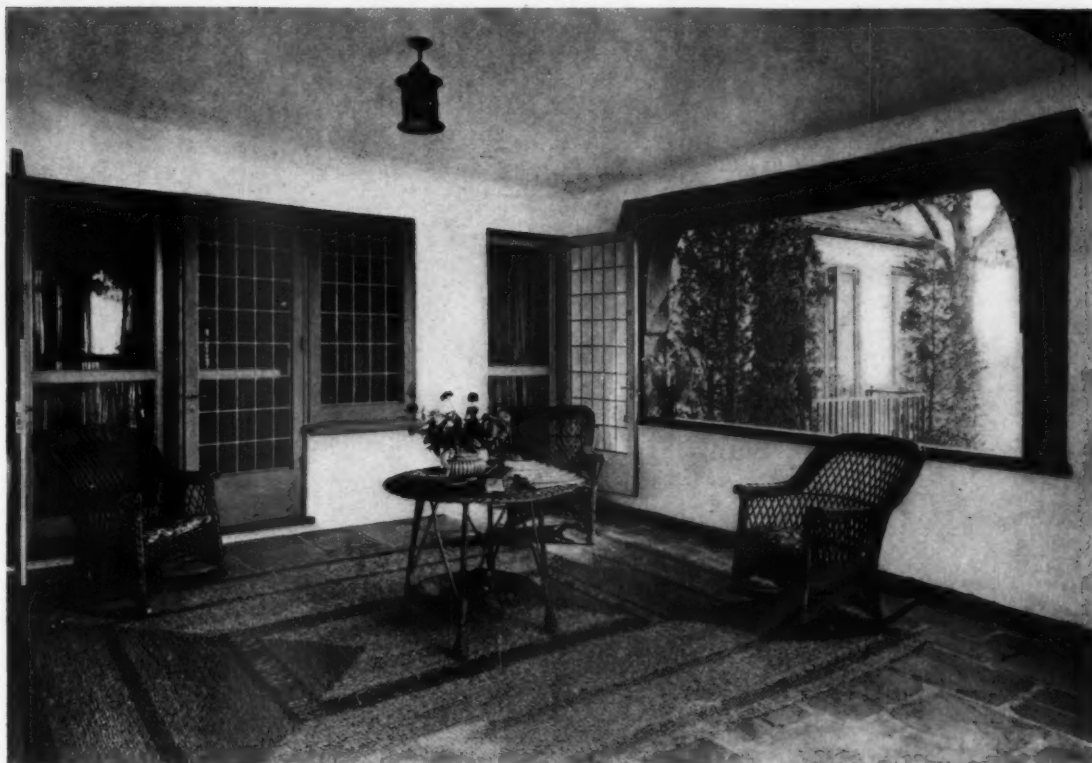
THE PATTERSON-KING CORPORATION, ARCHITECTS

A picturesque and well developed restoration of a house located in a section traditional of Washington Irving. This house has been made to fit its site, the emphasis resting on a good combination of materials, stucco, half timbering and the weathered roof surface



ALTERATIONS TO A HOUSE AT PEEKSKILL, N. Y.
THE PATTERSON-KING CORPORATION, ARCHITECTS

Two views demonstrating how well the picturesque features of the site have been conserved to accent the fact that the house "belongs" to its surroundings



The texture of the rug used in this porch is appropriate in combination with the tile floor and the wicker furniture



An Italian wall fountain is the feature of the enclosed sun porch. The tile effect of the floor and the rough plaster walls and ceiling are in harmony with it

ALTERATIONS TO A HOUSE AT PEEKSKILL, N. Y.

THE PATTERSON-KING CORPORATION, ARCHITECTS



The bold design and colorings of the hangings and the furniture covering are in striking contrast to the plain plaster walls and beam ceiling



The type of furniture used in this dining room 'makes the room suitable for other purposes, a feature of the modern informal dining room

ALTERATIONS TO A HOUSE AT PEEKSKILL, N. Y.

THE PATTERSON-KING CORPORATION, ARCHITECTS



DIXIE TERMINAL BUILDING, CINCINNATI, OHIO

GARBER & WOODWARD, ARCHITECTS

(See third page following and floor plans for description)



DIXIE TERMINAL BUILDING, CINCINNATI, OHIO
GARBER & WOODWARD, ARCHITECTS



DIXIE TERMINAL BUILDING, CINCINNATI, OHIO
GARBER & WOODWARD, ARCHITECTS



THE ARCADE

DIXIE TERMINAL BUILDING, CINCINNATI, OHIO

CARBER & WOODWARD, ARCHITECTS

The people going to and from the cars can approach the terminal only through the entrance on Walnut Street and the one on Fourth Street. This has made it possible to build an arcade which is of considerable commercial value. By actual count about one hundred thousand people use the terminal daily. In other words, the shops have a buying public of one hundred thousand put down in front of their doors each day



DIXIE TERMINAL BUILDING, CINCINNATI, OHIO

GARBER & WOODWARD, ARCHITECTS



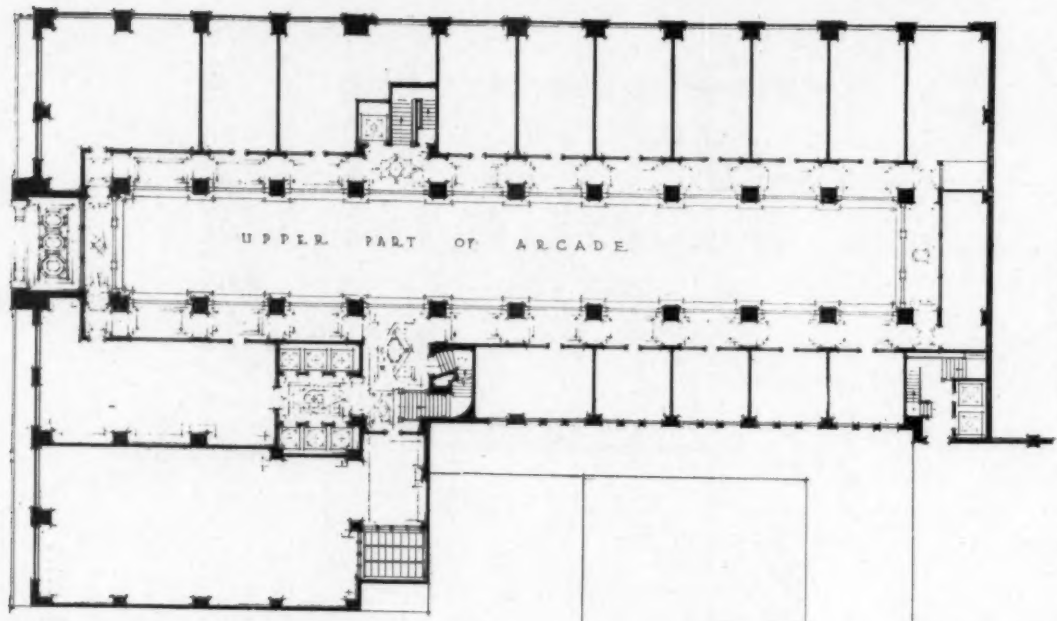
1 7 7 2 1 5 1 0 11 12 13 14

There are two car levels, one on a level with Third Street, and the other considerably above Third Street and connects directly with the Suspension Bridge that spans the Ohio River. In the construction of the Terminal Building the Kentucky cars have been removed from the congested streets in Cincinnati and have reduced the running time between the Terminal Building and Kentucky considerably. The present car capacity of the terminals is about one-half of what can be accommodated as the needs arise.

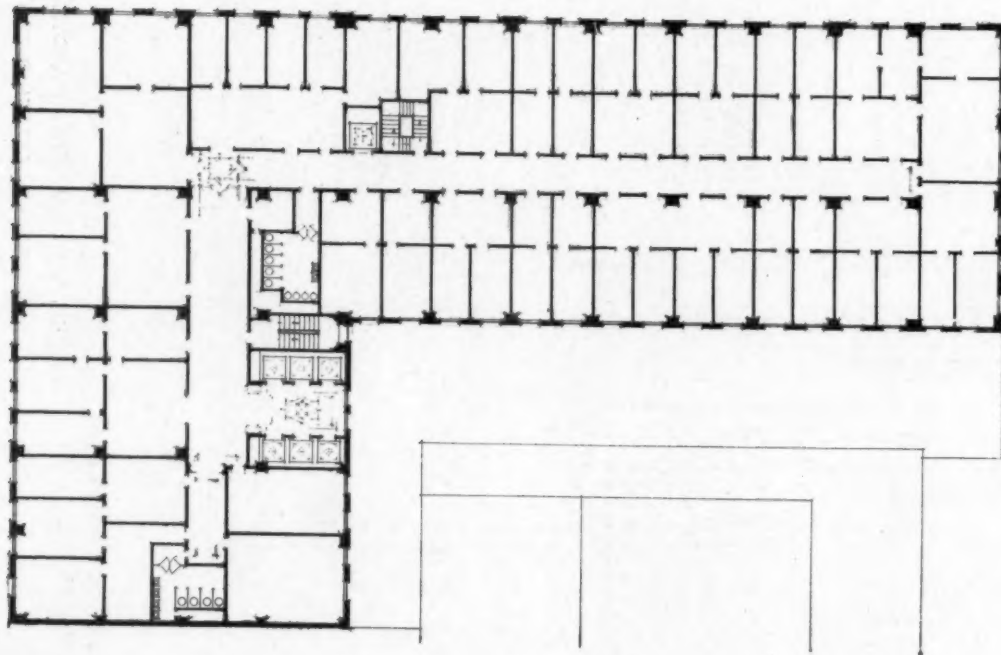


DIXIE TERMINAL BUILDING, CINCINNATI, OHIO

GARBER & WOODWARD, ARCHITECTS



SECOND FLOOR PLAN



TYPICAL FLOOR PLAN

DIXIE TERMINAL BUILDING, CINCINNATI, OHIO
GARBER & WOODWARD, ARCHITECTS

EDITORIAL COMMENT

THE PROJECT FOR THE development of the Grant Park area of Chicago as proposed by Eliel Saarinen, and fully presented in *THE AMERICAN ARCHITECT*, issue of December 5, has been widely and favorably commented on.

Mr. Saarinen's scheme has been found to be entirely practical and replete with valuable artistic suggestiveness. The Chicago daily press without exception endorses the project as set forth.

This scheme will probably become in the end the basis for the important development of a section of Chicago for a long time neglected. That part of the project referring to traffic congestion not only offers a good solution to Chicago's present tangle, but also, it is believed, can be made to serve in any large American city where traffic problems are presented.

* * *

ARCHITECTURAL EDUCATION, the process and results, are being scrutinized at this time as is every other thing that concerns us. Evidences of this are seen on every hand. As advances are made in building construction and the uses for buildings change, architecture must change. Architectural education, to be effective, must also change.

In his report for the academic year ending June 30, 1923, Professor W. A. Boring, Director of the School of Architecture, Columbia University, makes a significant statement. After outlining the changed conditions which affect building construction due to the use of machinery, labor conditions and restrictions and other influencing factors, he states:

The architecture of today is making a record of these conditions in the form, style and fabric of the buildings we erect. The practicing architects mold their design primarily to accommodate the needs of occupation, and then try to wrest, from an unwilling labor system, buildings which have some semblance of beauty. The characteristic forms and expressions of architecture, which are acceptable to Americans, are modified to make a plain building look attractive and a cheap building to look at least inoffensive. Strict adherence to the minimum cost has shorn the average building of adornment. The School of Architecture is following the trend of the practitioners in design, by adopting a program of problems which embraces the typical buildings demanded by the American public. These buildings are designed by the students under the counsel and constructive criticism of our critics who are able practitioners, and the competitions are judged by a jury of the faculty and eminent practicing architects. We believe an American style will in time appear and that Columbia will participate in its gradual evolution and, while it will be a slow growth, the evidence of its existence is apparent.

As to the better way to meet these new conditions, there is naturally a considerable divergence of opinion. The important thing is that the movement is becoming general and the result will undoubtedly be for the best.

In this issue of *THE AMERICAN ARCHITECT* is printed an article by Dean Herman Schneider, University of Cincinnati, in which are outlined the methods employed in the new course in architecture at that university. Dean Schneider has achieved a notable success in his eighteen years' work in developing the co-operative courses in civil, mechanical, electrical and chemical engineering and commerce. It is but reasonable to expect that equal success will attend the new courses in architecture and the applied fine arts.

Dean Schneider is particularly well fitted to direct this course of study. He graduated in architecture and successfully practiced his profession for a number of years when ill health forced him to go out into the Northwest where he engaged in civil engineering work. He later engaged in educational work to try out the co-operative idea—and with success. The work at Cincinnati should be followed by architects with great interest and good wishes.

* * *

THE CITY OF MILWAUKEE, in common with many other cities throughout the country, has before it a large school building program. In Milwaukee, the school shortage, as expressed in dollars, is said to be \$6,000,000. Realizing that the early completion of the schools needed is a vital problem, the Milwaukee School Board has decided that it must secure architectural service that will guarantee "full time architects" to take charge of design and construction. The advertisement of the Milwaukee School Board appears in this issue.

It is learned from the Secretary of the School Board that on account of the imperative need for the securing of such men as will be necessary to undertake this school building program, competitions in which candidates submit designs on some standard specification will be dispensed with and candidates will be requested only to answer a questionnaire on training and experience and to submit samples of executed work. It is proposed to have a competent examining board examine questionnaires and the work submitted, and the candidates then selected will be called together, either in Milwaukee or some other city centrally located, for personal interviews. Mil-

waukee's attitude toward its school building problems seems to be correct and if carried forward as now proposed, will undoubtedly result in the most successful end.

* * *

A PROMINENT NEW YORK lawyer is said recently to have resigned from the Bar Association, giving as his reason for such action that the Association did not take sufficient interest in public affairs. Without attempting discussion as to whether this action was justified by the facts, it is undoubtedly true that the disposition on the part of organized bodies serving professional groups is largely to confine their activities to purely administrative functions.

The profession of architecture as represented by the numerous organizations, national, state and municipal, is open to criticism in this direc-

tion. Probably no groups of men are better qualified by education and experience gained in professional practice to engage actively in public affairs.

It is futile to criticize the pernicious activities of professional politicians governed more largely by motives of personal advancement than the general welfare, when the solution is largely in our own hands.

Poorly considered "public improvements," appropriations that will not bear close scrutiny are constantly occurring in every community. Local Chambers of Commerce, civic clubs and similar organizations are doing good work in uncovering the political motives underlying these activities. A public protest, either on the part of the individual architect or the local architectural organization, would be a great and much appreciated help in these matters.



ROMAN CATHOLIC CHURCH, AMHERST, MASS.

JNO. WM. DONOHUE, ARCHITECT

NEW CO-OPERATIVE COURSES in ARCHITECTURE and the APPLIED FINE ARTS at the UNIVERSITY of CINCINNATI

BY HERMAN SCHNEIDER

Dean of the College of Engineering and Commerce, University of Cincinnati

THE co-operative plan of education is based upon the philosophy that practice and theory should be taught concurrently and should be co-ordinated. It was first put into operation in the College of Engineering of the University of Cincinnati eighteen years ago. There are now 1000 students in the course, and co-operative relations exist with about 200 different industries. The established courses cover civil, electrical, mechanical, and chemical engineering, and commerce. The field of co-operation extends to Chicago, Detroit, Flint, Cleveland, Rochester, N. Y., Pittsburgh, Louisville, Huntington, W. Va., and many towns in between. The course is five years long and operates eleven months a year. The students are divided into two groups, one-half being at the University while the other half are in field work. The alternation in the freshman year is on a two-weekly basis, and in the other four years, on a four-weekly basis. The students are paid directly by the industries for their outside work at the rate that anybody else is paid for doing the same kind of work.

The outside work is organized to obtain the highest educational values. A student starts at the bottom of his profession in his freshman year, and he must be in a responsible supervisory position in his senior year. A civil engineer, for example, starts as a laborer with pick and shovel if he has not already had this experience; he goes through an organized sequence of training, and in his senior year he must be a responsible supervisor of construction, or a designer. A great many special mechanisms have been devised to obtain all of the educational values possible from this "outside" training.

The University's function in this plan is to teach the theory underlying the practice and to give a fairly broad cultural training. Eighteen years of experience have demonstrated that more theory and more cultural training can be given in the five-year co-operative course than in a four-year full-time course. This is made possible by the extra speed at which the students can go in their latter years as a result of their background of experience through contact with real engineering work.

When the co-operative plan was established in 1906, it was hoped that a course in architecture might be added to the already existing engineering courses at this institution, but, unfortunately,

funds have not been available for the co-operative course in architecture until recent years. The new course was established in September, 1922.

The philosophy upon which the course is based may be stated briefly, as follows: Architecture is not an isolated fine art; it is inevitably tied up with the other fine arts. To be an expert in architecture requires a background of history and archaeology, and a knowledge of the fine arts as applied to the decoration of buildings and the surroundings of buildings. To be a good architect implies, also, the "feel" for construction. The practice of architecture implies a knowledge of economics and utilitarian values in construction. It involves the sense of balance, whether that balance be in a façade, a landscape layout, a Japanese print, the sweep of a sculptural design, or the form of a piece of pottery. It comprehends, further, color values in many kinds of design.

The philosophy embraces, also, the principle that a student with a talent in the fine arts may not necessarily express that talent to the highest degree in architecture. He may express it to the highest degree in some other form of the applied fine arts, as, for example, in pottery, in fabrics, in jewelry, in landscape architecture, or any other field in which the fine arts may be applied. Experience with a large number of students over a long period of years in engineering proves this principle to be true in engineering. Two years of experience in the architectural work seem to indicate that the same principle will be found to be true in applied fine arts.

For the first three years of the course in architecture and the applied fine arts, the school work is uniform for all students. It embraces elementary mathematics, mechanics, history, and fundamental courses in the history of architecture and architectural ornament, architectural design, and archaeology. The studies in history, in archaeology and in the history of architecture are co-ordinated, just as we co-ordinate mathematics, mechanics and design in the engineering work. For example, the mathematics taught to the engineers during the first hour each morning is used in the mechanics taught the second hour, and both are used in the design taught in the afternoon of the same day. In engineering, one instructor teaches the three subjects to the same class. This has not been found feasible in architecture, but the professor of general history, the professor of arch-

aeology, and the professor of architecture have co-ordinated their work in a similar way.

At the end of three years the student has had a good grounding in the basic elementary courses in archaeology, architecture and history; he has had, also, the usual courses in English, in mathematics and in mechanics. He then decides upon which phase of the work he will continue for two more years. He may elect to continue in architecture or to go on in landscape architecture or into one of a number of fields of work including pottery, jewelry, interior decoration, costuming and staging, and so on. In any event, he will continue his study of architectural forms and motives together with his specialized work, so that, whether he becomes a jewelry designer, an interior decorator, or a costume or scenic designer, he will have a sound background of training in architectural styles and in the development of design in its relation to form, balance and color.

Naturally, the architectural basis will lie almost wholly in the classical forms, but a departure will be taken in a more thorough study of oriental material, for the reason that the orientals can apply their theories of form, balance, and color, with an elasticity and a surety never approached by occidental designers. This does not mean that the architectural students will design Japanese houses for America. It does mean that they will devote some thought and study to the basic principles which give the "last touch" to good oriental art. These basic principles underlie the best occidental art, but we have frozen them into cold mathematical rules, while the orientals have not.

In conjunction with the library, it is intended to build a museum of the applied fine arts. In working this out, we decided to select from the different periods of each nation only the best and most significant material of the highest aesthetic value. For example, we are securing through the American Academy in Rome an exact duplicate of Michelangelo's model of the Dome of St. Peter's. This is being made by Vincent C. S. Hafner, Fellow in the American Academy. Similarly, we have secured, again through the American Academy, what is probably the finest model of landscape work ever made. This is the work of Ralph Griswold, Fellow at the American Academy in Rome. For illustrative material in books and for mural decorations, we have secured originals by Dulac, Degas, Puvis de Chavannes, Gainsborough, and others. A chart is now being prepared with the names of the different countries vertically on the left hand side, and the different types of applied fine arts, including architecture, across the top. Drawing lines vertically and horizontally, we have rectangular spaces in which are written, by expert consultants, the significant and best examples:—the best type of Persian tile, or of Japanese print, or of East Indian fabric.

It should be noted that there will be just one piece of, say, Chinese embroidery. This will be an original, and the best obtainable. With this one piece, the students will then be able to visualize what the designs really look like when they see them in the folios in the library. In other words, the students will live daily with the very best examples of all the applied fine arts of the different nations, and when they study design, the illustrations and texts will have a meaning which they would not have without these master examples.

The outside, or practical, work will be organized exactly as the engineering work is organized, but, of course, with a different kind of training. All of the students will start on small house construction in their freshman year. When they have learned the construction of a small house, they will go to the construction of a larger building, as, for example, a steel office building or a ferro-concrete building, going through all the different processes of the work just as a civil engineer does on construction. At the end of the third year, the students will have had a sufficient background of problem work in and out of the University to come to decisions as to their future careers. Those who continue in architecture will go into architects' offices on the part-time basis, and the others will go into practical work in interior decoration, landscape architecture, or any other field which may be chosen.

The skeptic may question the feasibility of this plan. The only answer is this: The skeptics questioned the feasibility of the engineering and commerce plans when they were first broached. A further answer is, that, if our office had a thousand additional co-operative students brought to it suddenly, we could place them as rapidly as we could work over the telephone and telegraph, meeting demands which we have for these students. It seems, therefore, that there can be no question as to the feasibility of the plan. Its desirability may be open to argument, and can be questioned until enough students have been graduated to prove or disprove its merit.

Inquiry among architects and those who work in the applied fine arts,—as, for example, in jewelry, watches, fabrics, and so on,—indicates a ready response to the co-operative idea. It should be understood very clearly that the function of the school in this work is to teach the science and the art and the cultural material underlying the profession, and it is the function of the outside agencies to teach what we call the "practice" of that profession. It is the function of the school to make the outside work of the highest educational value through the various mechanisms already devised, and to co-ordinate the theory and practice. It is hoped under this plan to graduate architects who will have just as much architectural training as students have now

in the usual architectural schools. They will have, in addition, a well organized sequential training through building construction and in architects' offices prior to graduation. In addition to these two essential items of training, the architectural student will have a definite contact with applied art in its other forms through courses and through problems in the University. For example, a student in costuming would have a problem like this: Design the stage settings for any one of Shakespeare's plays—say, Hamlet. It will be observed that this student must know the customs of the time, the costumes of the time, the architecture of the time, the furniture of the time, and so on. Further, he would be required to make these into a properly balanced "picture" of form and color. Problems of this sort will not be restricted to students doing only scenic work, but whole classes will work on them, no matter what their particular fields may be.

If five years are found not to be sufficient time to encompass this aim, the course will be extended to six years. We now have a general engineering course six years long, which has proved to be popular and very much worth while. Since the students arrive at good positions about the fourth year, the extra years at school are not looked upon as keeping them from practical performance. They keep on advancing in their jobs on the outside, and continue going to school in what is actually post-graduate work. For example, many of our students are research men in large industries and continue at the University for the extra

sixth year of work, which is post-graduate work. It is anticipated that a large number of the architectural students will do this, and, in fact, it will be made a requirement if the five years of preparation will not give them the thorough grounding which an architect should have, or which anyone should have, in the applied fine arts.

Education is not training. It is only a part of training. A good training for a man in any profession involves a knowledge of the profession in its realities, which, after all, is the knowledge of its necessary forms, processes, economies, restrictions, and possibilities. Training also involves discipline,—a discipline of the mind, body and soul. The disciplinary values of real work are great,—greater than most educators realize. Students mature very rapidly under the co-operative system, and they attack their work with a seriousness which makes for a type of student body not found in the usual four-year course.

Upon graduation, the student, having worked through these new co-operative courses, will very likely continue, as his engineering brother does, on his upward career and cease going to formal school work; but, as we have found from our experience, he will never cease studying. A student who has formed the habit of working and studying at the same time continues this habit in later life. The writer's particular hope in this work is that students will be graduated who have a wider spontaneity of performance and who can get away *safely* from the more or less mathematical rigors of Palladian motives only.



HOUSE IN KENILWORTH, ILL.
GEO. W. MAHER & SON, ARCHITECTS

ALFRED C. BOSSOM ELECTED FELLOW OF ROYAL INSTITUTE OF BRITISH ARCHITECTS

ALFRED C. BOSSOM, architect, of New York, has recently been elected a Fellow of the Royal Institute of British Architects. Mr. Bossom is, we believe, the first American to receive this distinction.



ALFRED C. BOSSOM, F.R.I.B.A.

During the past fifteen years but ten architects have been elected to Fellowship in the Royal Institute. The two non-English architects to receive the Fellowship during this period are the late Frank Darling, of Toronto, Canada, and Sir Charles Rosenthal, K.C.G.M., of Australia.

Mr. Bossom was born in London in 1881, and has been in practice in the United States for twenty years. He is now treasurer of The Architectural League of New York.

BOOK NOTES

PICTURESQUE SPAIN

A Review by Ralph Adams Cram, F.A.I.A.

THIS book is a revelation to those who do not know Spain, a vivid memory stimulus to those who do. The 300 reproductions of photographs by Kurt Hielscher are nearly perfect examples of views chosen with a rare sense of pictorial values, and for the main part they are almost as notable for their technical perfection. It is only now and then that some plate is injured through too sharp a differentiation of light and shade or too black a printing of the sky; generally speaking they are quite wonderful in their tone values, their mellow lights and their velvet shadows. The views have been chosen with remarkable sensitiveness and discretion; they are

always pictorial and sometimes positive works of genius. Apart from Granada (and who could escape it here?) not one is of a hackneyed subject, and all Spain is pretty well represented except perhaps Cataluna and Mallorca.

There are a few pictures of the greater monuments—Burgos, Salamanca, Toledo, Segovia, etc.—but the great charm of the book lies in the wildly picturesque views of perfectly unknown little villages, castles, monasteries, mountain fastnesses, tropical oases, deep wooded valleys under gaunt mountains. The variety is as wide and inclusive as Spain itself, and the pictures give something of the astonishment and the thrill. Equally inclusive are the architectural styles; the rich Romanesque of Avila and Zamora; the incredible Gothic of Burgos, Salamanca, Valladolid, Guadalajara, Segovia; the fairy fantasy of the Alhambra and the Generalife, the passionate Renaissance of Seville and the Cartuja of Miraflores, the alien but exquisite "Empire" of Aranjuez. "It is the little things that count," however, and from these triumphant examples of great art one turns back to the dream-like villages and mysterious castles and strange visions of Africa transported by some slave of the lamp across the narrow, intervening seas. Charm, infinite and incomparable, is here.

The book is one to pore over for hours, and then—to forsake in impatience and buy a passage on the first ship that sails for Cadiz, Gibraltar or Barcelona. Because of this inevitable impulse it is perhaps as well not to buy the book, unless the impulse can be followed.

Picturesque Spain. Architecture, Landscape, Life of the People. By Kurt Hielscher. New York, Brentano's. Price \$6.00.

COLOR IN MODERN INTERIORS

COLOR as applied to interior design is largely affected by certain temperamental attitudes. It is, therefore, not surprising to note in a Series of Color Schemes for Modern Interiors, published by Julius Hoffman in Stuttgart, that the schemes are greatly controlled by the viewpoint of German architects. Among these well rendered plates there will be found a large number of well considered effects, but the majority are so greatly the result of a free use of broken color as, to a large extent, to be at variance with the methods which we in this country are led by long experience to follow.

The work will be valuable to the architect and decorator in this country from a purely suggestive viewpoint. It in many cases illustrates how not to do it. As was said at the outset, schemes of this flamboyant nature are perhaps temperamentally approved in some sections of Europe, but we doubt their general acceptance in good practice in the United States.

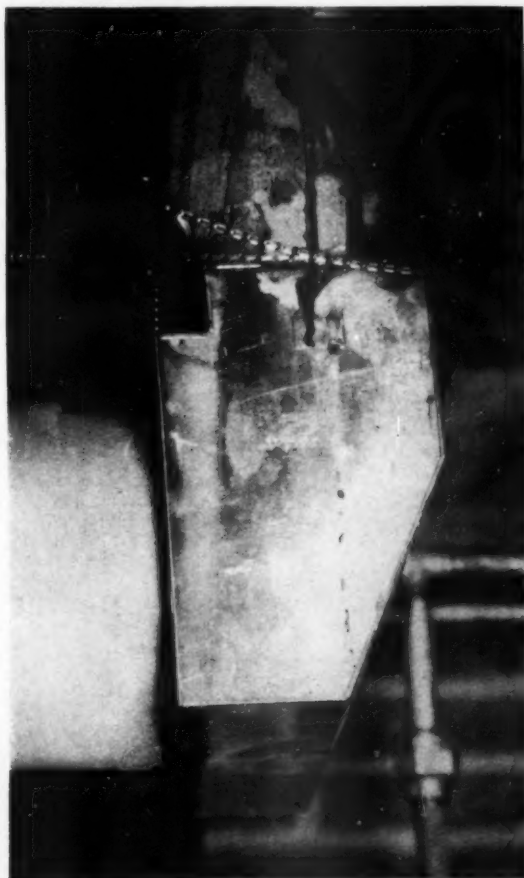
Color Schemes for Modern Interiors, with 120 designs in color by modern architects. Full cloth, 120 pages, size 9 x 11 1/2 inches. Stuttgart, Germany, Julius Hoffman.

ARCHITECTURAL ENGINEERING

ELECTRIC WIRING *and* FIRE DAMAGE

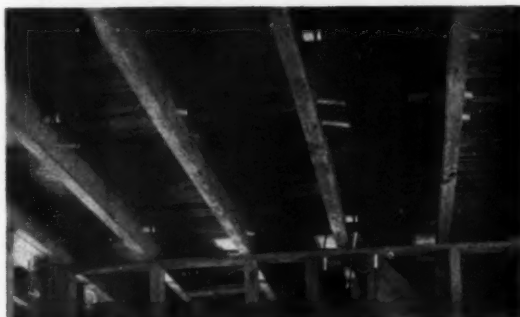
DURING the year 1921, the last for which detailed statistics have been issued by the National Board of Fire Underwriters, the loss from fire in the United States reached the total of \$495,406,012. Of this loss, \$12,723,209 is charged to electricity, fires attributed to that cause ranking fifth in destructiveness. The newspapers

bers of fires that can be attributed to a certain origin. One fire in a so-called fireproof building can destroy a very valuable contents, the money dam-



KNOB AND TUBE. LOOM PROTECTION ON WIRING MELTED BY HEAT IN WARM AIR DUCT

and the general public ascribe this loss to "defective" wiring, although it is generally known that there is no safer form of power, light and heat than electricity. Fire losses in terms of money include the damage to both the buildings and their contents. These amounts do not indicate the num-



KNOB AND TUBE. WIRING IN LIVING ROOM CEILING, FIRST FLOOR

age exceeding that of a great number of fires in cheaper buildings with less valuable contents. "Defective" wiring fires are usually confined to the latter class. While the ratio of the damage of this class of fires is only 2.50% of the total damage, the *number* of such fires is undoubtedly a much larger percentage of the total number. This does not excuse the tremendous loss due to "defective" wiring fires. The popular assumption is that wiring is always to blame when fire is caused by an electric current. The figures constitute in the public mind an indictment against electrical wiring, electrical workmen and electrical contractors. This opinion is unjustifiable because practically all wiring is safe when installed.

Definite information is not available, but it is



ARMORED CABLE. WIRING IN LIVING ROOM CEILING, FIRST FLOOR



KNOB AND TUBE. WIRING TO COMBINATION FIXTURE IN KITCHEN CEILING



ARMORED CABLE. WIRING TO COMBINATION FIXTURE IN KITCHEN CEILING

probable that fires caused by electric current originate in about the following order:

1—From overloading by attaching washing machines, electric irons, cleaners and other electrical appliances without consulting an electrician as to the capacity of the system.

2—From amateur interference with circuits after installation.

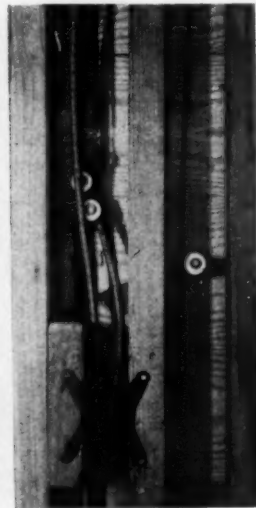
3—From injury to insulation by rats, mice or accidental cause.

4—From overloading of circuits by extensions made by amateurs or by electricians as ordered by owners who are unwilling to bear the expense of replacing original lines.

5—Sparking by motors.

These are direct causes of fire from electric current; the indirect cause will be found in wiring that fails to provide adequate protection against such conditions.

It is safe to say that fifty per cent of the dwellings now using electricity were wired before the use of electrical appliances in homes became common, and no provision was made for the load required to operate these in conjunction with the proper number of lamps. The original fuses in thousands of houses have been replaced with others capable of carrying the added load. The house owner is usually ignorant of the danger attending such a proceeding. It is, therefore, surprising that the number of fires caused by overloaded circuits



(1) KNOB AND TUBE. REAR HALL SWITCH. (2) ARMORED CABLE. REAR HALL SWITCH. NOTE: THE ARMORED CABLE USED IN THIS CASE CONTAINED THREE WIRES, PERMITTING A SINGLE CABLE INSTEAD OF THE THREE OPEN WIRES SHOWN IN (1). (3) KNOB AND TUBE. SWITCH BOXES IN LIVING ROOM WITH LINES TO CEILING AND PORCH LIGHTS. (4) ARMORED CABLE. SWITCH BOXES IN LIVING ROOM WITH LINES TO CEILING AND PORCH LIGHTS

has not been larger. That this old wiring was well done is evident from the fact that most of it was of the unprotected variety and nearly all of it has since been called upon to do work far beyond the margin of safety originally provided. Fires from overloaded circuits are practically unknown where rigid conduit or a good steel armored cable is used.

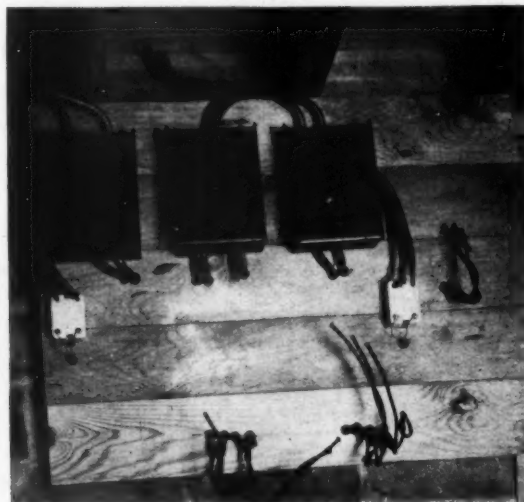
The important fact is that there have been enough fires directly traceable to the failure of unarmored wiring, under the circumstances outlined above, to create in the public mind an impression that every fire which cannot be certainly ascribed to some other cause should be attributed to "defective wiring." That such an impression does exist is shown by the readiness with which this term is used by the newspapers. Newspapers cannot and do not explain why the wiring was defective, even in cases where there is evidence that it was responsible for fire.



KNOB AND TUBE. ARRANGEMENT OF SWITCHBOARD AND METERS IN BASEMENT. THE OPEN WIRES IN CEILING EXTEND TO ALL PARTS OF THE BASEMENT, OFFERING OPPORTUNITY FOR TAMPERING BY AMATEURS

The conditions above described tend to react strongly against the use of electricity for many purposes for which it is best adapted, a limitation which is not at all desirable. The increased use of electricity for domestic purposes is desirable, and a logical way to do this is to secure safe installations of electric wiring. The ideal system of wiring is that enclosed in rigid steel conduit. Where the cost of this is prohibitive, approved armored cable should be used. Good steel armored cable can be installed at slight additional cost. It provides effective protection against overloading circuits, and prevents "tinkering" with wiring by unskilled persons who prefer to take chances rather than to engage the services of an electrician.

In the State of Ohio, during the past year, three women were electrocuted in the laundries of their homes. In each case it was found that the fatalities were caused by wiring which had been installed in accordance with the local code, but had been changed afterward by the owner of the building. The wiring had worked all right until the combination of a larger capacity fuse, a brass socket, a concrete floor and a weak heart brought about a catastrophe. The electricians who installed the service



ARMORED CABLE. ARRANGEMENT OF SWITCHBOARD AND METERS IN BASEMENT. ABSENCE OF OPEN WIRING. TWO CABLES SERVE THE FIRST FLOOR AND TWO CABLES SERVE THE SECOND FLOOR. LEADS FOR NECESSARY BASEMENT LIGHTS ARE BROUGHT DOWN FROM EACH PARTICULAR FLOOR TO ITS SECTION IN THE BASEMENT

and the corporations which furnished the current were accused of causing these tragedies. In one instance a court trial was necessary to establish their innocence and make plain the real cause.

Few cities or towns are without electric codes which are supposed to provide against these contingencies, at least to a reasonable extent. All of these codes provide for authorized inspection and electricians generally respect their provisions. These troubles arise from the fact that the codes provide solely that the wiring be properly installed at the time it is inspected and perhaps for a reasonable degree of assurance that short circuits and overloads will not occur naturally. They cannot and do not provide against changes made by the owner or occupant with a handy turn and just enough knowledge of electrical details to make him dangerous. Codes should require such a system of wiring that it is impossible for the unskilled to make changes and extensions.

These dangerous conditions probably prevail in four-fifths of the houses in this country that have electric service. They cannot be attributed to the

electrical industry, so much as to the public. They can be avoided by the use of rigid conduit or a suitable armored cable. The cost would be greater and the electrical contractor usually finds that his customers insist on an installation at the lowest possible cost. If the actual difference in the cost of open wiring and that in which a thoroughly good armored cable is used were more generally known, it is probable that architects and electrical contractors would more strongly recommend the protected wiring for small residences. The smaller home is the most important building unit needing this protection. The more expensive buildings generally are wired with rigid conduit because architects and engineers understand the necessity for protecting wires in these structures and the restrictions as to cost are less exacting.

In order to secure reliable data on this subject, it was recently arranged to wire two similar houses—one with knob and tube and the other with armored cable—and keep an accurate and detailed account of the relative cost. The houses selected were two family dwellings of fairly good type, arranged with five rooms and bath on each floor and having a cellar and attic. Each room has a suitable opening for ceiling light, and provision was made for side lights in the bathrooms. Baseboard and porch light openings were located conveniently. The work in both houses was done by the same men, and the number and location of openings are identical.

Actual cost of the two types of wiring is given below. It should be stated that the workmen were unfamiliar with armored cable, this being the first new job on which they had used it exclusively, and the item of labor on the cable job is therefore probably somewhat higher than it might have been otherwise.

JOB NO. 628—KNOB AND TUBE		
1430'	No. 14 Wire	\$8.58
330'	Loom	4.95
300	Knobs	2.67
300	Tubes	1.20
40	6" Tubes	.32
16	1—Gang Boxes	1.20
3	2— " "	.45
2	3— " "	.48
40'	Speaking Tube	1.04
7	" " Ells	.24
115'	Bell Wire	.55
20	Hours Labor	22.00
	Permit	2.80
15'	No. 12 Wire	.13
400'	No. 14 Wire	2.40
60'	Loom	.90
3	Cabinets	.96
3	2 Circuit Boards	.90
75	Knobs	.67
100	Tubes	.40

20	6" Tubes	.16
8	Base Receptacles and Plates	2.32
15	Single Pole Switches	2.80
4	3 Way Switches	.92
2	Mouth Pieces	.24
1	Door Lock	1.65
2	Transformers	1.45
5	Push Buttons	.90
2	Bells	.82
3	Buzzers	.78
8	1—Gang Plates	.88
3	2— " "	.63
2	3— " "	.66
12	Hours Labor	13.20
		\$80.25

JOB NO. 116—ARMORED CABLE

508'	Wire Realflex	\$36.36
57	B. X. Conductors	2.05
8	3" Outlet Boxes 1/2" K. O.	.86
1	Concealed Receptacle	.19
3	2 Circuit Boards	.90
3	6 x 8 Cabinets	.96
2	Bell Transformers	1.45
20'	Loom	.30
35'	No. 12	.29
50	3 Wire No. 14 Realflex	4.30
10	1/2" Straps	.05
14	2/8" "	.05
17	Hangers	2.30
10	B. X. Boxes	1.50
12	H. H. Boxes No. 1101	1.35
3	2 Gang Boxes No. 902	.54
17	Shallow Ceiling Pans 4" x 1"	3.06
31	Copper Connectors	2.79
1 1/2	lbs. Bell Wire	.55
28'	Speaking Tube	1.04
8	Ells	.24
23	Hours Labor	25.30
	Permit	2.80
8	Base Receptacles and Plates	2.32
15	Single Pole Switches	2.40
4	3 Way Switches	.92
8	1—Gang Plates	.88
3	2— " "	.63
2	3— " "	.66
2	Mouth Pieces	.24
1	Door Lock	1.65
5	Push Buttons	.90
2	Bells	.82
2	Buzzers	.78
8	Hours Labor Finish	3.30
		\$104.71

The illustrations have been made from photographs of the wiring in various rooms. They show the neatness and compactness of the cable installa-

tions. They also indicate the security which the cable affords against "tinkering" by amateurs because where this material is used, changes or extensions must be made by a skilled mechanic.

It will be seen from the figures given that the cost of wiring a house of this kind, which is fairly typical of the structures in which steel armored cable should be used, is increased only about 25 per cent by the use of cable—an increase

amounting in this case to the small sum of \$24.46 for two six room dwellings.

These figures are convincing evidence that both economy and safety are secured by installations of this type. They should cause a greater insistence on the part of architects and electrical contractors for better installations of wiring. Those who follow this suggestion will help to reduce the fire losses of the country and relieve the use of electricity from being responsible for an annual fire loss of more than twelve million dollars.

LIME AND LIME-CEMENT BRICK MORTAR

A BULLETIN, bearing the above title, treats of the properties of mortars made of lime and lime-cement. The influence of the mortar on brick masonry is shown through results of tests. A series of tables for determining the amount of the various materials required for mortars of different mixes is included. This will be found especially useful to those estimating the cost of mortar. It will be found of value in the preparation of specifications.

Bulletin No. 300-A, Lime and Lime-Cement Mortar, will be sent on application to the National Lime Association, 918 G. Street, N. W., Washington, D. C.

EFFECT OF DIRECTION OF REINFORCEMENT ON STRENGTH AND DEFORMATION

TECHNOLOGIC PAPER No. 233 of the Bureau of Standards records tests made on heavily reinforced slab beams in which the reinforcement was placed direct between the supports, diagonally one and two way between the supports and expanded metal reinforcement. The slabs were about 4" thick, 27½" wide and 5'-0" between supports. The loads were applied at one-third points of the span. The slabs were supported on two edges only.

Analysis of this type of structure indicates that with the same percentages of reinforcement in all cases the stresses and deflections will be greater the greater the angle between the direction of the span and the direction of the reinforcement. The results agree in a general way with the indications of the analysis. To this extent they indicate that the most economical reinforcement for a slab supported on two edges is that whose direction is

the same as the direction of the slab. The tests give no information on the value of diagonal reinforcement in resisting stresses parallel to the supports due to shrinkage, temperature changes, etc., or in resisting the stresses set up when the slabs are supported on four sides.

The paper is written by Willis A. Slater, Engineer Physicist, Bureau of Standards, and Fred B. Seely, University of Illinois, Superintendent of Documents, Government Printing Office, Washington, D. C. Price 15 cents.

COMPRESSIVE TESTS OF HOLLOW TILE WALLS

TECHNOLOGIC PAPER No. 238 of the Bureau of Standards describes and records the results of tests made on 32 hollow tile walls 4'-0" long by 12'-0" high, 6", 8" or 12" thick. About one-half of the walls were built with the cells of the tiles vertical and one-half with cells horizontal. A few of the walls of each construction were tested under a load having an eccentricity of 2 inches.

Considerable differences in the strength of the tile did not have an appreciable effect on the strength of the walls. Walls having the cells of the tile vertical had, on the average, more than twice the strength of those having cells horizontal. Walls loaded with an eccentricity of 2" over one-half the width of the wall, had about one-half the strength of similar walls axially loaded. Apparently this ratio is independent of the thickness of the wall. No relation could be found between the modulus of elasticity of the walls and that of the tile.

Superintendent of Documents, Government Printing Office, Washington, D. C. Price 5 cents.



SIDEWALK PROTECTION, STRAUS BUILDING, CHICAGO, ILL.
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

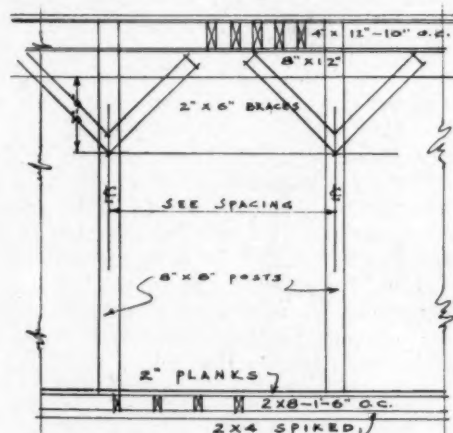
SIDEWALK PROTECTION DURING BUILDING CONSTRUCTION

PROTECTION to sidewalk traffic about buildings under construction is required in all cities. The strength of the roof of these temporary structures is usually specified in building codes. This requirement is for the purpose of resisting the impact of building materials which accidentally may be dropped or dislodged from the building or to permit their use for storage. Sometimes these sidewalk protection structures have the floor raised above the regular sidewalk level so that materials may be passed under it into the basement.

Building codes do not make any restrictions as to the appearance of these structures, consequently they are built as cheaply as possible of second-hand boards and timbers. They are very unsightly and unattractive to pedestrians. Fortunately for Chicago, certain streets and boulevards are under the control of one of the three Boards of Park Commissioners. Insofar as building operations affect traffic on, and the cleanliness of, these thoroughfares, they are controlled by the Park Police, who have jurisdiction. These Boards of Park Commissioners have always required a much higher standard of sidewalk pro-

tection construction than that which complies with the building code.

In the case of their new thirty-two story build-

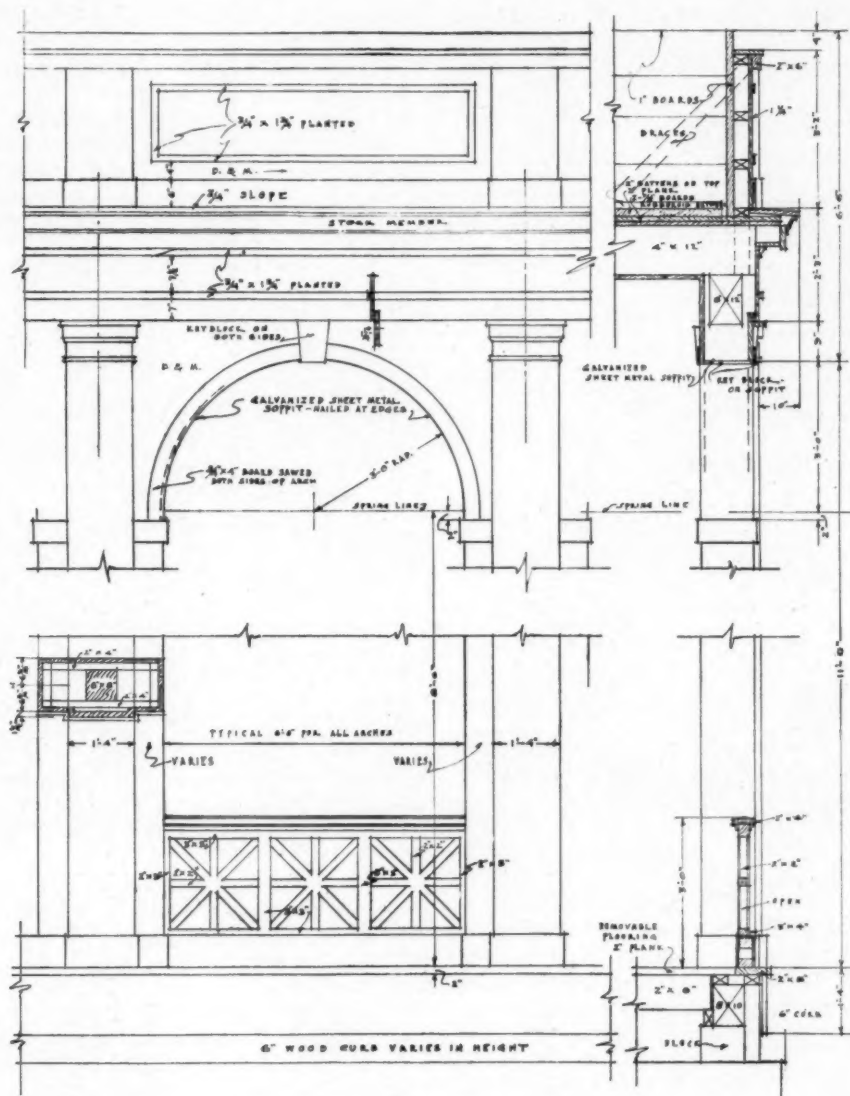


TYPICAL MICHIGAN BOULEVARD FRAMING

ing being erected by S. W. Straus & Co., at Jackson and Michigan Boulevards in Chicago, the owners have gone much farther than the regular

requirements of the South Park Commissioners. It is but natural that pedestrians will have a much more kindly feeling toward an owner and the building itself, when their comfort and safety are so carefully conserved. A certain measure of protection is theirs of right, more than this is a voluntary contribution by the owner to the pub-

thus rendering it as unobtrusive as possible. It is built in two widths—that on Michigan Boulevard being 16'-6" wide between center lines of the posts and that on Jackson Boulevard being 8'-6" wide between center lines of the posts. The outer edge of the barricade is supported by the curb wall and the inner edge is supported by the



ELEVATION AND SECTION OF BARRICADE

lic. In this case S. W. Straus & Co. have set an example that can well be followed by others.

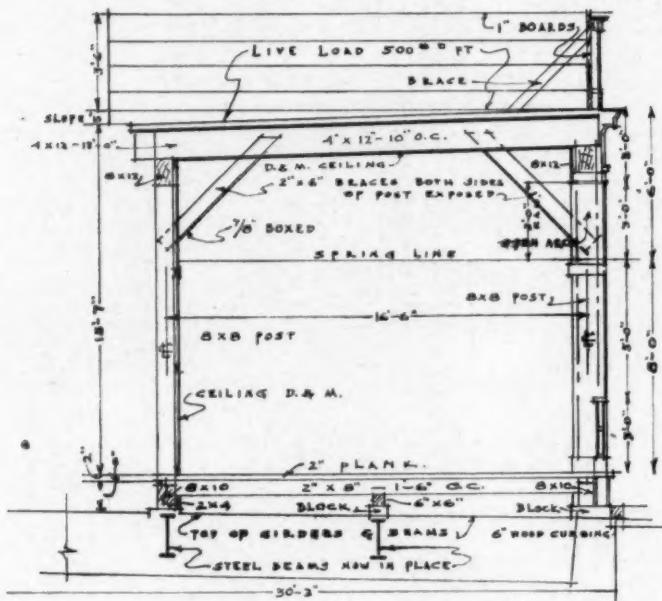
This barricade was designed by Graham, Anderson, Probst & White, architects for the Straus Building. All exposed portions are finished and painted two shades of color which harmonize with the Bedford stone exterior of the building,

steel I beams which will support the concrete sidewalk. The wooden floor of the barricade is made in sections and will be removed when a permanent sidewalk is in place, permitting the balance of the construction to remain until the exterior of the building is completed.

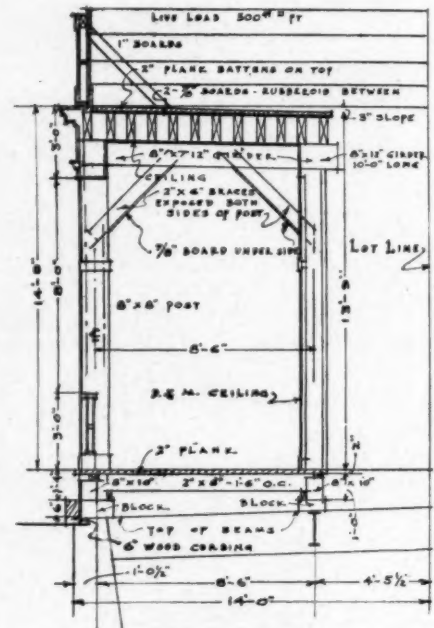
The roof construction is supported on 8" x 8"

posts on the top of which rest 8" x 12" girders. The roof of the Michigan Boulevard barricade is made of 4" x 12" joists spaced 10" on centers. These joists span the width of the barricade. The joists of the Jackson Boulevard barricade are also 4" x 12" spaced 10" on centers and run longitudinally with the barricade, the ends being supported on 8" x 12" transverse girders. These roofs are made of two layers of $\frac{7}{8}$ " boards with

is covered with galvanized sheet metal nailed at the edges. The cornice is built up of $\frac{3}{4}$ " and $1\frac{1}{4}$ " boards with stock mouldings. The face of the parapet is built up of $1\frac{1}{4}$ " boards and D. & M. ceiling paneled with $\frac{3}{4}$ " x $1\frac{3}{4}$ " strips. The inside of the parapet walls is lined to a height of 3'-6" with 1" boards. The balustrade is made of 3" x 3" frames with 2" x 2" grille members. The hand rail is made of 3" x 4" planks. There



TYPICAL MICHIGAN BOULEVARD SECTION



TYPICAL JACKSON BOULEVARD SECTION

a layer of Ruberoid between them. On top of these roofs are placed 2" plank battens. These roofs pitch toward the building. They are designed to carry a live load of 500 lbs. per square foot on the working deck.

The longitudinal knee-braces are single and the transverse knee-braces are double, being on both sides of the upright post. These knee-braces are made of 2" x 6" planks. The ceiling and the inner walls of the barricade are covered with D. & M. ceiling. The exterior of the barricade is also made of D. & M. ceiling with the pilasters made of $1\frac{1}{4}$ " board frames with $\frac{7}{8}$ " panels. The label mould of the arches is made of $\frac{3}{4}$ " x 4" boards cut to pattern. The soffit of the arches

is one driveway through the barricade on Michigan Boulevard and two driveways on Jackson Boulevard. They are shut off from the building by gates which swing in.

The additional expense of building this barricade was found to be only slightly greater than that for the ordinary unfinished structure. Considering the total cost of buildings for which these barricades are built, it is readily seen that this additional expense is an extremely small item. It would appear that the owners of such buildings should be willing to build better barricades and thus more satisfactorily serve the public. This excellent example furnished by S. W. Straus & Co. is worthy of consideration.

REVIEW of RECENT ARCHITECTURAL MAGAZINES

BY EGERTON SWARTWOUT, F.A.I.A.

THERE is a quaint custom, doubtless of great antiquity, that on or about the first of each New Year impels frail man to the making of good resolutions for the coming twelve months; resolutions which he hopes, but seldom really expects to keep. Usually we do not bother much about such things ourselves; not that the adjective above written does not apply to us, and surely not from any feeling of superior personal rectitude, but chiefly, we imagine, because we forget about it. Somehow we did not forget about it this time; in fact we eagerly anticipated the period, and in the last review, published some time or other in December, we made quite a stern resolution to read *all* the magazines of the month and to review them quite seriously, and to try to curb a growing inclination to go off at a tangent and write about some one thing or another that seemed interesting, and so, with this stern resolve still firmly in our mind, we have read eighteen foreign and ten domestic brands most thoroughly, and consequently are in a state of deep dejection and weariness of soul; not that the brands foreign and domestic are not good, but because there is so much to them.

We learn from the English papers and chiefly from *The Architects' Journal*, London, that there is a great huddoo about the decision in the Cambridge Collegiate Buildings Competition. Some of the competitors, the unsuccessful ones of course, do not like the award; a rather natural feeling, to be sure, and one generally universal in any competition here or abroad; but it seems in this case that some of the competitors have not merely groused about it among themselves, a proceeding which is also generally universal and quite all right, but have actually written to the papers about it, and the assessor, as the solitary English individual is called who in himself alone corresponds to our jury over here, the assessor being a fine, strong man naturally objects to the reflections on his judgment, and answers rather bitterly, and suggests that these men are beyond the pale and that a trial for *lèse majesté* or something is in order, and there is much acrimonious correspondence. Not knowing the conditions we cannot venture an opinion as to who is right, or who is wrong, probably the assessor, Professor Reilly, is right, but the thing that seems wrong is the placing of the judgment in the hands of one man. In certain cases one judge is enough. If, for example, a competition should be held

which aimed to show competence in the use of the rule of three or the multiplication table it would be obviously unnecessary to have a jury of twelve good men and true or even of three fairly good men of ordinary veracity. The thing is a matter of fact and not a question of taste. It might be, of course, that some of the exhibits would be more neatly done than the next, and some might

From the "Journal of the R. I. B. A."



PANORAMIC VIEW TOWARD THE NORTH IN 1912



PANORAMIC VIEW TOWARD THE NORTH IN 1919



PANORAMIC VIEW TOWARD THE NORTH IN 1923
THE RECONSTRUCTION OF YPRES

even be made decorative by the use of colored inks, but that is mere frippery and should not count, and the prize should be unhesitatingly given to the man who has said that twice two is four and not to the man who wrote a neat five in purple ink. In a real competition such as Cambridge, the question is not one of fact; it is a question of taste and architectural knowledge. There are a thousand and one things that enter into a judgment upon which there can be much difference of opinion. One judge can be, and often is, influenced by personal predilection, by style, by preconceived opinion; a large jury seldom is. To

From "The Architects' Journal," London



ALEXANDRA DOCK RAILWAY STATION, BOMBAY
S. K. BHEDWAR, F.R.I.B.A., ARCHITECT

our way of thinking the ideal jury is a triple one, three juries of three men each rendering separate judgments. If they all agree, which is conceivable, then the thing is settled; if not, then they would have to thresh it out at a joint meeting, six votes being necessary to an award. As we have said, this method is ideal, that is to say, not only ideal in the sense of being best, but ideal in reality, as it has never been tried. Still, we strongly affirm, it should be. Failing this, a jury of five or even three; in any event, not a solitary assessor.

There is also in *The Architects' Journal* an article on some Recent Indian Architecture by S. K. Bhedwar, F.R.I.B.A., B.A., L.C.E. and C. K. Bhedwar, L.C.E. The title is a bit misleading, as it should read not Indian Architecture but Architecture in India. To an American untravelled eye Indian Architecture conjures up temples with grotesque carvings and pointed roofs and ghats and the Taj Mahal and all that, but from the illustrations here given what is now being built in Bombay is not dissimilar from that which is going up in Brooklyn, and the new buildings of Calcutta might by no great stretch of imagination be built in Kalamazoo. There is

probably a reason, and probably that reason is the demand of commercialism. However much we may regret it, a railroad station is undoubtedly a necessity in Bombay, and it is probably difficult to design a railroad station in the style of a Buddhist temple, and the Taj Mahal could with difficulty be adapted to the requirements of an office building, but nevertheless there is something most unpleasant about it, just as there is about the adoption of European dress by the men and women of the Far East. It is incongruous and inappropriate and unlovely, and something should be done about it. The League of Nations might help or Mr. Bok might offer another prize.

In *The Architectural Review*, London, of December there is a very beautifully reproduced frontispiece in color which we regret cannot be reproduced and a well written and most interesting article on The Theatre of Sabbioneta by Edward Gordon Craig. The search for this little classical theatre of Scamozzi, and its final discovery and its rescue by the author from its present plight as a movie house are most entertainingly described, and there is also a continuation of the worth while article on the Historical

From "Architecture," London



KARLSKIRCHE, VIENNA
FISCHER VON ERLACH, ARCHITECT

Development of Architectural Drawing and a good article by H. Beresford Chancellor on London Now and Then, in which he says:

"Of all those who have dealt pictorially with London, who have perpetuated its past features and have, as it were, reconstructed its forgotten outlines, no one has been more successful than Whittock, who was responsible for that really marvellous series of street elevations which were

ners, one side of the street being shown upside down so that if cut out and set upright there would be a little model of the entire street, very interesting and valuable as records.

From "The Architectural Record"



CITY HALL, STOCKHOLM, SWEDEN
RAGNAR OSTBERG, ARCHITECT

published by Tallis some eighty and odd years ago. Tallis' Views, as they are called, form one of the most remarkable examples of publishing enterprise and artistic ingenuity ever produced. Although sufficiently familiar to London topographers, to the general public they are little known. The fact that, especially during the past few years, they have become increasingly scarce is one reason for this; another is the fact that they were issued in parts, and thus shared the fate of all such forms of publication in getting easily destroyed and becoming the *disjecta membra* of the rubbish heap."

Some of these views are reproduced, of Regent Street, The Strand, and Holborn Hill, and are quite remarkable, carefully made line drawings in elevation and one point perspective at the cor-

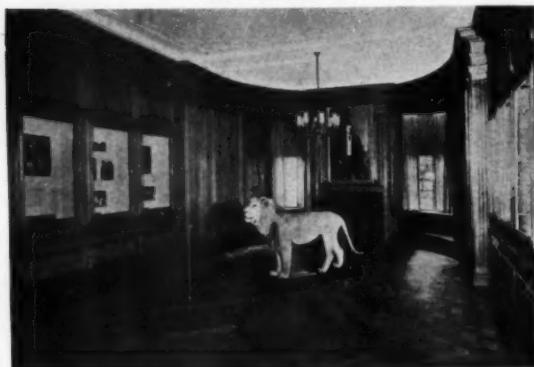
From "The Architectural Forum"



OAKLAND GOLF CLUB, BAYSIDE, NEW YORK
ROGER H. BULLARD, ARCHITECT

Architecture, London, for December has, as usual, a number of readable articles. Some London High Streets by V. M. Christy is good and one by Christian Barman, and one by A. Trystan Edwards who writes on the Resuscitation of the Blind Window for which he makes a good case, and there is a well illustrated article by H. V. Lanchester on Fischer Von Erlach, the bicentenary of whose death has just been celebrated in Vienna. While his work has all the

From "Architecture"



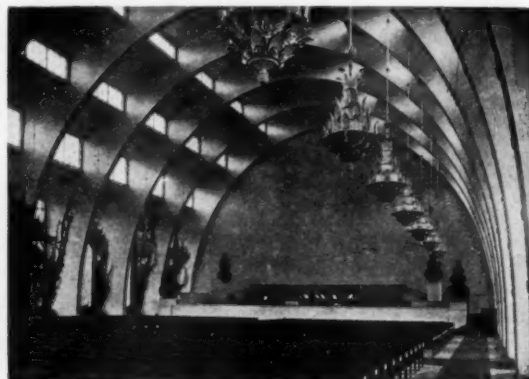
ROOSEVELT HOUSE, NEW YORK
THEODATE POPE, ARCHITECT

restless curves and exaggerated effects of the Baroque School, there is a monumental feeling about it that is fine, and the scale is bold and impressive; its very faults give it a human interest too often lacking in some of our cold and correct modern work. As has been pointed out, there is more than a touch of the Baroque in Wren's buildings.

Of our own magazines, *The Architectural Record* of December has an interesting article on Walter Hampden's production of *Cyrano de Bergerac* in which Claude Bragdon describes how he designed the scenery, the color schemes and the costumes, and the ingenious methods he adopted to save space and materials, all well told and with excellent line drawings illustrating it, and there are some good pictures of Swedish architecture, and some sketches of old Belgian iron-work by Louis C. Rosenberg, whose draw-

The Journal of The American Institute of Architects for December is quite properly but rather unusually for an architectural paper, given over chiefly to churches, and has on its cover a well intentioned but very poor woodcut of a

From "The Architectural Review," London



THE CONGRESS HALL, GOTHENBURG JUBILEE EXHIBITION



DETAIL OF ENTRANCE TO TERMINAL WAREHOUSE,
WILLIAM STREET, NEW YORK
JAMES W. O'CONNOR, ARCHITECT

ings have character and are well provided with figured dimensions, the latter being an extremely valuable adjunct that is too often omitted in sketches of this kind.

The Architectural Forum for December shows among other things the Oakland Golf Club by Roger H. Bullard who has done some charming work, and an interesting article on Charleston architecture, well illustrated; a good doorway by Parker, Thomas and Rice, and an unusual and good warehouse by James W. O'Connor.

bobbed-haired angel hoo-hooing at some shepherds with a mosque in the background. The frontispiece is effective but poor in color and there are the usual wretched woodcuts which in this case act as a foil to the brilliant and charming drawings of Samuel V. Chamberlain. Also as usual, the best thing in the paper is the review by I. K. Pond with which we heartily concur, although we are inclined to question the wording of one of his quotations.

Architecture, December, has among other articles some pictures of the restoration of the Roosevelt birthplace by Theodate Pope. The restoration has been painstakingly done and the furnishings are undoubtedly authentic, but Lord, what a hideous place it was! Truly, the taste in those grim days was something to wonder at, but worse than the parlor and worse than the dining room and even worse than the library, and that's very worse indeed, is the stuffed skin of the King of Beasts in the Memorial Museum. Really, if he looked like that he ought to have been shot, but the shooting of that mild-faced pot-bellied anemic old lion was no trick at all. T. R. could have killed him with a club.

INTERIOR ARCHITECTURE

The Dining Room and Its Problems in Design



WHETHER or not the prevailing tendency to minimize the importance of the dining room ever reaches such proportions that the room will be eliminated entirely, the fact remains that the dining room still holds a prominent place in the average house plan. While the scarcity of domestic labor has been the direct cause of this inclination, it was the World War which brought about conditions which made servants no longer satisfied with housework as a means of occupation and livelihood. Many of us can remember very distinctly when the dining room was used to stage all formal and informal social functions in the home, and it is with a decided feeling of regret that we realize that those elaborate social functions are now largely abandoned. It is the changing social conditions that will determine the treatment of the dining room as affecting the architectural plan of a modern house.

Relative Importance of the Dining Room

The dining room at one time consumed about one-fourth of the entire first floor plan, and very logically so, for its services were easily of that relative importance to the rest of the floor. Now, however, in its present usage, it might be given one-tenth of the first floor. In reality, the dining room never could lure anyone into its wide embrace for more than three or four hours a day at the most, and it does not seem logical that such a room should be entitled to the same proportion of floor space as the living room or library. An added disadvantage is its type of furniture, which is not suitable for any other use, except, perhaps, for a game of bridge or mah jong. Yet how much more agreeable are these around the open fire of the living room!

Under present conditions of self-service, it seems best, in homes of moderate circumstances, to cut the dining room down to a minimum size for sensible, practical use, place it in its most accessible location for service of this kind and put the space gained into rooms which

are actually lived in, or use the money saved for more necessary purposes. The evolution of the parlor, sitting room and music room into one good sized living room, to be used as an informal gathering place for all members of the family and their friends, has unquestionably forced the dining room to take a secondary place in the plan of the first floor.

Radical Decorations in the Dining Room

A dining room, more than any other room in the house, may be somewhat extreme or radical in its decorations. The word radical is used as contrary to conservative, and not in the sense of "freakish." This term is easy to understand in relation to color. By a radical color scheme is meant one of daring combinations. But a radical design or scheme of decoration is not so easy to describe in words. It might be best set forth

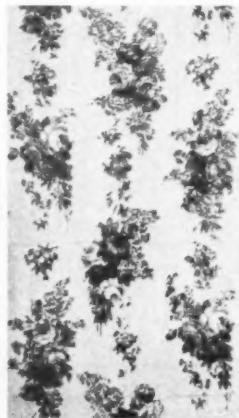
as a daring interpretation or combination of period motives. Such a radical design can easily be in good taste.



This pewter bracket would be appropriate for a dining room if applied to plain or papered walls. The large back plate makes it not adaptable for panelled treatment

The reason for the possibility of a radically designed dining room is very evident, for so little time is spent there that the extreme features of the design and color scheme do not have time to sink in or become absorbed. At the same time, the radical tendencies of the decorative scheme stimulate

a decided interest in the mind of the occupant during the short duration of his stay there, to discover just what it is that makes the scheme unusual and what his opinion is regarding it. For the mind unconsciously forms an opinion of everything that the eye sees, and it carries on a real debate within itself in making decisions. Let it not be understood that all schemes for dining rooms should be radical. To hold, and hold extensively, the occupant's interest in the scheme of decoration of a room is positive proof of its success, and daring designs and color combinations, within certain limits, do just that in a dining room where the active attention is so concerned with what one is doing, combined with the comparatively short time spent there. Everything, then, is in favor of a scheme of some dar-



Chintz hangings in bright colorings, like this one of French design, may make an otherwise subdued color scheme appear even brilliant

ing feature, if only making itself felt in bright colors. In many ways may a scheme be made to embody an element of daring color. A wall paper of pronounced design and color, bright patterned chintz hangings, or walls painted in a decided color, all give instances of adding a daring quality to the color scheme.

**Styles Best Suited
for the Dining Room**

There are certain qualities which every dining room should possess. One is cheerfulness. Another is brightness. Stiffness must be avoided and subdued colors must not dominate

Georgian period, of which apple green is so typical, present the necessary note of daring in spite of the dignity and massiveness of the architecture, and the Colonial allows of such a free use of color that bright effects are easily obtained in it. Where the walls are hung in a bright wall paper, surmounting a low wood wainscot, the result is sure to be cozy and cheerful if the materials are properly selected. There is no question of the wide possibilities of wall paper in the dining room. Through no other means can vital qualities be so vividly expressed in one medium.



HOUSE OF FREDERICK A. GUEST, ROSLYN, L. I., N. Y.
CARRERE & HASTINGS, ARCHITECTS. CHARLES OF LONDON, DECORATORS

The dining room is in Georgian style, painted entirely in the apple green tint so peculiar to that period. The severe and massive lines of the wall treatment are relieved of formality by the style of the furniture. The chairs are Queen Anne, the cabinet Chinese Chippendale and the table shows Chippendale influence. The mantelpiece is an adaptation of that in the Carrington House at Whitehall, England, of the XVIIIth century

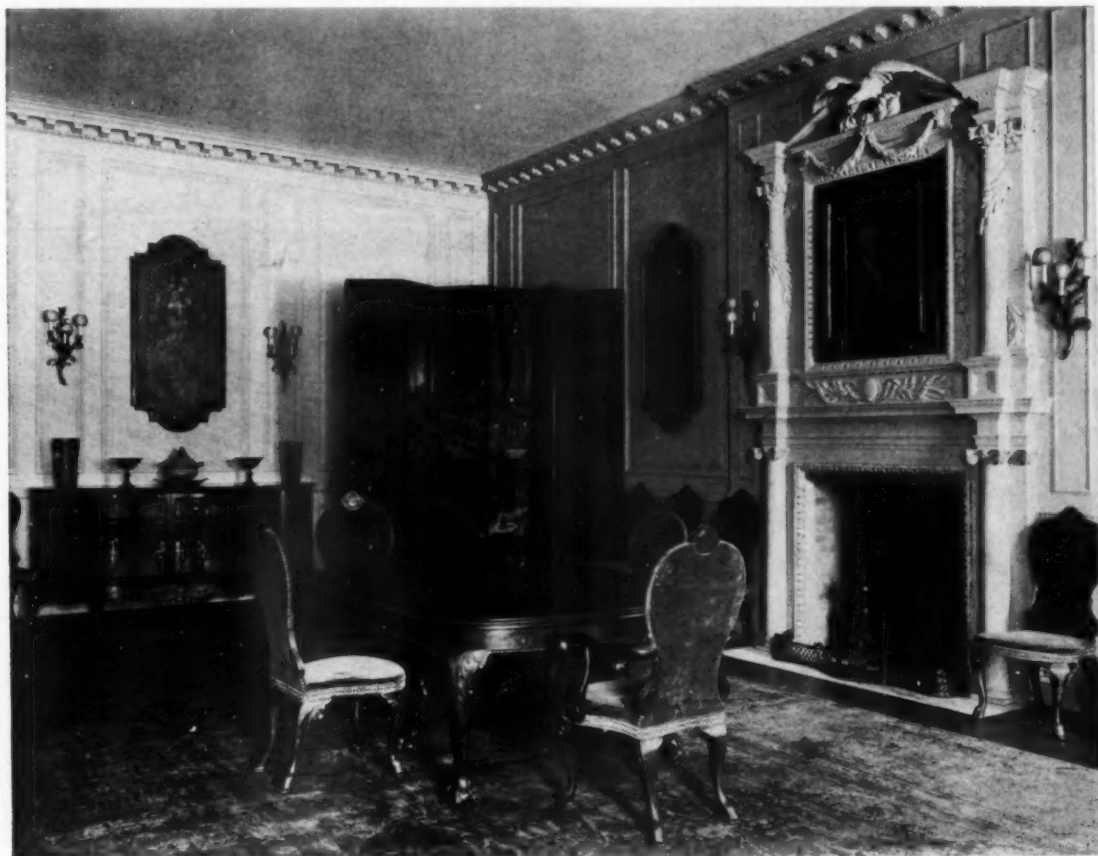
any scheme. These qualities eliminate certain styles from consideration and make others more desirable. For instance, accurate French period rooms are bound to be stiff and formal, while Jacobean panelled rooms, in their soft, mellow colorings, are rather too subdued for the home dining room. In fact, accurate period architecture in any style is apt to be too formal for the ordinary dining room, and must be relieved by furniture of a different design to avoid stiffness. On the other hand, the painted walls of the

Its great proportion in relation to other materials in a scheme permits it to swing the pendulum most any way it desires. The character of a wall paper design may add the necessary period feeling to set off the furniture, or may give an otherwise nondescript room a decided dining room atmosphere. The colorings of its design may brighten up a subdued color scheme to even extreme proportions, if need be, or give a definite interest to a monotonous combination. These facts emphasize the care necessary in selecting wall paper.

Colors Appropriate for Dining Rooms

The embodiment of certain radical features in the scheme of decoration of a dining room holds good, of course, in establishing its color scheme. One radical or daring note of color may cause an otherwise conservative design to appear extreme. Not only does this apply to the colors selected, but to their distribution. While it is best in creating a scheme for a living room, as described in a previous article, to build the scheme around two principal colors,—one in slightly

room through the Delft blue chinaware of Holland, which is so attractive and so frequently used for table service. The apple green, in which the wall panels of the Georgian period were so often painted, is appropriate for dining rooms because the color is symbolic of vegetable life. Papered walls, as suggested, give the bright, cheerful atmosphere to a room with the least resistance. Chintz hangings are most satisfactory for dining rooms for this same reason, especially with plain wall effects, while plain or two-tone fabrics, of



DINING ROOM IN A HOUSE ON PARK AVENUE, NEW YORK

DELANO & ALDRICH, ARCHITECTS

Typical American style. The mantel and overmantel are from an old Colonial house and the room is designed to feature them. The center table and chairs are Georgian, of Chippendale tendency; the sideboard is Chinese Chippendale, as is also the screen, and the lighting fixtures are Chippendale. All set against a Colonial background, there are unity, cordiality and interest.

greater proportion than the other,—a dining room scheme may be limited to one color, in conjunction with white or some light tint. The blue dining room, for example, is very often seen, and is radical in the sense of the word as used here. The walls, draperies, floor and furniture covering are often all in designs of various shades of blue and cream, yet, during the short time spent in the room, the scheme never becomes monotonous. Blue has become somewhat tied up to the dining

not too heavy weight material, can be used with a paper of bright colorings. Furniture covering cannot be governed by rule, but more by the furniture on which it is used. A small figured tapestry in several colors, of design best suited to the style of the furniture, prevents the monotony which is apt to result from six or eight chairs with the same pronounced pattern for their covering. A design embroidered in colors on a wool ground of a dark shade, with each design slightly

different, is very good for dining room chairs.

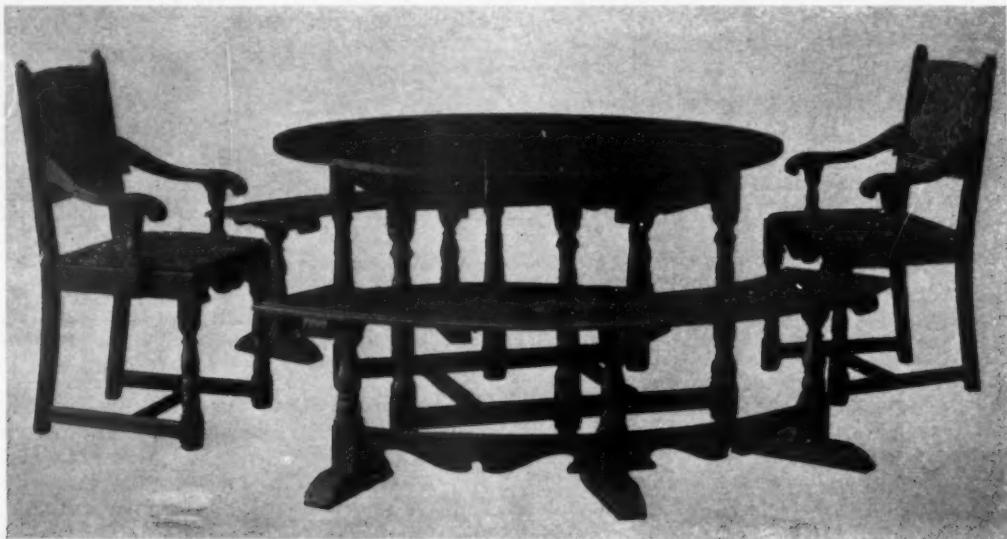
Furniture for the Dining Room Furniture is for the cause of more uninteresting dining rooms than anything else. The idea of the necessity of a "suite" for this room has been carried so far that all originality and personality have been brushed aside. To be sure, all dining rooms call for certain types of furniture to meet certain practical requirements, such as drawers for silver and linen, cupboards for china, and what not, but these conditions may be embodied in designs of very different lines and proportion. The suite is more appropriate in the formal room. Certain styles and periods are much more adapt-

able, too, to designs of this kind of furniture than others, a fact that is too often overlooked. The design for a table leg cannot be made by proportionately enlarging the turning, perhaps, of the chair leg. Scale plays an important part in such designing. The slender, tapering leg of a Sher-



Chintz curtains with an overvalance of a dark color, perhaps the one most prominent in the design of the chintz, or one which it is desirable to emphasize, on which a cut-out of the chintz is applied, make very pleasing drapes for a dining room. Straight hanging curtains are more informal and show off the bright colors and design of the chintz to better advantage

ton sideboard, when applied to a five-foot table must be of so much heavier proportions that any unity of scale between the two pieces disappears. But a Sheraton design table, with a turned center pedestal, resting on a four-footed base, keeps the unity of scale intact, retains the harmony of period details and adds interest to the furniture through the new element of design. Or a table of Queen Anne design, with characteristic substantial cabriole legs, combines pleasingly with Chippendale chairs of similarly shaped legs, while the scale of neither is disturbed. It is decidedly encouraging to find on the market today furniture of designs which get away from the stereotyped suite idea, but fill all the requisites of dining room pieces. More and more are people realizing the actual waste of money put into a suite of the conventional type, as well as a waste of the floor space which it occupies. In these days of high rents and costs



This group of dining room furniture is marked both by originality and personality. The manufacturer of this stock furniture has evidently heard the call of the people for a departure from the conventional suite and his efforts are most encouraging. A low and high cabinet are also made to use with these pieces if desired

of living, everyone is anxious to economize wherever possible. The practically furnished dining room is the one which, by its furniture at least, is suitable for other purposes than eating, or anyhow appears so. The qualities necessary in furniture to serve this two-fold purpose are found in such pieces as the gateleg table, the refectory table, the corner cabinet, the cort cupboard, the hutch and the Windsor chair.

Along these lines of radical schemes, the floor treatment of the dining room offers possibilities beyond almost any other room. Hardwood floors, relieved

Floors and Coverings for the Dining Room

by a large center rug, are always in good taste, but the mistake is often made in the selection of the rug. The Oriental rug, with its many colors, generally adds to the brightness of the room, although much of its charm is apt to be lost under the large center table. Besides, all those who might choose it cannot afford the luxury of an Oriental. The Chinese designs, with



Embroidered design in colors on dark wool background, may be used with good effect for covering dining room chairs. Each chair has a slightly different design

rich figured borders and often plain centers, lose less under the spread of the table legs than the all-over pattern. Plain color rugs are apt to be too severe and subdued for dining rooms unless of a striking color, when they will incline to the other extreme. A taupe chenille, with a line border of another color which it is possible or desirable to emphasize, frames in the center table and chairs and is much more in keeping with the radical idea than the plain all-over rug. For backgrounds for a rug, the style and design of the hardwood floor must be determined by the style and period of

the room to a certain extent. For instance, oak planks of random width are well adapted to the informal and cheerful dining room, but, under no circumstances could they be used with French decorations. In like manner, a marble panelled floor is appropriate and pleasing in an Adam room, as shown in the Anthony dining room, but never permissible when the walls are of Tudor panelling. There are many products



Dining room set not a "suite." This type of furniture makes the dining room a real living room between meals. The small refectory table and the drop leaf side table are of the same detail, and are both as suitable for a living room as a dining room. Windsor chairs are always good living room chairs and the hutch or cabinet would be appropriate in any informal living room



DINING ROOM IN HOUSE BY WILFRED E. ANTHONY, ARCHITECT

Accurate period decorations in Adam style as displayed in this interior, give a decidedly formal feeling which the architect undoubtedly desired to effect. The only departure from the period is in the design of the chairs, which are Queen Anne. The Oriental rug is placed over a tile floor, faintly indicated at the left of the window.

on the market today for floor treatment, effecting tile, marble and stone, yet without the cold, resonant, polished surface of the formal original material. Their interest is not in the striking imitation of one of these elements, but in the combining of the charm and delicacy of the pattern of the natural product with the practical qualities of its composition. These materials are made in various patterns and sizes and add much to the interest of a room, especially when anything bearing on the radical is allowed. Rugs are seldom needed on floors of this kind, but are not at all out of place on a floor effecting tile or stone, as was so frequently done by the Italians.

Lighting the Dining Room

The manner of lighting the dining room presents a problem that cannot be readily solved. Certain architects insist that the center ceiling light is the only practical method of dining room illumination. Their argument is that there is only one place in the room where intense light is necessary, and that

that point is directly over the center table. That is perfectly true. The table is the center of attraction in the room and should be considered so in the lighting system. Certain other architects claim that, being the center of attraction, it needs no further emphasis. They state that other decorative features of the scheme should be emphasized by special lights to prevent their entire fading into oblivion. This is also true. Certainly there should be sufficient light to see and see distinctly and easily what is being eaten at the table and such light is well supplied by the center chandelier. But, from an architectural angle, there is nothing decorative about what is on the table, and the architectural feature of the room should therefore be pronounced by light. Wall brackets generally answer this purpose best. A bracket on each side of a mantelpiece would be sufficient. Brackets must be selected in keeping with the wall to which they are applied. Large back plates are not suitable for panelled walls as they appear crowded in a narrow stile, and do not generally look well in the field of a panel.

Table candles are very attractive on the more formal table and, when electrified, are practical as well as decorative, but they only add light to the table, and the wall brackets, or, perhaps, a pair of candlesticks at the ends of the mantel shelf, form the actual secondary form of illumination for the room. Indirect lighting tends to supply equal distribution of light over the entire room, and, under certain conditions of decided contrasts in colorings and in architectural details, is satisfactory and practical. Radical decorations include radical lighting and indirect and concealed systems can never be classed as that.

Architects are invited to correspond with the editor of this department in regard to any problems of interior design or the availability of materials. Acknowledgment is made to the following firms for their courtesy in supplying illustrative material: Erskine & Danforth Corporation, Hastings Table Co., F. Schumacher & Co., G. E. Walter, Witcombe McGeachin & Co.

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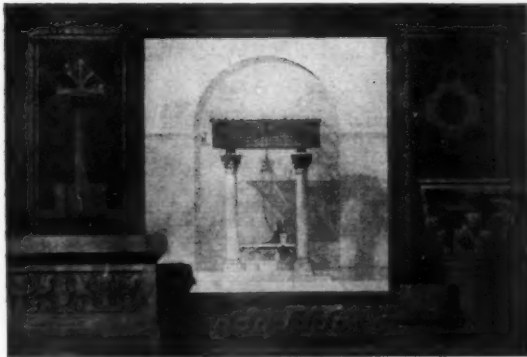
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CLASS "B"—I ANALYTIQUE

"A WELL HEAD"

An American lady wishes to embellish the courtyard of the new Art Museum in her native city. Opposite the entrance to this court is a wall with a blank arch. Against this arch but standing free, she proposes to erect a Well Head consisting of a well curb, two columns fifteen feet high, and above an entablature or ornamental metal feature from which will be suspended the pulley and bucket.

The columns and well curb should stand on a platform two steps high, which can be round, square or polygonal in form.



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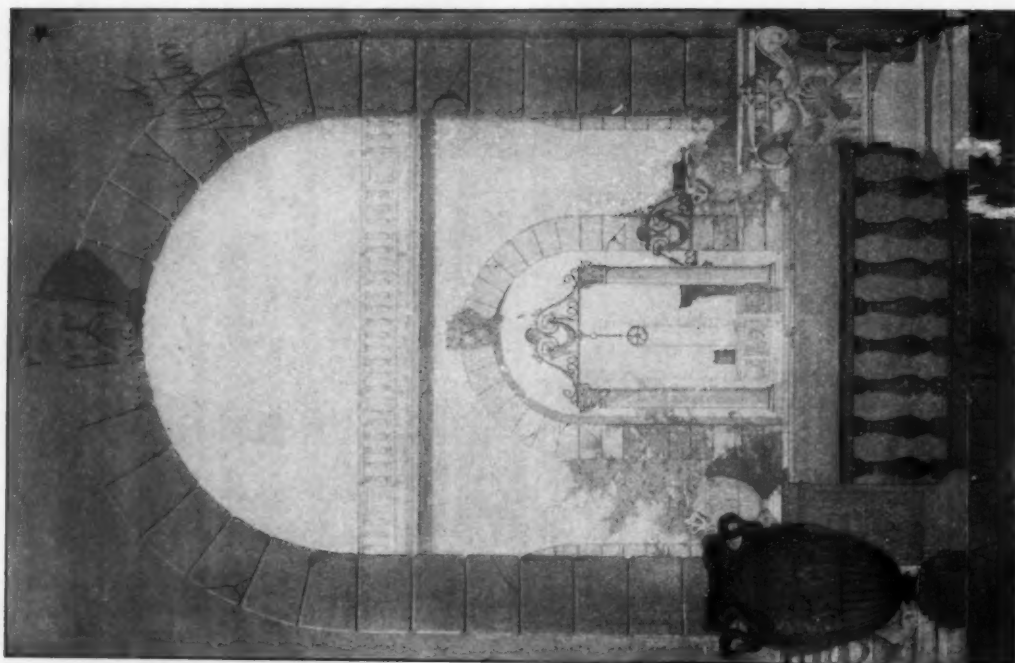
BY special arrangement with the Society of Beaux-Arts Architects, there appears in each issue of *THE AMERICAN ARCHITECT* an average of five pages devoted to the presentation of drawings selected from the Beaux-Arts Institute of Design exhibitions, and also the listing of awards and the promulgation of all notices to students. These matters will be exclusively presented to students of the Beaux-Arts Institute of Design through the pages of *THE AMERICAN ARCHITECT*. By ar-

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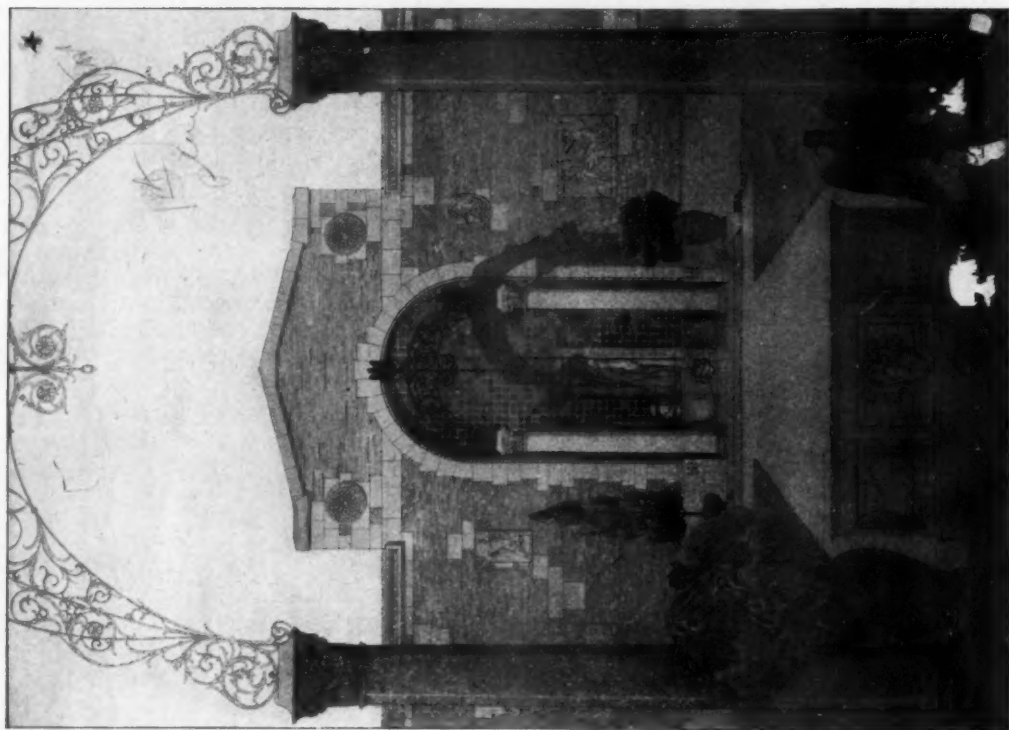
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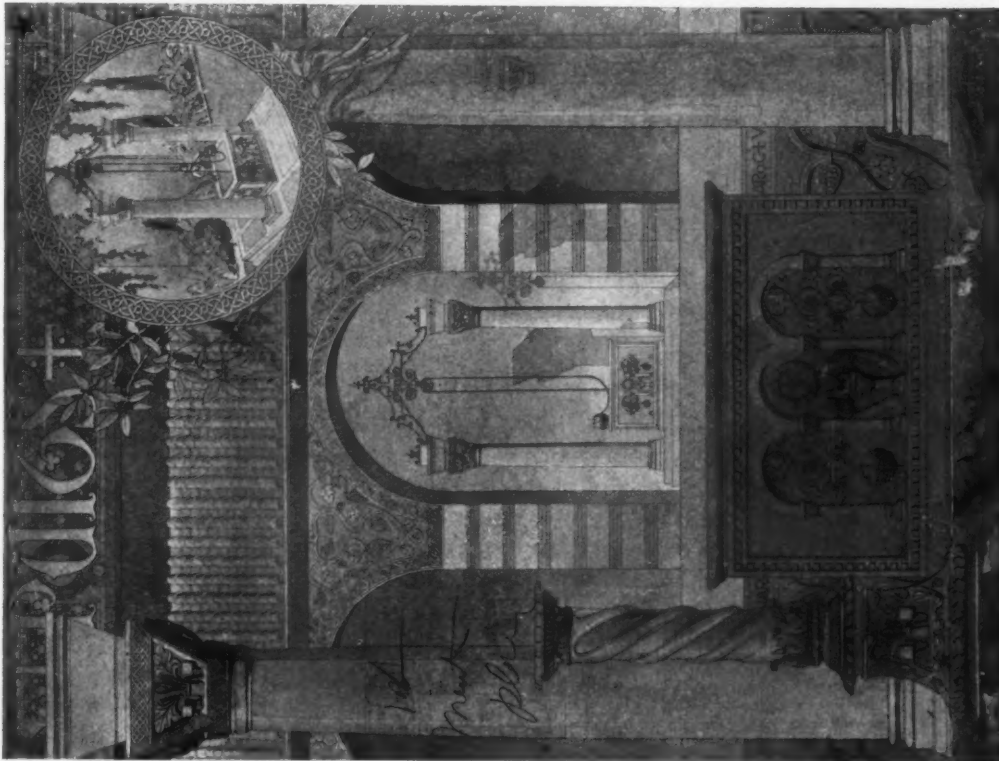


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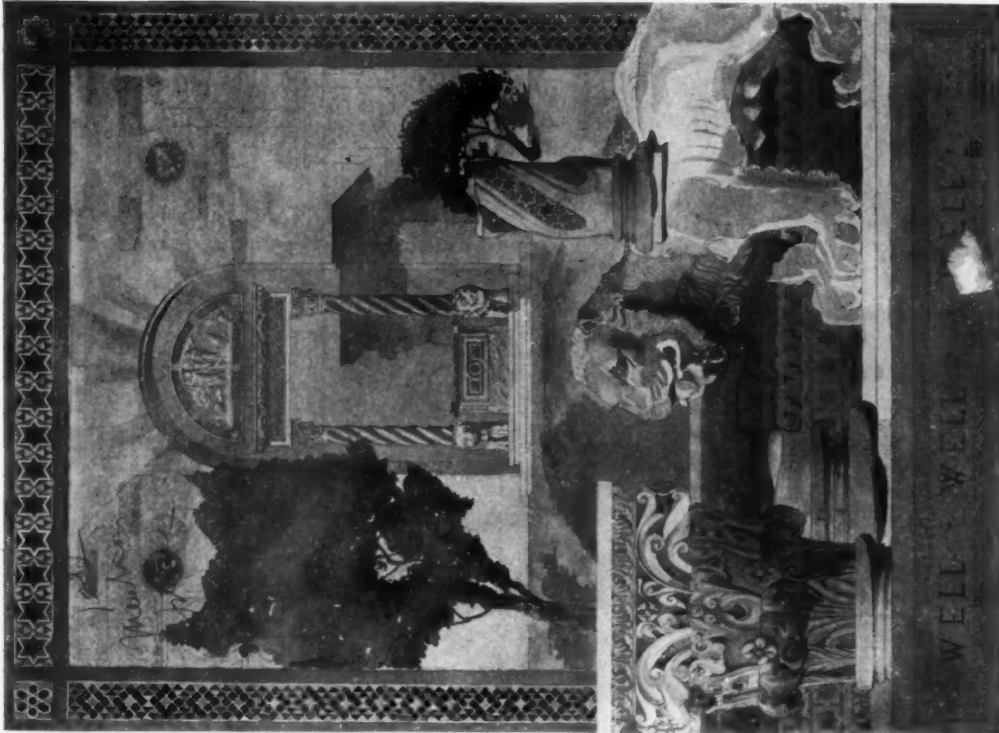
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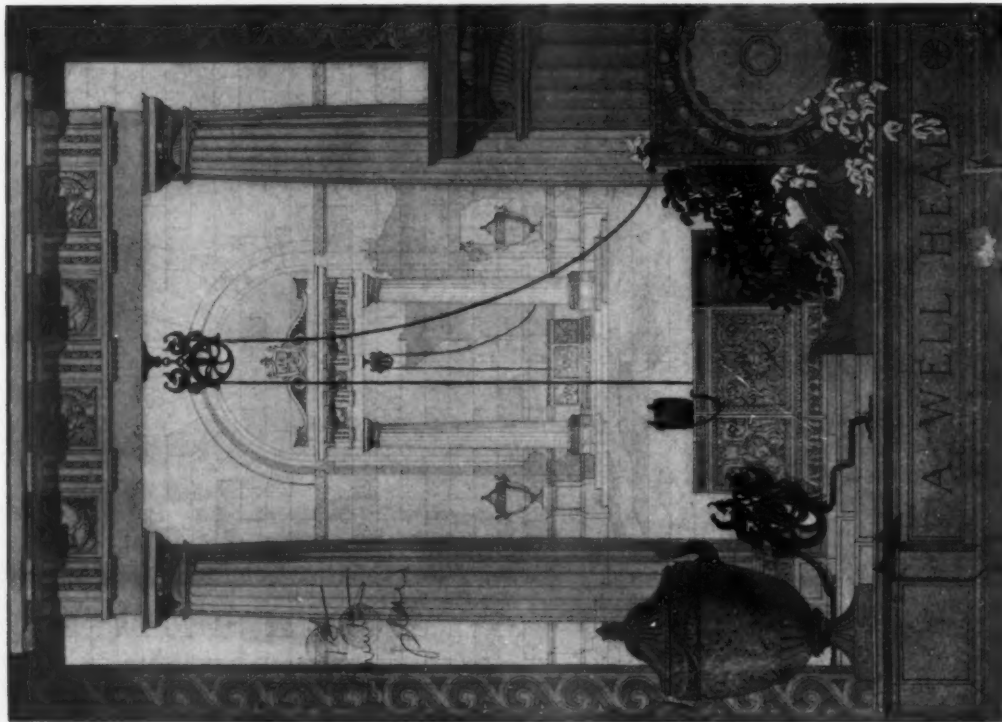


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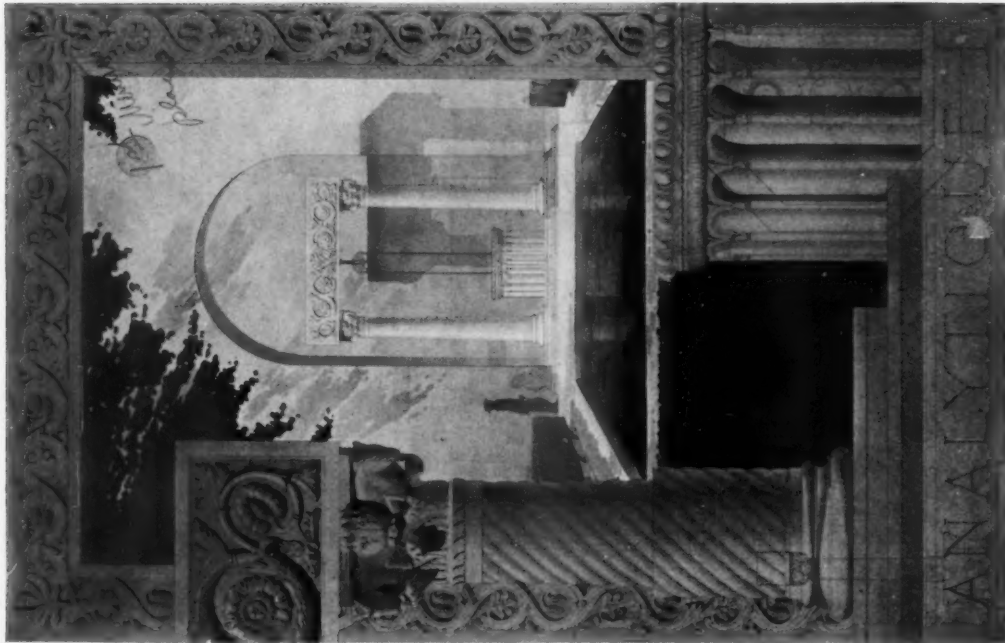
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ECONOMICS *as* RELATING to ARCHITECTURE

Economic Factors Which Underlie Construction Activity—Prepared for
THE AMERICAN ARCHITECT by the American Chamber of
Economics, Incorporated*

THE building industry is confronting what appears to be the most active Winter in its history. A mild, open December in most sections of the country, a desire to begin 1924 construction in the inactive months when labor is in better supply and when materials are more readily accessible as well as cheaper, and the insistent demand provided by the remaining construction deficit, all account for the notably heavy volume of contracts awarded at this season of the year. The total amount of new building begun in November in the twenty-seven states covered by the F. W. Dodge Corporation declined only about 10 per cent in contrast with October's remarkable achievement, and the normal seasonal decline for the month is nearer 18 per cent. This extraordinarily heavy movement at this season of the year explains the large volume of new building projecting above the normal line in the accompanying chart. The statistical series used in the construction of this chart have been corrected for long-time growth and seasonal influences.

The volume of contracts awarded in November broke all previous records for that month in the industry's history. November, 1923, exceeded the same month last year by about 19 per cent. Complete statistics for the year are not available at this time, but new construction started during the

past eleven months in 1923 exceeded building begun in a corresponding period in 1922 by more than \$100,000,000. The old year, 1923, has every prospect of being a record year by a comfortable margin. Projects "on the boards" and in various states of contemplation are still very heavy, November's contemplated jobs running some 4 per cent ahead of October's whose totals were already in the half-billion-dollar area. Fur-

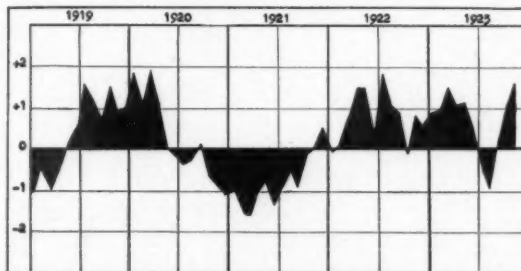
thermore, November permits in 176 cities, according to Bradstreet's, are more than 22 per cent ahead of last year, suggesting strongly that contracts awarded in December will approach a record volume. The volume of building begun in December, according to our ten-year average, falls usually about 10 per cent below November, and January about 4 per cent under December. It is a fact significant of the intense demand now supporting the building industry, however, that these

seasonal variations are being accorded little recognition and acknowledgment this Winter.

THE DEFICIT AND "A WARNING"

The building industry, then, cannot escape an exceptionally active Winter, and the same forecast holds true for the Spring. The degree of activity in both seasons, however, can be foretold only by the weatherman. The continuance of a mild season of clement weather would very probably result in heavy building throughout January and February. An early Spring, likewise, may be expected to herald in a seasonally early surge in new construction. A harsh turn in the weather's rigor and severity, on the other hand, will tend to depress the volume of new construction

VOLUME OF CONSTRUCTION



The statistical series used in the construction of this chart have been corrected for seasonal influences and long-time growth, but not for price inflation and deflation. The statistics were supplied by the reports of the F. W. Dodge corporation. The effect of mild weather, slightly lower costs, and the insistent demand provided by the construction deficit is clearly shown by the height of the black area above the normal line for November, 1923. The outlook suggests a heavier than normal volume of building for the months immediately ahead

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*The American Chamber of Economics conducts a consultation and educational service for executives, in economic principles. Its Supervising Director is George E. Roberts, Vice President of the National City Bank of New York. Co-operating with the Chamber are James B. Forgan, Chairman of the Board of First National Bank, Chicago; Frank A. Vanderlip, Financier and Economist, New York; Samuel Insull, President, Commonwealth Edison Company, Chicago; Joseph H. DeFreese, Ex-President, United States Chamber of Commerce; Henry S. Pritchett, President, Carnegie Foundation; Edward J. Nally, Managing Director, International Relations Radio Corporation of America.

begun and discourage the starting of new jobs until weather conditions are more favorable. Enough contracts have been awarded already to carry the industry on almost full-time operations well past the first quarter of the new year.

The deficit in new building sustains its pre-eminence as the chief and most potent influence behind the industry's progress today. Its significance is still considerable. Its ultimate strength and resourcefulness remain a colossal enigma. Its longevity is lost in the heavy, smoldering folds of conjecture and estimation. Various and interesting ventures as to the deficit's importance and power have appeared. *Trade Service*, a conscientious and reliable student of economic trends, published by The Standard Statistics Company, writes that "fully five billion dollars have been expended in new construction in 1923—an increase of 25 per cent over the 1922 figure, which has set the previous record mark for building construction in the United States. Despite this record in 1922 and 1923, fully eight billion dollars of further construction, it is estimated, will be required to make good accrued deficits of recent years."

In many sections it is the observation of diligent students of the situation that considerable building remains to be done, but that the types of structures in demand vary with the locality. In one city, for example, space in new office buildings seems in ample supply. In another locality that is not true, but a sufficiency of, say, the better class of apartment houses exists, which is not the case in the first city. A great deal of "evening up" or equalization of the types of construction has yet to be accomplished before the supply of new structures can be said to have struck a balance with the prevailing demand. Now there appear to be some classes of buildings in which the scarcity is more general and widespread in its application than is probably true in other types, and these are mainly public buildings, educational buildings, the low-rent apartment houses, and the medium to low-priced dwellings. Indeed in these classifications the intensity of the demand varies with the locality, and the need for any one, with the possible exception of public building, might not be termed general as applied to the country as a whole.

Adequate statistics do not exist upon which an architect may base an opinion as to the exact degree of influence which the present scarcity in new buildings will have upon the future activity of his trade and upon wages, prices and profits. Each must resort to his own estimation, and in making his calculation the architect should realize that the prevailing deficit draws its vitality from two sources, first, the accrued insufficient building during the war period, and second, a shifting standard of living, which in good times tends to make existing shelter inadequate, and in

hard times tends to render it either satisfactory or too expensive to maintain. It is readily seen that the strength and significance of these two influences submit themselves only to approximation.

Bankers, as a rule, are careful and diligent students of the economic situation, and the "note of warning" sounded at the annual meeting of the Investment Bankers Association in Washington recently should receive the serious consideration of every architect, who, for his own satisfaction or in order that he may the better advise lay builders, is making a survey of the twelve months immediately ahead. "Your committee," the Association reports, "is not attempting to prophesy whether the high level of building costs will remain where they are, advance, or recede; nor does it predict the duration of the present period of building activity. There are, however, unmistakable signs that many cities now have no housing shortage and that others have overbuilt. It is thought, therefore, that it is time to utter a word of caution to those who have not been in the real estate securities business long enough to have lived through periods of over-expansion in this field." The feeling that the building situation is entering its most speculative and tricky stage is apparently gaining currency.

RENT, YIELDS AND THE INDUSTRIAL OUTLOOK

There are other factors—most all of them dependent upon or subordinate to the construction deficiency—which make building at this time attractive. Rents everywhere are high, and in many instances they are still increasing. Their trend indicates strongly that the supply of building is not equal to the demand. In using rents as an index of the equalization of supply and demand, however, it must be borne in mind that rents, like wages, descend very slowly, and that their decline will probably not materialize until some time after over-expansion has been an actual fact. The immediate outlook favors a strong tendency in rents, but remoter prospects support the feeling that some ultimate readjustment is not far removed. Again, there is the relatively active market for new construction and improved property to allure the contemplating builder with quick turnover and high prices. This market apparently passed the peak of its intensity in 1923, and the prospective builder who is coaxed by its enticements will probably find that he has yielded to factors of only temporary brilliance. Once the deficit disappears the radiance of rents, rapid turnover and high prices of improved property will fade.

One influence which may do more than any other factor to prolong the life of good times in the building industry is the prosperity of general business. Industrial conditions since October have been improving and the outlook for 1924 indicates the maintenance of the present volume

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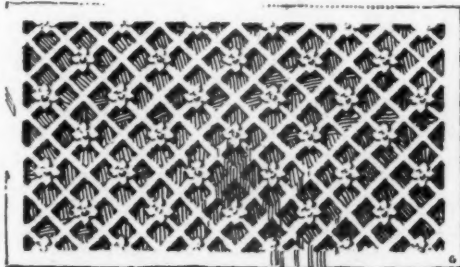
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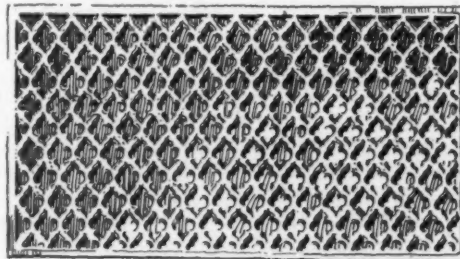
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Originally the top portion of this Ferrocraft Grille was used for a cold air return on a warm air system. When it was replaced by steam, the bottom grille was added to insure circulation, and a radiator placed in the recess. A curved metal, asbestos covered deflector was placed over the top of the radiator as an insulation, and to throw the heat out with all velocity possible. The results proved entirely satisfactory.



Ferrocraft Grille Number 8, one of the 500 Standard Designs for which we have half a million dollars worth of hand tooled patterns in our vaults.



Standard Design Ferrocraft Grille Number 258. Do not for a minute confuse these Grilles with the usual foundry ornamental iron castings, having a machine chipped finish. All Ferrocraft Grilles are hand tooled by honest crafters.

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of business at reasonable profits. Some increased and in some instances extra dividends have furnished concrete evidences of earning ability in the prosperous industries, as well as to afford an idea of what prominent industrial directors think of the immediate future. Furthermore, the building industry is again leading in the reawakening from the industrial lethargy of the late Summer and Autumn months. The industry has shown distinct signs of prosperity, which will mean sustained activity in all kindred lines. Other basic industries, such as iron and steel, automobile, oil and railroad equipment have been revealing unmistakable evidence of an early if only moderate revival. Moreover, the political situation, which has been dark and uncertain for so long, has begun to clarify itself under the able leadership of President Coolidge, along lines coinciding with the precepts of sound economic doctrine. Finally, money rates have been moving seasonally weaker, a trend entirely favorable to heavier industrial activity in the Spring. Now all of these economic tendencies and events have been productive of a more elevated type of industrial feeling, and stock prices, reflecting the plane of prevailing confidence, have opened the year at new high levels in their present movement.

Any pronounced rise in the barometer of business, stock prices, should be accepted as presaging the industrial future with some reservations. There are three weaknesses in present economic conditions which continue to exert a repressive effect upon business, confining its growth and development to limitations already defined by its advance. The first of these is the spotty character of the present prosperity. Good times, as they exist today, center chiefly about such industries as iron and steel, automobile, railroad equipment, and building and construction. Such lines as leather, copper, farm equipment, live stock, agriculture, chemicals, coal, paper, tires and rubber are sluggish and slow. The petroleum industry is gradually working out of this latter group, and while the general tendency of all has been in the direction of improvement, the pace has been snail-like. A second weakness is the prevailing lack of balance between the exchange values of various commodity groups. The price index of building materials, as reported by the Bureau of Labor, for example, was 181 in November, while the index for a miscellaneous group including hemp, jute, rubber, leather and paper was 118, a range of 63 points. A range of the maximum and minimum groups in 1914 was 18 (using average prices). In 1915 this spread has been increased to 46, and by 1920 the old pre-war relationship had been stretched beyond recognition, the range having reached 103 points. The trend during 1923 happily has been toward equalization and the spread during the eleven

months has been reduced from 94 to 83 points. This equilibrium in the purchasing power of various products will return to its normal balance as the present prosperity comes to be shared with more and more industries. Finally, increases in incomes have been very unevenly and inequitably distributed among the classes of the community. As far as the income of individuals is concerned, most of the benefits which have occurred since 1922 have favored the organized laborer and the owners of the more prosperous industries. The increases in the purchasing power of salaried men, farmers and owners of the less fortunate industrial enterprises stand out in bold contrast. This discrimination in buying power need not excite apprehension as to the rate of consumption of consumers' goods, provided employment continues heavy; but it is difficult to see how such checkered buying power can support a rising price level.

The outlook does not favor much of a decline in commodity prices either, for easy money, comparatively light inventories and inelastic costs will all militate against any pronounced decline in commodity quotations. A sidewise movement, with a slight upward trend, is the prospect. Employment, according to the Federal Reserve Board's new index, is full, but the tendency is slightly downward suggesting a possible seasonal decline. Wage costs, on the other hand, are increasing, enlarging the degree of maladjustment already existing between the incomes of the various classes of the community. Mr. Mellon's plan of tax reduction will, if adopted, afford great relief in one element of cost, and will provide a generally needed impetus to business. Credit is in good supply and the banking situation is sound and strong. Money rates are soft, and will probably decline until Spring buying creates a greater demand for funds. Meanwhile, the money market constitutes one of the staunchest supporters of higher prices and a heavier volume of business.

COSTS SLIGHTLY LOWER

Recent increases in wage scales have not been of sufficient potency to offset the effect of weaker materials markets, and the cost of building has declined fractionally. This movement, slight as it has been, is obviously contrary to underlying trends, and the immediate prospect favors very little, if any, further reduction. A more remote outlook suggests an upward trend of costs just before Winter breaks.

Materials prices moved from a relative of 182 down to 181 in November, according to the Bureau of Labor. At this level materials quotations are at the lowest point of the year, 10 per cent under the 1923 peak and about 17 per cent above the 1922 low. The markets are reported to be active for this season of the year, and although

Construction in 1924

SOUND, well located building projects, designed and erected with all the efficiencies and economies obtained through financing under the STRAUS PLAN, will amply profit their sponsors in 1924. The demand for offices and apartments and residential hotels of the better type is far from fulfilled.

We are in the market for construction loans in amounts of \$250,000 upward, as well as loans on modern completed buildings. We suggest that you make yourself conversant with the STRAUS PLAN of financing—a new booklet is ready for the asking.

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declines have been experienced by all of the major groups of materials, except structural steel, the movement has not been as severe as is customary at this season. A well sustained and active demand has held prices comparatively firm, and stocks are low. Spring buying will probably occur simultaneously with increased demand within the industry, and it is likely to be further augmented by brisk purchasing for Japanese account. The immediate outlook may tolerate a few more fractional declines, especially if the Winter is a severe one, but remoter prospects promise a rising level of prices.

Lumber has again revealed weaknesses. Production is running heavier than normally, and during the past four weeks shipments, which have been declining, are 89 per cent of production, with orders heavier and running about 94 per cent of production. The composite price, reported by *The American Contractor*, has consequently dropped from \$33.11 to \$32.33. Further weaknesses may develop before Spring, but the decline is not likely to be material.

The Common Brick Manufacturers Association reports 307,000,000 burned brick on hand November 1, compared with 308,000,000 a month earlier. The slight decline is explained by the fact that many plants are closing down for repairs and because of seasonal conditions. Furthermore, bookings are reported to have decreased about 8 per cent, during the last 30 days. The market has not been firm and the composite price published by *The American Contractor* has sagged from \$16.67 December 1 to \$16.31 on December 15. Further declines are probable, but the remote outlook is one of strength.

Structural steel has been in good demand, with prices firm and unchanged. Production of steel ingots declined some 400,000 tons during November, but the heaviest recession in output appears to have been in other than structural lines. An outlook for fairly heavy Winter building warrants the opinion that the good ordering of structurals will retain the present volume and that recession in prices, if any, will be moderate.

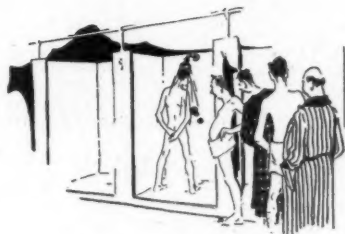
Production of cement began its customary seasonal decline in November, accompanied by a sharp drop in shipments and a consequently acute advance in stocks. Dealers' inventories of cement, however, are not heavy and demand has been fairly brisk. Only a slight recession has occurred in prices but with the rigor of Winter still ahead more slight declines are in prospect. The market's longer term outlook, in common with all other materials is strong.

Wages persist in their advance. During November the recession in bonus payments contin-

ued, but new agreements made during the month reflected an upward tendency. *The American Contractor* reports twenty-five changes for November, 22 of which were upward and 3 downward. Employment continues full, and every available craftsman has a job. A recession in wages is a remote possibility. Spring activity, unless handled very dexterously, will convert full employment into a labor scarcity, and if demand is again given free rein the industry will once more take up bonus payments. Much also depends upon the trend of the cost of living. If this rises, discontent with present agreements may be expected to spread, resulting ultimately in struggles between employer and employee. Heavy Winter building is doing more than any one other thing to avert these controversies, and will succeed in a large measure, especially if the Spring volume of awarded contracts is not allowed to overburden the industry.

Mortgage money is slightly easier in supply, although rates have not changed perceptibly. Bankers have not revised their strict policy in regard to construction loans nor are they likely to until a readjustment has been made in the costs and valuations of improved property. Fear of ultimate depreciation in these high values makes both investor and banker wary about the assumption of present high-priced risks. A concise statement of the banker's attitude is to be found in the reports of the annual meeting of the Investment Bankers Association in Washington, where the subject of real estate mortgage bonds was given serious consideration. The following remarks are of interest:

"Your committee is strongly inclined to the belief that in view of the fact of greatly increased building and labor costs of recent years it would be most inadvisable to recommend a departure from the conservative rules which have governed the investment of savings bank and trust funds and have been the practice by conservative lenders of long experience. The great majority of the committee, therefore, believes that 50 per cent of present costs should be the standard, with 60 per cent as the maximum. In arriving at this conclusion we are not unmindful of the viewpoint of those who maintain that with the application of modern methods, rapid social reductions in principal, periodical deposits of income, and with the added watchfulness of the investment dealer, a higher percentage may be loaned on first-class income producing property with safety. This could only be countenanced, however, if the investor is compensated for the added hazard by way of an interest return above the normal and knows what he is actually getting as security."

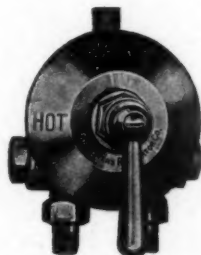


**They Stood in line
at the Union League Club**

The showers of this prominent Chicago club were formerly equipped with ordinary mixers. The management decided to test the Powers Mixer on one of the showers. Members say that the men quickly found out that it did all we claim for it and actually stood in line to use it.

Some Recent Installations

Illinois Athletic Club, Chicago, Calumet Country Club, Homewood, Ill., Big Oaks Golf Club, Chicago, Postl's Health Club, Chicago, Frank Carsey Health Club, Cubs Ball Park, Chicago, Lake View Golf and Country Club, Port Credit, Canada, Cleveland Athletic Club, Evanston Golf Club.



Style A
For Exposed
Piping

The Powers Shower Mixer

Comes in 4 styles. For exposed and concealed piping. Made of solid brass with nickel plated dial and handle. It is ruggedly built and has no delicate parts to get out of order.



Has this ever happened to you?

Have you ever been cheated out of a pleasant, enjoyable shower by a sudden, unexpected "shot" of cold or scalding hot water? This menace to your complete enjoyment of a safe and comfortable bath is eliminated by the Powers Shower Mixer.

30 years of Specialization in temperature control behind this Mixer

The Powers Shower Mixer is different from all other mixers. Turn the handle of the ordinary mixer to "Warm," and if cold water is drawn from nearby showers, faucets, flush valves, etc., the reduced pressure on the cold water line allows a "shot" of hot water to reach the bather. Ordinary mixers give no protection against changing water pressures.

How the Powers Mixer Works

A simple all-metal pressure balancing valve instantly equalizes the pressure of hot and cold water before they enter the mixing chamber, so that regardless of pressure changes, a Powers Mixer always holds the temperature of the water right where you want it.

Bul. 154 gives full information and roughing-in dimensions. May we send it?

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THE AMERICAN ARCHITECT AND THE ARCHITECTURAL REVIEW has gratuitously set apart this section for use by The American Specification Institute. The Editors and Publishers assume no responsibility for any statements made, or opinions expressed.

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 OF SPECIFICATIONS FOR MECHANICAL VENTILATION SYSTEMS

Serial No. 93

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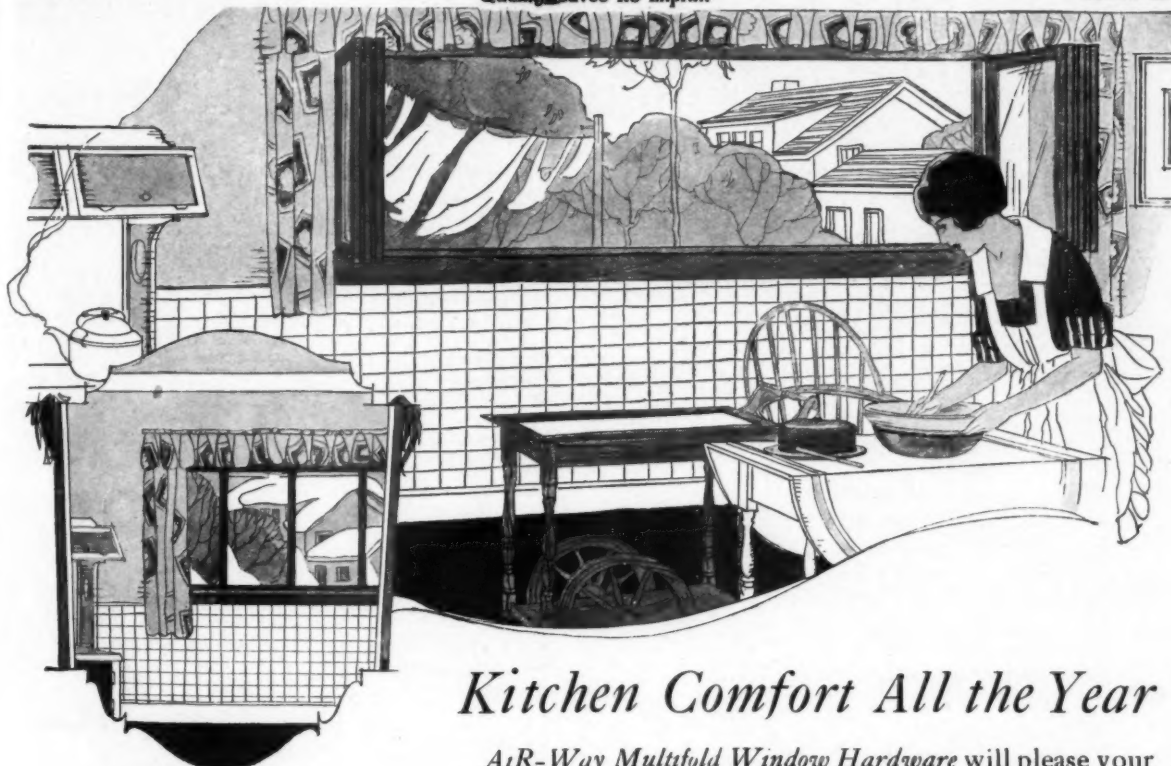
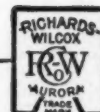
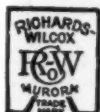
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Kitchen Comfort All the Year

AiR-Way Multifold Window Hardware will please your clients, because it brings all the comfort of grandmother's outdoor summer kitchen to the modern home. *AiR-Way* equipped windows enable them to quickly convert a hot, stuffy kitchen into a pleasant, breezy porch.

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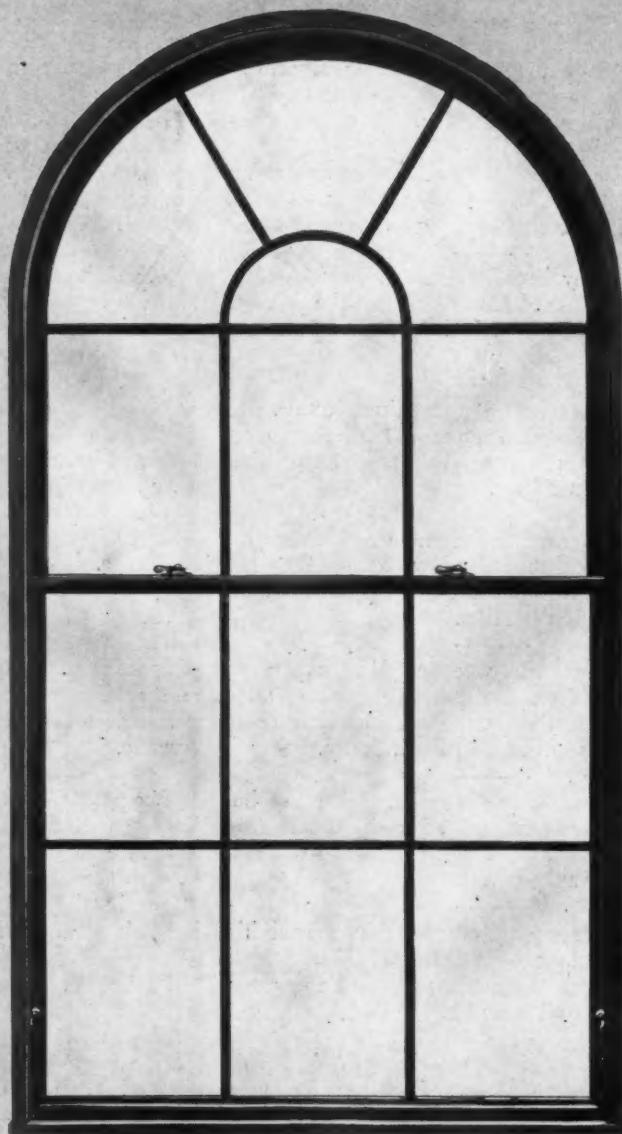
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ANACONDA ARCHITECTURAL BRONZE



INTERIOR Elevation, Bronze Window, Federal Reserve Bank, New York.

Architects: Trowbridge and Livingston, New York.

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Anaconda Extruded Bronze supplied by The American Brass Company.

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PERSONALS

Announcement is made that Hallam L. Movius, landscape architect, has established his Boston office at 11 Beacon Street.

E. L. Robertson and L. R. Patterson, architects, announce the opening of their office at 310-311 Calumet Building, Miami, Fla.

It is announced that Henry H. Gutterson, architect, has moved his office from 278 Post Street to 526 Powell Street, San Francisco, Cal.

J. L. McCauley, architect, has moved his offices from the New York Building to the Alaska Building, Seattle, Wash. A. A. Geiser is associated with Mr. McCauley.

Gerald Lynton Kaufman, architect, announces the removal of his offices from 331 Madison Avenue to the Pershing Square Building, 1 Pershing Square, New York City.

Wm. Tallman, architect, announces the removal of his office from the Winslow Building to the second floor of the Decorative Shop, 271 Union Street, New Bedford, Mass.

Thomas Gannett Holyoke and Magnus Jemne have withdrawn from the firm of Holyoke Davis and will continue the practice of architecture at 649 Endicott Building, St. Paul, Minn.

It is announced that Leslie H. Allen has become associated as partner and business manager with Russell Barr Williamson, architect, 405 Broadway, Milwaukee, Wis.

Morris W. Maloney, architect, has moved his office from 145 Chestnut Street to 23 Pearl Street, Springfield, Mass. Manufacturers are requested to send catalogs and samples.

David J. Myers and James H. Schack, architects, formerly of 26 Lippy Building, are now associated under the firm name of Schack, Young & Myers, 636 Central Building, Seattle, Wash.

Edward L. Gahl, architect, has moved his office from the Ione Building, Guthrie, Okla., to 409 Southwest National Bank Building, Oklahoma City, Okla. Manufacturers' catalogs and samples are requested.

E. G. and C. J. Kaltenbach have opened an office at 201 Board of Trade Building, Wheeling, W. Va., for the practice of civil and architectural engineering. Manufacturers' catalogs and samples are desired.

Clarence E. Wunder, architect and engineer, announces the removal of his offices from 1415 Locust Street to 1520 Locust Street, Philadelphia, Pa., where he has leased the tenth floor in the modern office building recently completed.

Ellsworth V. Holden, William R. Ferris and Asa B. Cross Barnes announce the formation of a partnership for the practice of architecture under the firm name of Holden, Ferris & Barnes, 1016 Baltimore Avenue, Kansas City, Mo.

Alexander B. Trowbridge, architectural adviser, announces that he has opened offices in the Bowery Savings Bank Building, 110 East Forty-second Street, New York City, where his practice will be strictly limited to consultation service.

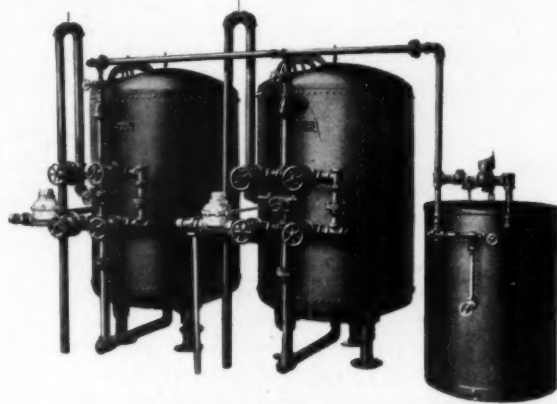
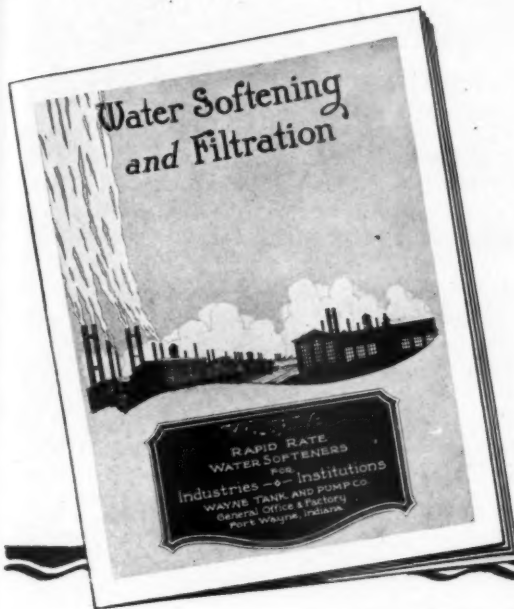
Announcement is made of the dissolution of the architectural firm of Corwin & Merrill. H. G. Corwin has opened his offices at 129 West Washington Street, Los Angeles, Cal., where he will be pleased to receive any late building literature.

Henry S. Lion, architect, 75 West Forty-seventh Street, New York City, has moved to temporary offices at 205 West Thirty-ninth Street, and announces that he will be located later in permanent and larger quarters at 501 Seventh Avenue.

The partnership of Vosbury & Kaley, architects, has been dissolved. Lester J. Kaley has moved his office to his home on Chenango Street, and C. Edward Vosbury will continue to occupy the offices in the Binghamton Savings Bank Building, Binghamton, N. Y.

Parker, Thomas & Rice, architects, 1109 Union Trust Building, Baltimore, Md., announce that on January 1 they admitted D. K. Este Fisher, Jr., to partnership in the firm, which now consists of J. Harleston Parker, Arthur Wallace Rice, R. E. Lee Taylor and D. K. Este Fisher, Jr.

Theodore C. Link, F. A. I. A., who designed the St. Louis Union Station, the Washington University medical buildings and several of the buildings at the Louisiana Exposition in St. Louis in 1904, recently died of pneumonia at Baton Rouge, La., at the age of seventy-three years. Mr. Link was supervising the erection of a group of buildings for the new Louisiana University and Greater Agricultural College at Baton Rouge. He maintained an office in the Chemical Building, St. Louis. He was born in Germany and educated at Heidelberg, London and Paris.



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The Wayne *rapid rate* Water Softener is economical to buy and to operate. It is compact and easily installed.

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For the information of the purchasers of Wayne Water Softeners or those of any other make, particularly such purchasers as those who have been threatened with suits to recover royalties, Judge Arthur J. Tuttle in the United States District Court at Detroit on November 8th, 1923, found the Gans patent No. 1,195,923 to be void. This is the patent which one of our competitors claimed to be infringed by all zeolite water softener manufacturers.

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THE OPEN SHOP

AT the recent "American Plan" Open Shop Conference, held in San Antonio, Texas, the open shop was defined, as follows:

Since the interest of the general public is of supreme consideration in all industrial as well as political matters, the rights of no class, faction, or party can be permitted to interfere with the greater public interest.

No man should be denied, or have abridged or interfered with, his right to secure and retain employment in any trade or calling on account of his affiliation or non-affiliation with any labor organization. The right of an employer to hire or dismiss employees should not in anywise, directly or indirectly, be interfered with. Nor should the employer hire exclusively employees of any one class and thereby purposely discriminate against employees of the other class.

Nothing should be done either by the employer or the employee to limit in any way the right of the American youth to learn any calling or enter any business.

The adoption of the open shop, as defined by the foregoing principles, would in the opinion of the conference, redound to the immediate and the great economic benefit of the American people and give all employees equal opportunity for fair wages and proper working conditions; and to employers, reasonable conditions of business conduct.

The open shop has not for its purpose, it was stated, the reduction of wages, the lengthening of hours of employment, or the lowering of the standards of employment, or any other oppression of labor. On the contrary it stands essentially for freedom of employment relations with the fullest protection of the workman in his wages, hours of employment, and proper working conditions of health and safety.

BUILDERS LECTURE THE EDUCATORS

CONSTRUCTION interests performed a distinct service to the building industry in Buffalo, New York, on December 6, by outlining all factors involved in apprenticeship training to the industrial section of the Society for Vocational Education, states *The American Contractor*.

Hundreds of teachers, educators, and representatives of school boards listened carefully while the needs of the building trades' apprentice were discussed from every angle. Contractors, material dealers, manufacturers, union representatives, apprenticeship directors, architects, and others gave frank criticism of academic methods and constructively outlined the specific problems confronting vocational education in the trades.

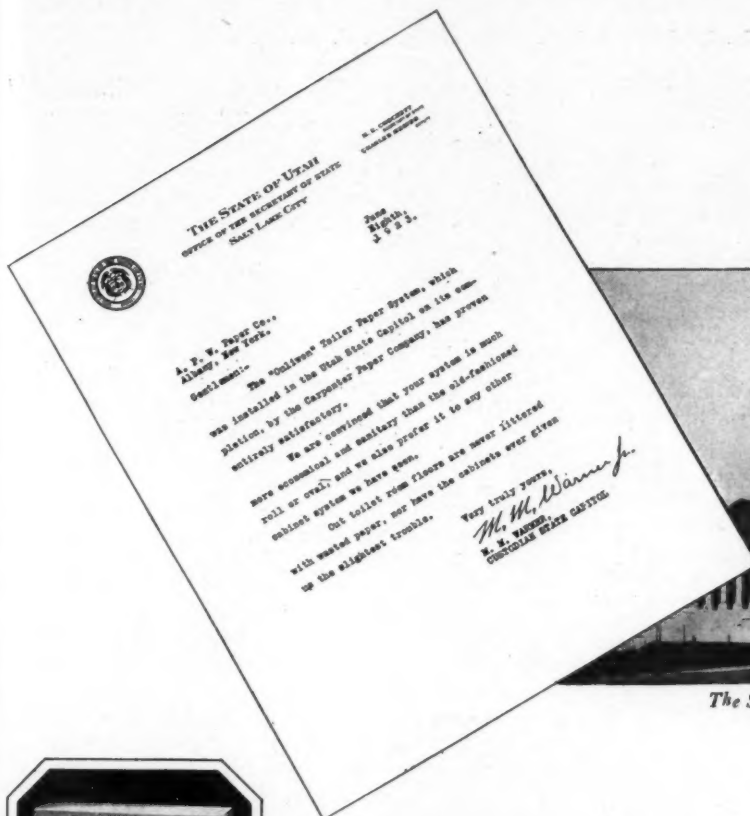
Much good will eventually come from this active co-operation. Many obscure points which it is necessary to know were dragged out to the light of day and examined in a practical manner. Accounts of success and failure, presented in constructive form, of various apprenticeship training attempts gave all of the listeners better ideas as to ways and means to overcome the difficulties involved in many intricate problems.

Both educators and construction interests are to be congratulated on their attempts to co-operate with each other. That the results will be far reaching is easily appreciated when it is understood that the delegates to the convention will return to practically every state in the Union with fresh ideas and a more complete grasp of the apprenticeship problem.

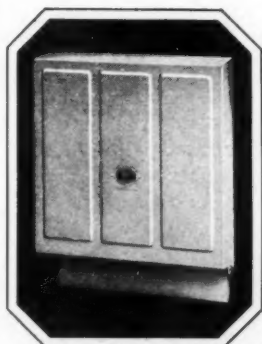
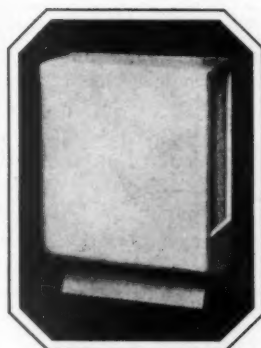
THE ROLL OF SHAME

ENGINEERING NEWS-RECORD comments editorially on that part of the recently issued report by the Bureau of the Census, dealing with fatal motor car accidents. It is stated:

Statistics of the motor car killings in the big cities of the country in 1922, recently issued by the Bureau of the Census, show that the evils of excessive traffic are increasing. For the seventy-two cities over 100,000—counting each borough of New York City as a city—the average deaths from automobile accidents per 100,000 population was 16.2 in 1921 and 16.9 in 1922. In fifty-two cities the number of deaths increased and in twenty they decreased. The worst offender continued to be Los Angeles, which not only topped the list with 29.5 deaths per 100,000 but exceeded its own record killing of 1922 by 2.4, dropping only slightly below its rate of rise of 3.0 for each of the preceding three years. Two smaller cities, Camden and Memphis, came next, but they apparently had bad years, for their prior records were not so high. The same is true of Atlanta and Baltimore which are fourth and fifth, with the same rate of 24.7. Low rate cities—below 14.0 and consistently so—are Albany, Fall River, Indianapolis, Jersey City, Milwaukee, New Orleans, Bronx and Queens boroughs in New York, Omaha, Philadelphia, Portland, Ore., Richmond, Va., Seattle, and Spokane. There is something more than coincidence in the continued high or low rate of automobile killings in a city. A visit to the two cities and a knowledge of their people tell in themselves why Los Angeles is the biggest killer and Philadelphia among the smallest. Fair traffic rules honestly observed and rigidly enforced may not save all the lives that are being lost from the coming of the automobile, but they will save many. The cities who top this roll of shame must sooner or later come to see it.



The State Capitol, Salt Lake City, Utah

Onliwon towel cabinets
are furnished in white
porcelain, nickel silver,
white enamel or gun
metal finish.Onliwon toilet paper
cabinets are made in
white porcelain, nickel
silver, white enamel or
gun metal finish.

Onliwon Stops Waste and Litter

When the architect includes Onliwon service in his plans and specifications, there is one marked advantage, brought out by the above letter, which will be well worth while mentioning to his clients.

Onliwon Towel and Toilet Paper service is used in the State Capitol Building in Salt Lake City, Utah with entire satisfaction. This installation is typical of the fine type of building throughout the country in which Onliwon is standard equipment.

Let Us Prove It —

A. P. W. Paper Co., Albany, N. Y.

Gentlemen: I am interested in a toilet paper and paper towel service that is at the same time the most economical and the most satisfactory. Please have your salesman call, without obligation to me.

A9

A.P.W. PAPER CO. ALBANY N.Y.

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

HOUSING FOR GOVERNMENT EMPLOYEES IN
BRAZIL

A LAW was recently passed by the national Congress of Brazil providing for the erection and purchase of dwelling houses for federal government employees and laborers, and also for officers of the Brazilian army and navy. This law authorizes the Government to construct not more than 5,000 residences. The cost of each is not to exceed 10 *contos*, or approximately \$1,400 at present rate of exchange.

Easy payments, in monthly instalments, that may extend over a period of 15 years, are provided for. Instead of accepting a residence, the government employee or laborer may apply to the Government for a loan to build his own dwelling if he possesses real estate to offer as a guarantee. Officers of the army and navy, as well as government employees, may also obtain financial assistance from the Government for the purpose of purchasing or building residences. In this case the loans are granted by the Government in accordance with the amount of the pension to which the applicant may be entitled at the time of his request.

The Government is authorized to negotiate a loan of 30,000 *contos* (about four million dollars at the present exchange), issuing the necessary number of bonds to obtain the funds required to carry this law into effect.

AN EARLY ROMAN TEMPLE UNEARTHED IN SYRIA

A SPECIAL correspondent to the *New York Times*, writing from Beirut, Syria, states in part that the success which has attended the excavations at Jebel has stimulated archaeological research throughout the coast strip that was ancient Phoenicia. Here and at Tyre, Sidon and Tripoli discoveries of varying degrees of interest have been made.

Most, if not all, of the discoveries made here belong to the Roman period. In and around the town several cave tombs were found. These are long cuttings from which open out chambers large enough to contain a sarcophagus, or sometimes simply an uncoffined body when even an earthenware sarcophagus could not be afforded.

In one of these caves may be seen besides these little chambers the remains of a Roman temple

which is affirmed to have been raised in honor of the Virgin Mary. In another newly found cave there were six chambers, three of which contained earthenware sarcophagi. In the others were nothing but the remains of corpses. This cave was apparently devoted to the burial of the poorer classes.

Apart from an Ionic capital, hastily executed, a marble slab bearing in Roman type the letters H. D., some glassware and three lamps of poor construction, the chief interest of this discovery is that the cave may mark the site of a series of Roman sepulchres.

Besides this cave a leaden sarcophagus, as well as the remains of what may be a Christian church, has been found. The leaden sarcophagus is very well preserved, except at its base, which suffered from contact with the earth. On the lid there are two rather crudely chiseled Gorgons, while around the rectangle formed by the sides is a frieze. On outer sides of the sarcophagus at the head and feet are also two Gorgons, and on the longer sides are two small lions as well as a decoration in laurel leaves.

In the cave where this sarcophagus lay there was found a seat of ordinary stone of the locality representing two paws of lions joined together. No inscription has been found, but from the character of the rough sculpture and of the stone seat it may be assumed that this sarcophagus belongs to a Roman period. As to the church pillars, whole and in fragments, a capital in acanthus leaves, a second octagonal capital, and other remains have been found, but the outstanding feature is a lintel showing an angel standing clothed in a robe reaching down to the feet and showing the contour of the breast. Its wings are folded. There are no inscriptions on this lintel.

A comparison between the stones of this church and those of St. John's Cathedral (the Grand Mosque of today) established the Roman character of the stones and of the columns.

REGIONAL MEETING OF THE A. I. A.

ON February 13, the New York Chapter, Brooklyn, Central New York, Buffalo, New Jersey, Connecticut and Philadelphia Chapters of The American Institute of Architects will hold a regional meeting at 215 West Fifty-seventh Street, New York City.



An Invitation to Architects

THE above is an illustration of a Welte Philharmonic Pipe Organ installed in a town-house built on a conventional, narrow, New York City plot.

Welte Residential Pipe Organ construction accommodates itself to any size, shape or location of space.

Extensive plans and specifications covering every organ building contingency are always accessible to architects, who are also most cordially invited to consult our technicians, freely, pertaining to the installation of pipe organs in private residences.

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REFERENCE LIST OF BUSINESS LITERATURE

A service arranged for the use of the Architect, Specification Writer, and Architectural Engineer.

This list of the more important business literature of Manufacturers of building material and equipment is published each issue. Any of these publications may be had without charge, unless otherwise noted, by applying to The American Architect and The Architectural Review, 243 West 39th Street, New York, or obtained directly from the manufacturers. Either the titles or the numbers may be used in ordering.

AIR CONDITIONING—See also Heating and Ventilation
The Bayley Manufacturing Company, 732-766 Greenbush St., Milwaukee, Wis.

486. *Bulletin No. 23.* This bulletin is descriptive of the Bayley Turbo-Atomizer, the Bayley Turbo Air-Washer and Air Conditioner, for cleaning, cooling, tempering, humidifying and dehumidifying air. It contains an interesting treatise on air conditioning methods together with useful tables and a set of specifications. 32 pp. Ill. 7 3/4 x 10 1/2 in.

ARCHITECTURAL IRON WORK—See also Ornamental Metal Work

ASBESTOS—See also Lumber—Roofing

Johns-Manville Co., New York, N. Y.

372. *Catalog No. 304.* A treatise on the manufacture and uses of Johns-Manville Building Materials made of asbestos and mastic for all places exposed to fire or corrosion. 100 pp. Ill. in colors. Board covers. 8 1/2 x 11 in.

ASBESTOS ROOFING—See also Roofing

The Philip Carey Co., Lockland, Cincinnati, Ohio.

380. *Asbestos versus Fire.* Booklet in colors. Contains information about asbestos; data on Carey Prepared and Built-up Asbestos Roofing; pictures of buildings on which they have been used. 16 pp. Ill. 6 x 9 in.

ASH HOISTS—See also Hoists

Gillis & Geoghegan, 545 West Broadway, New York, N. Y.

329. *General Catalogue.* Contains specifications in two forms, (1) using manufacturer's name, and (2) without using manufacturer's name. Detail in 3/4 in. scale for each telescopic model and special material handling section. Fully illustrated with photographs of actual installations and descriptive matter of same. 20 pp. 2 colors. 8 1/2 x 11 in.

BANK EQUIPMENT

Art Metal Construction Company, Inc., Jamestown, New York.

545. *The Banking House in Art Metal.* A book of bank interiors showing the use of art-metal. It is an illustrated encyclopedia of bank furnishings in bronze and steel. 72 pp. Ill. 8 1/2 x 11 in.

BRICK

American Face Brick Association, 1754 People's Life Bldg., Chicago, Ill.

103. *The Story of Brick.* Contains the history of, and basic requirements of building brick, artistic, sanitary and economic reasons, comparative costs, and fire safety with photographs and drawings, and illustrates ancient and modern architectural works of note in brick. Size 7 x 9 1/2 in. 56 pp.

137. *A Manual of Face Brick Construction.* The history of brick making, types of face brick, showing details of construction for walls, chimneys and arches. Details of use of tile and brick construction and different types of bonds are given. A series of plans and elevations of small brick houses, descriptions, useful tables and suggestions are illustrated and described. Size 8 1/2 x 11 in. 116 pp. Price \$1.00.

155. *The Home of Beauty.* A booklet containing fifty prize designs for small brick houses submitted in national competition by architects. Texts by Aymar Embury II, Architect. Size 8 x 10 in. 72 pp. Price 50 cents.

371. *Architectural Details in Brickwork. Series One, Two and Three.* Each series consists of an indexed folder case to fit standard vertical letter file, containing between 30 and 40 half-tones in brown ink on fine quality paper. These collections are inspiring aids to all designers. Sent free to architects who apply on their office stationery; to others, 50 cents for each series.

454. *Bungalow and Small House Plans.* Four booklets containing plans for attractive small brick houses, containing 3-4, 5, 6, and 7-8 rooms. 50 pp. Ill. 8 1/2 x 11 in. 25 cents each, \$1.00 for the set.

BRICK AND TILE—See also Brick

B. Miffin Hood Brick Co., Atlanta, Ga.

561. *Pottery.* A beautifully prepared and illustrated book and portfolio of work executed with the products of this company. Included are "Riviera" Mission Roofing Tile, "Riviera" Shingle Roofing Tile, Rubble Random Tile and Quarrie Tile for walks, floors and terraces, fireplace tile and Hood Brick. Many of the illustrations are in full color and give an excellent impression of the results attained. Printed on one side for convenient filing. 45 pp. Ill. 9 1/4 x 12 3/4 in.

BUILDING CONSTRUCTION

Cement-Gun Company, Allentown, Pa.

563. *Report on Gunite Walls.* A report of fire tests made by Underwriters' Laboratories on Gunite walls, resulting in giving them a three-hour fire resistance classification. 90 pp. Ill. 6 x 9 in.

Concrete Engineering Co., Omaha, Neb.

347. *Handbook of Fireproof Construction.* An illustrated treatise on the design and construction of reinforced concrete floors with, and without suspended ceilings. The Meyer Steel-form Construction is emphasized and tables are given of safe loads for ribbed concrete floors. 40 pp. Ill. 8 1/2 x 11 in.

Curtis Companies Service Bureau, Clinton, Iowa.

662. *Better Built Houses.* Vol. XIII. This volume contains floor plans and perspectives of 21 two family houses. The designs were made by Trowbridge and Ackerman, Architects, New York, and illustrations rendered by Schell Lewis. Printed in sepia on heavy cream paper. Sent free to architects, east of the Rockies, requesting it on business stationery, otherwise price \$1.00. 24 pp. Ill. 9 x 12 in.

David Lupton's Sons Company, Philadelphia, Pa.

529. *Catalog C, Second Edition.* A catalog of steel shelving with bolted adjustment, also steel bins and racks, utility cabinets, bench legs, bench drawers, tool cabinets and stands, tote boxes, foremen's desks, waste bins, etc., 39 pp. Ill. 8 1/2 x 11 in.

Portland Cement Association, 347 Madison Ave., New York City.

505. *Concrete Floors.—Proposed Standard Specifications of the American Concrete Institute.* Specification with explanatory notes covering materials, proportions, mixing and curing. Plain and reinforced slabs are covered as well as one and two course floors and wearing courses. 18 pp. 6 x 9 in.

Truscon Steel Company, Youngstown, Ohio.

317. *Truscon Floortyle Construction. Form D-352.* Contains complete data and illustrations of Floortyle installations. 16 pp. Ill. 8 1/2 x 11 in.

318. *Truscon Standard Buildings. Form D-398.* Describes Truscon Standard Steel Buildings, with diagrams, illustrations of installations, descriptive matter and list of users. 48 pp. Ill. 8 1/2 x 11 in.

319. *Truscon Building Products. Form D-376.* Contains a brief description of each of the Truscon Products. 112 pp. Ill. 8 1/2 x 11 in.

320. *Modern School Construction. Form D-396.* Contains illustrations of schools, with typical elevations, showing advantages of Truscon Products for this construction. 16 pp. Ill. 8 1/2 x 11 in.

BUILDING DIRECTORIES

The Tablet & Ticket Co., 1015 West Adams St., Chicago, Ill.

517. *Office Building Directory.* Bulletin illustrating and describing directories made by this company providing for any required number of names. Frames of wood or metal with glass cover or doors. Name strips with one quarter inch white letters furnished. Size 7 x 10 in. 4 pp.

BUILDING HARDWARE—See Hardware

BULLETIN BOARDS

R. W. Clark Mfg. Co., 1774 Wilson Ave., Chicago, Ill.

558. *Clark Directories and Clark Changeable Bulletin Boards.* Two pamphlets describing the Clark Changeable Bulletin Board and Directories for Office Buildings, Hotels, Business Buildings, etc. 8 pp. and 4 pp. Ill. 6 1/2 x 9 in.

The Tablet & Ticket Co., 1015-1021 West Adams Street, Chicago, Ill.

516. *T. & T. Changeable Bulletin Display Boards.* Describes bulletin boards with changeable type which has a self-spacing device so the lettering always looks neat and regular. 24 pp. Ill. 6 x 9 in.

CABINETS

Hess Warming & Ventilating Co., 1204-7 Tacoma Building, Chicago, Ill.

386. *The Hess Sanitary Medicine Cabinet Lockers and Mirrors.* Description with details of an enamelled steel medicine cabinet for bathrooms. 20 pp. Ill. 4 x 6.

CASEMENTS—See Doors and Windows

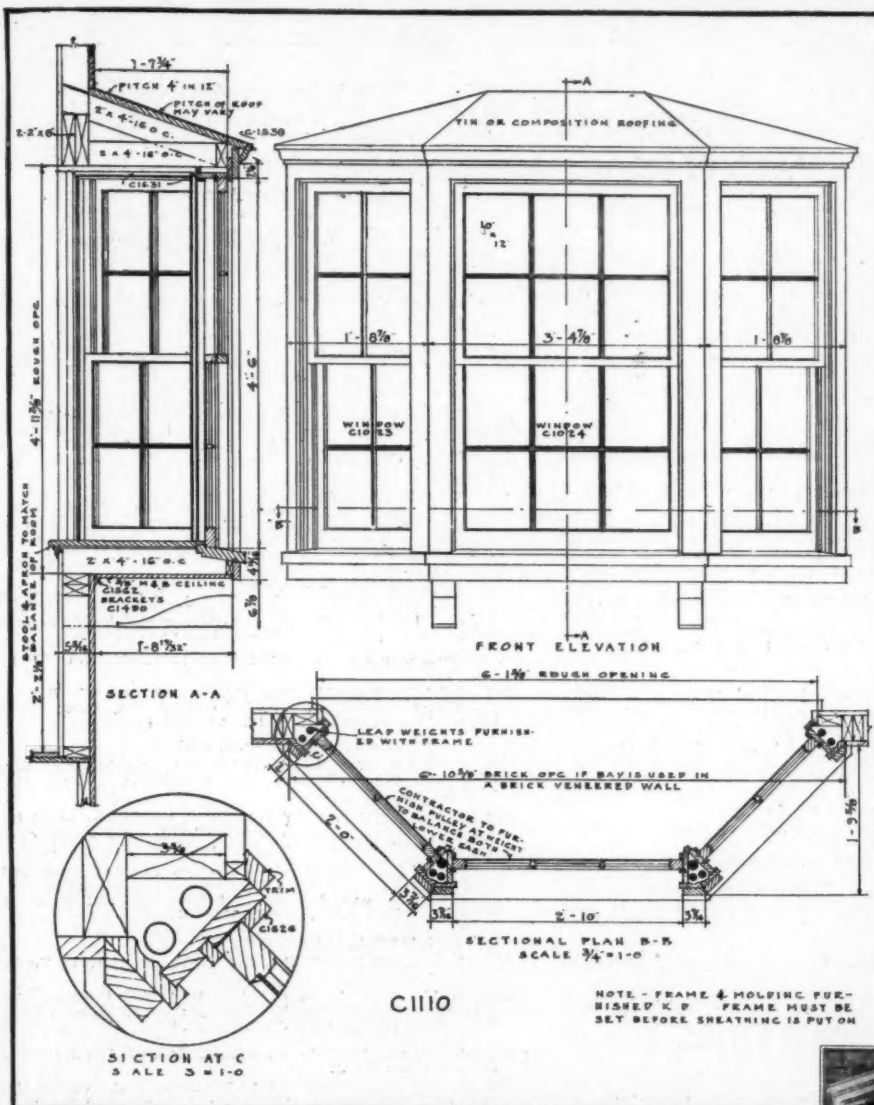
CEDAR LINING—See Lumber

CEILINGS, METAL

The Edwards Manufacturing Company, Cincinnati, O.

193. *Pamphlet of 32 pages* describing metal ceilings and wainscoting. Well illustrated, with list prices and rules for estimating. 7 x 10 in.

CELLAR SASH—See Doors and Windows



All this work is done for you in Curtis Detail Drawings

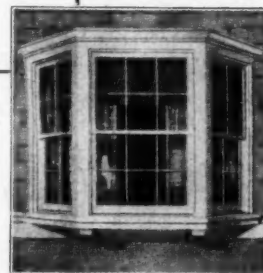
Contrast the slow, laborious drawing to scale of the above dormer window with the time it would take to make a tracing. Then consider that we can continue this saving on every piece of Curtis Woodwork you may find it possible to use in your plans.

Curtis Woodwork is designed by Trowbridge & Ackerman of New York City. Every piece is designed with the idea of making it easily available

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Bay Window C-1110

Curtis Woodwork is sold by retail lumbermen east of the Rockies. Make sure the woodwork you buy bears this trade-mark—

1868 CURTIS

The makers of Curtis Woodwork are proud to identify their products by this mark.

The Curtis Companies Service Bureau, 141 Curtis Bldg., Clinton, Iowa
Curtis Companies, Inc., Clinton, Iowa

Curtis Bros. & Co., Clinton, Iowa
Curtis & Yale Co., Wausau, Wisconsin
Curtis Sash & Door Co., Sioux City, Iowa
Curtis, Towle & Paine Co., Lincoln, Neb.

Curtis, Towle & Paine Co., Topeka, Kans.
Curtis-Yale-Holland Co., Minneapolis, Minn.
Curtis Door & Sash Co., Chicago, Illinois
Curtis Detroit Co., Detroit, Michigan

Sales offices in: Pittsburgh - New York - Baltimore

REFERENCE LIST OF BUSINESS LITERATURE—Continued

CEMENT

The Carney Co., Mankato, Minn.

448. *The Bond That Guarantees the Wall*. Attractive catalog for architects, engineers, contractors, and dealers. Describes fully the characteristics, durability and economy of this nature-mixed cement that requires no lime. Contains simple formula for mixing and illustrations of Carney-laid buildings. 24 pp. Ill. $8\frac{1}{2} \times 11$ in.

509. A circular describing improvements in manufacturing the material, cost comparisons, physical tests and specifications for use. 4 pp. Ill. $8\frac{1}{2} \times 11$ in.

Durastone Co., 422 East 3rd St., New York, N. Y.

418. *Durastone Brand Cement*. A description of a cement which matches any stone or marble, any color or texture. Can be cast in molds and also used for walls or plain surfaces. Illustrations are given of beautiful work executed with this material. 12 pp. Ill. $8\frac{1}{2} \times 11$ in.

Louisville Cement Company, Inc., Louisville, Ky.

518. *Brisment for Perfect Mortar*. Attractive booklet, with tabbed cover for filing, containing information, in both descriptive and tabular form, regarding the physical properties and manufacture of this special cement for brick and stone work. Contains reports of testing laboratories and contractors on results attained with its use. Size $8\frac{1}{2} \times 11$ in. 90 pp. Illustrated.

Portland Cement Association, 111 West Washington St., Chicago, Ill.

636. *Concrete Data for Engineers and Architects*. A valuable booklet containing the reports of the Structural Materials Research Laboratories at Lewis Institute, Chicago, in abbreviated form. It is of great value to writers of specifications. 18 pp. Ill. $8\frac{1}{2} \times 11$ in.

650. *Concrete Floors*. Contains the tentative specifications of the American Concrete Institute for concrete floors of all kinds, with notes on floor finishes, coverings, typical construction designs and computing data. 16 pp. Ill. $8\frac{1}{2} \times 11$ in.

CHAIRS—See Furniture

The B. L. Marble Chair Co., Bedford, Ohio.

587. *Office Chairs, Catalog No. 31*. Describes a complete line of seating fixtures, for offices, directors' rooms and other places consisting of stationary and swivel chairs, settees and couches, both plain and leather upholstered. Also stenographer's chairs, stools, waste baskets, coat trees and accessories. 75 pp. Ill. 9×12 in.

CHUTES—See also Laundry Equipment

Edwin A. Jackson & Bro., Inc., 50 Beekman St., New York.

171. Booklet showing general construction and size of chutes to receive coal. Two types are built into the foundation wall with glass panel in place of cellar window; another type is placed flush with the ground, and is placed adjacent to wall, or can be placed near the street curb. Size $3\frac{1}{2} \times 6\frac{1}{4}$ in. 16 pp.

CLOCKS

Landis Engineering and Manufacturing Co., Waynesboro, Penna.

460. *Landis Electric Time and Program System*. A collection of bulletins No. 100, 110, 120, 130, 150 and 160, dealing with master and secondary clocks, equipment, time stamps, etc. Bound in expandable filing cover of tough paper. 48 pp. Ill. $8\frac{1}{2} \times 11$ in.

COLUMNS

Lally Column Co. of New York, 334 Calyer Street, Brooklyn, N. Y.

122. *Lally Columns. Handbook*. Detailed construction diagrams for various types of steel construction. The text describes advantages of endurance and economy of the column. Various tests, tables of sizes, dimensions, weight, carrying capacities, and data on other structural materials are given. Size $4\frac{1}{2} \times 6\frac{1}{2}$ in. 81 pages.

CONCRETE, REINFORCED—See also Reinforcing Steel

CONDUITS—See Pipe

Enameled Metals Co., Pittsburgh, Pa.

584. *Pittsburgh Standard Rigid Conduit*. A catalog describing patented thread protected enameled conduit and galvanized conduit with specifications and useful wiring data. 31 pp. Ill. $6\frac{1}{4} \times 9\frac{1}{2}$ in.

DAMP-PROOFING—See also Waterproofing

DOORS AND WINDOWS

Andersen Lumber Company, Bayport, Minn., (formerly South Stillwater).

550. *Complete Catalog for Architects and Builders*. Describes Andersen Standard Window Frames and Cellular Sash Frames, which are in 7 units instead of 57 and may be assembled and nailed in 10 minutes. Shows uses in special construction for it comes in 121 sizes and styles. 24 pp. Ill. $7\frac{1}{4} \times 10\frac{1}{4}$ in.

Crittall Casement Window Co., Detroit, Mich.

672. *Crittall Universal Casements, Catalog No. 22*. Contains complete description, photographs, specifications and details of steel casement windows for banks, schools, residences, churches hospitals, set directly into masonry and with auxiliary frames. 76 pp. Ill. 9×12 in.

Dahlstrom Metallic Door Co., Jamestown, N. Y.

674. *Architectural Catalog*. Illustrated catalog showing styles and types of Dahlstrom Standard Construction Hollow Metal Doors and Trim, Condule-Base, etc. Also various types of frames, jamb construction and architectural shapes. 178 pp. Ill. $8\frac{1}{2} \times 11$ in., in loose leaf.

Henry Hope & Sons, 103 Park Ave., New York.

65. *Hope's Casements and Leaded Glass*. Portfolio. Gives specifications, description and photo-engraving, of Hope Casements in English and American Architecture, full size details of outward and inward opening and pivoted casements, of residential and office types. Size $12\frac{1}{4} \times 18\frac{1}{2}$ in. 32 pp.

David Lupton's Sons Co., Philadelphia, Pa.

520. *Catalog No. 11, Service, Products*. A complete technical catalog for the engineer and contractor of large industrial plants and business buildings. Contains full architects' specifications and details for laying out industrial, school and office sash, partitions, doors and skylights for large projects. 191 pp. Ill. $8\frac{1}{2} \times 11$ in.

527. *Lupton Casements and Double Hung Windows*. A book showing details and applications of steel casements and steel plate windows for the higher grade of banks and business buildings. Complete details and specifications. 41 pp. Ill. $8\frac{1}{2} \times 11$ in.

528. *Steel Windows for Apartment Houses, Residences, Offices, and Schools*. Booklet on "out-at-side" windows of casement appearance for medium priced residences. Covers also steel basement windows, and types of steel windows suited for Schools, Hospitals and Office Buildings of moderate cost. 16 pp. Ill. $8\frac{1}{2} \times 11$ in.

583. *Lupton, Steel Windows, No. 110*. A catalogue covering types of sash suitable for small to medium sized industrial and office buildings. Contains everything needed for the average builder in compact form. 70 pp. Ill. $8\frac{1}{2} \times 11$ in.

S. H. Pomeroy Company, 282 East 134th St., New York, N. Y.

614. *Solid Metal Double Hung Window, Type "A."* Bulletin A. Complete specifications and details of sash, frame, stools and stool and apron. 4 pp. Ill. $8\frac{1}{2} \times 11$ in.

Truscon Steel Co., Youngstown, Ohio.

315. *Truscon Steel Sash*. A catalog containing designing data, tables and views of Stock Sash installations. 6 pp. Ill. $8\frac{1}{2} \times 11$ in.

348. *Truscon Steel Sash*. This handbook has been prepared for detailers and specification writers. The descriptions are clear and the details are complete. 80 pp. Ill. $8\frac{1}{2} \times 11$ in.

638. *Daylighting Schools*. A treatise on the daylighting and window ventilation of school buildings quoting eminent authorities, illustrated with diagrams of lighting data and details of suitable windows. 28 pp. Ill. $8\frac{1}{2} \times 11$ in.

DRAFTING MATERIALS

American Lead Pencil Co., 220 Fifth Ave., New York, N. Y.

268. *Booklet C-20, Venus Pencil in Mechanical Drafting*. An interesting illustrated booklet showing the possibilities of the Venus Drawing Pencil for drafting. 6×9 in.

Joseph Dixon Crucible Company, Pencil Department, Jersey City, N. J.

325. *Finding Your Pencil*. A book explaining the various degrees of hardness of the Eldorado pencil and the grade most suitable for every man who uses a pencil be he business or professional man, clerk or draftsman. Accompanied by a color chart of Dixon colored crayons. 16 pp. and 4 pp. in color chart. Ill. in colors. $2\frac{3}{4} \times 6$ in.

DRAINS—See also Plumbing Equipment

Crampton Farley Brass Co., 221 Main St., Kansas City, Mo.

194. Several pamphlets describing various types of floor and area-way drains. $3\frac{1}{2} \times 6\frac{1}{4}$ in.

The Josam Manufacturing Co., 2d and Canal Sts., Michigan City, Indiana.

630. *Josam Floor, Shower and Roof Drains, Catalog F*. A loose leaf catalog illustrating complete line of adjustable drainage devices for floors, shower baths, roofs, swimming pools, railroad and deck drains, special use drains, strainers and accessories. Details and dimensions. 55 pp. Ill. $8\frac{1}{2} \times 11$ in.

631. *Josam Plate Numbers*. A loose leaf portfolio containing blue print details with dimension schedules of drainage fixtures for floors, showers, roofs, decks and special uses. 26 pp. Ill. $8\frac{1}{2} \times 11$ in.

DUMB-WAITERS—See also Elevators

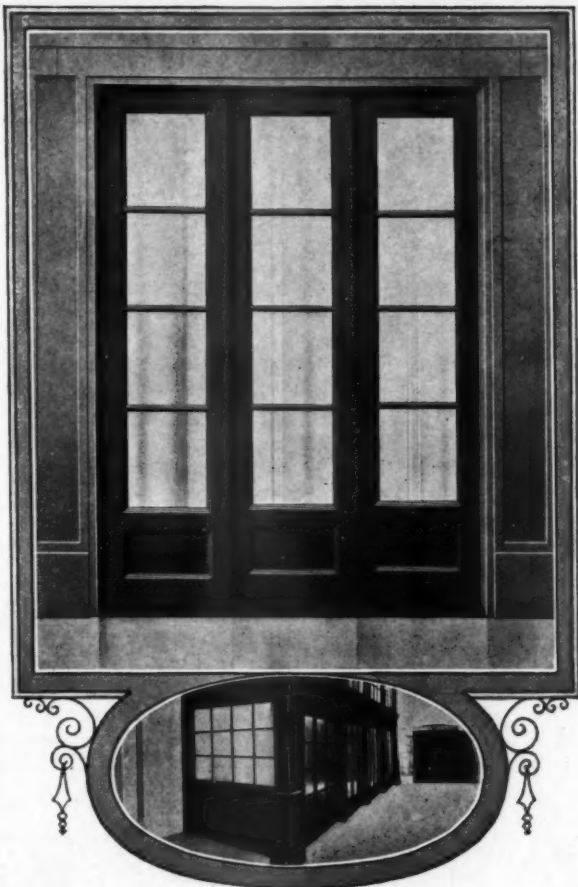
Kaestner & Hecht Co., 1500 No. Branch St., Chicago, Ill.

598. *Electric Dumb-waiters, Bulletin No. 530*. Illustrated catalog, 8 pp. $8\frac{1}{2} \times 11$ in.

Sedgwick Machine Works, 144 West 15th Street, New York.

60. *Hand Power Elevators and Dumb-waiters in Modern Architectural Construction*. Illustrated catalogue. $4\frac{1}{4} \times 8\frac{1}{4}$ in. 80 pp.

DAHLSTROM



THE City Hall in Philadelphia is noted from its historical experience and its unique architecture. The architecture will always be pleasing, yet certain conditions have necessitated changes. The interior has therefore been remodeled to meet modern conditions. One of the changes was in the elevator shafts, which were formerly of the open type. These shafts have now been inclosed with Dahlstrom Standard Construction Inclosures.

FROM the early days when the founder of this organization originated hollow metal construction, shaftways have always been an important factor. Ever increasing building requirements have changed building construction. Dahlstrom has kept pace with these changes and led in producing this class of work until it is now recognized as Dahlstrom Standard Construction.

DAHLSTROM METALLIC DOOR COMPANY

Buffalo Street, Jamestown, New York

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LOCAL REPRESENTATIVES IN PRINCIPAL CITIES



Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

REFERENCE LIST OF BUSINESS LITERATURE—Continued

ELECTRICAL EQUIPMENT—See also Lighting

Frank Adam Electric Co., St. Louis, Mo.

296. *Catalog No. 25.* A catalog and price list of knife switches, switchboards, panel boards, steel cabinets, switchboard material. 82 pp. Ill. 3 x 10½ in.

Benjamin Electric Mfg. Co., Chicago, Ill.

671. *Benjamin Industrial Lighting Equipment. Bulletin No. 52.* Contains lighting data and general information, complete catalog of reflectors, interchangeable devices, vapor proof units, indoor and outdoor equipment, store and office fixtures, show case lighting, fittings and accessories. 80 pp. Ill. 8 x 10½ in.

Burke Electric Company, Erie, Pa.

562. *Bulletin 126, Direct Current Motors and Generators.* A bulletin describing motors and generators developed especially to meet the most severe requirements and conditions encountered in mills, factories, small power plants, office buildings, etc. 8 pp. Ill. 8 x 10½ in.

Harvey Hubbell, Inc., Bridgeport, Conn.

207. *Electrical Specialties. Catalog No. 17, 1921.* This catalog contains descriptions with prices of the thousand and one items connected with electric light, electric alarm and small electric appliance installations in modern buildings. 104 pp. Ill. 8 x 10½ in.

Minneapolis Heat Regulator Co., Minneapolis, Minn.

570. *The Minneapolis Thermostatic Relay Switch.* Used in connection with any Minneapolis Thermostat, provides a means of temperature control for automatic oil burners, electric refrigerating apparatus, electric heating units and any similar equipment where it is necessary to operate an electric switch in accordance with temperature changes. 4 pp. Ill. 8½ x 11 in.

National Metal Molding Co., Pittsburgh, Pa.

481. *Liberty Rubber Insulated Wires, Cables and Cords.* A descriptive catalog of insulated wires, cables and cords for electric wiring. Contains much special information together with useful tables. 20 pp. Ill. 6 x 9 in.

ELEVATORS—See also Dumb-waiters and Hoists

A. B. See Electric Elevator Co., 52 Vesey St., New York.

169. Photographs and description in detail of elevator equipment manufactured by the A. B. See Electric Elevator Co. Size 6 x 8 in.

American Elevator & Machine Co., Louisville, Ky.

196. *Illustrated Catalogue* showing elevator equipment for various uses. 32 pp. 2½ x 9½ in.

Kaestner & Hecht Co., 1500 No. Branch St., Chicago, Ill.

597. *Electric Traction Elevators, Bulletin No. 500.* Illustrated catalog describing gearless traction elevators and worm-gear traction elevators. 31 pp. 8¼ x 11 in.

Kimball Brothers Company, Council Bluffs, Iowa.

330. *Kimball Elevators.* An illustrated catalog of hand power, sidewalk, and garage elevators and dumb-waiters and electric passenger, freight and push button elevators. 32 pp. Ill. 7¼ x 10½ in.

Otis Elevator Co., 260 Eleventh Ave., N. Y. C.

651. *Otis Geared and Gearless Traction Elevators.* Leaflets describing all types of geared and gearless traction elevators with details of machines, motors and controllers for these types. Illustrated. 8½ x 11 in.

Richards-Wilcox Mfg. Co., Aurora, Ill.

335. *"Ideal" Elevator Door Equipment.* Catalog showing elevator door hangers for one, two and three speed doors, also doors in pairs and combination swing and slide doors. Door closers and checks. 24 pp. Ill. 8½ x 11 in.

ESCALATORS

Otis Elevator Co., 260 Eleventh Ave., N. Y. C.

652. *Elevators and Inclined Elevators.* A comprehensive catalog illustrating the use of escalators for transporting people in stores, subways, railroad stations, theatres and mills; also inclined freight elevators for stores, factories, warehouses and docks adjustable to tide levels. 22 pp. Ill. 8½ in.

FILTERS—See Air Filters**FINANCING OF ENTERPRISES**

The Hockenbury System, Incorporated, Penn-Harris Trust Building, Harrisburg, Pa.

313. *Your Hospital and Its Financing.* An educational work on how to finance a new hospital project and obtain funds for needed extensions to existing institutions. Illustrations are given of six institutions in five states financed by the methods, and through the work of the Hockenbury specialists. 30 pp. Ill. 4¼ x 8½ in.

314. *Financing Your City's New Hotel.* A plan is here offered to the enterprising architect whereby his ideas for a new hotel for his home city may be realized. Hotels financed through the work of the Hockenbury specialists are shown, together with testimonials from local business men. 20 pp. Ill. 4¼ x 8½ in.

S. W. Straus & Co., 565 Fifth Ave., New York, N. Y.

183R. *Forty Years Without Loss to Any Investor.* A book describing the Straus Plan of investments. This firm underwrites and sells only first mortgage serial bonds secured by newly improved income producing properties, or high grade industrial properties. 37 pp. Ill. 6 x 8 in.

FIRE DOORS AND SHUTTERS—See Doors and Windows**FIREPLACES AND MANTELS**

Colonial Fireplace Co., 4619 Roosevelt Road, Chicago, Ill.

676. *Blue Print Details.* A valuable set of scale details of correct fireplace construction and examples of details to avoid. Instructions for setting the Colonial head throat and damper. Explanations of necessity for summer use of damper. Folder equivalent to 8 pp. Ill. 8¼ x 10½ in.

H. W. Covert Co., 137 East 46th St., New York.

79. *Hints on Fireplace Construction.* Diagrams of construction and installation of Covert "Improved" and "Old Style" dampers and smoke-chambers, and other fireplace accessories. Size 6½ x 8½ in. 12 pp.

The J. H. Grayson Mfg. Co., Athens, Ohio.

F784. *Ray-Glo, the Perfect Gas Fire.* A folder describing radiant gas heater for use in fireplaces and walls, giving dimensions, styles of finish and prices. 12 pp. Ill. 3¼ x 6 in.

Edwin A. Jackson & Bro., Inc., 50 Beekman St., New York.

92. *Dampers, Chutes, Doors and Dumps.* Illustrated catalog. Equipment and appurtenances of various types, construction and installation, data, dimensions and prices.

Peerless Manufacturing Company, Inc., Louisville, Ky.

513. *The Lure of the Fireplace.* This booklet contains information and diagrams for the design and building of fireplaces, together with descriptions of modern domes and dampers so that a fireplace will work effectively at all times. Contains many illustrations of tasteful mantel designs. 24 pp. Ill. 5 x 7 in.

FLOOR COVERING—See Flooring**FLOORING, SUB—See also Stucco Base****FLOORING**

Armstrong Cork Co., Linoleum Department, Lancaster, Pa.

222. *Business Floors.* A handy reference on floors for public and semi-public buildings, containing specimen specifications, directions for laying and other helpful data. Illustrated in color. 6 x 9 in.

223. *Armstrong's Linoleum Floors.* A handbook for architects, published in the file form (8½ x 11 in.) recommended by the American Institute of Architects. A technical treatise on Linoleum containing general information, tables of grades, gauges and weights, specimen specifications, and detailed directions for laying linoleum. Profusely illustrated in colors.

The Barber Asphalt Co., Philadelphia, Pa.

659. *Genasco Trinidad Lake Asphalt Mastic.* A book describing its manufacture, uses and methods of application, including application over old floors. Separate specifications for flooring, waterproofing and roofing uses. 34 pp. Ill. 6 x 9 in.

Bonded Floors Co., Inc., 35 West 45th St., New York City.

615. *Standard Specification for Installation of Battleship Linoleum Over Concrete.* A booklet containing specifications and explanatory notes for laying Battleship Linoleum Over Concrete and Wood, with detailed drawings. 8 pp. 8½ x 11 in. A. I. A. File No. 28. Ill.

653. *Gold-Seal Treadlite Tile.* An illustrated booklet showing Treadlite Tile installations and containing general information, specifications, etc., with reproductions of the product in colors.

669. *Distinctive Floors.* An attractive publication illustrated in color, describing Gold Seal Rubber Tile for floors. 8 pp. Ill. 8 x 10½ in.

The Long-Bell Lumber Co., R. A. Long Building, Kansas City, Mo.

204. *The Perfect Floor.* Tells how to lay finish and care for Oak Flooring. 16 pp. 14 illus. 5¼ x 7½ in.

The Marbleoid Co., 461 Eighth Ave., New York.

61. *The Universal Flooring for Modern Buildings.* Illustrated booklet. Describes uses and contains specifications for Marbleoid flooring, base, wainscoting, etc. Size 6¼ x 9¼ in. 32 pp.

523. *Marbleoid for Schools.* A bulletin showing schools in which Marbleoid flooring is used. It is a composition flooring applied in a plastic state. Other bulletins show where it has been used in various classes of buildings. 4 pp. Ill. 3½ x 11 in.

Franklyn H. Muller Co., Waukegan, Ill.

242. *Asbestos Flooring Composition.* A book describing uses of and giving specifications and directions for Composition Flooring. Base, Wainscoting, etc. 8½ x 11 in. Ill.

Oak Flooring Bureau, 1014 Ashland Block, Chicago, Ill.

493. *Modern Oak Floors.* A book that tells the complete story of Oak Flooring. 24 pp. Ill. 6¼ x 9¼ in.

Stedman Products Co., South Braintree, Mass.

585. *Stedman Naturalized Reinforced Flooring.* A circular describing a product formulated from rubber reinforced with cotton fibre, made in various colors and used for floors, wainscoting, sanitary base, stair treads, interior decorative units, wall coverings, table and desk tops and drain mats. 6 pp. Ill. 8½ x 11 in.

FLOORS—See Building Construction**FRAMES—See Doors and Windows**



In this cheerful sun parlor, the touch of color in the floor has added considerably to the refreshing quality of the streaming sunshine.

Distinctive Floors in the Home

Much of the charm and individuality of the sun parlor illustrated above has been achieved through the floor. Strikingly decorative, this floor of *Gold-Seal Treadlite Tile* plays a definite and well-planned role in the room's decoration.

In this and other Bonded Floors, such as *Gold-Seal Battleship Linoleum*, *Gold-Seal Rubber Tile*, and *Gold-Seal Cork Tile*, the architect has at his disposal an interesting variety of colorings and designs, which makes for an unusual latitude of decorative treatment.

But Bonded Floors have more than colorful beauty to recommend them. For they are resilient floors and thus conduce to the quiet and under-foot comfort so desirable in the home environment.

Our new booklets showing typical installations of Bonded Floors, pattern suggestions, specifications and details will be sent on request.



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REFERENCE LIST OF BUSINESS LITERATURE—Continued

FURNACES—See Heating**FURNITURE—See Chairs****GARAGE CONSTRUCTION—See also Building Construction****GARAGE INCLINES AND RAMPS**

- American Abrasive Metals Co.**, 50 Church St., N. Y. C.
077. Feralun Anti-Slip Treads for Garage Inclines and Ramps. A folder explaining the advantages of and illustrating the actual use of Feralun Anti-Slip Treads on ramps and inclines in public garages. 2 pp. Ill. $8\frac{1}{2} \times 11$ in.

GARBAGE DESTROYERS

- Kerner Incinerator Company**, 1029 Chestnut St., Milwaukee, Wis.

- 384. The Sanitary Elimination of Household Waste, M-3 Folder.** Description of construction, installation and operation of the Kernerator for residences. Illustrated by views of residences in which the Kernerator is installed, with cuts showing all details. 15 pp. Ill. 4×9 in.

- Kewanee Boiler Co.**, Kewanee, Illinois.

- 573. Water Heating Garbage Burners, Tabasco Water Heaters and Tanks, Catalog No. 75.** A descriptive catalog of steel water heating garbage burners, water heaters, hot water storage tanks, pneumatic tanks, gravel basins, blow-off receivers and air receivers. Tables of sizes, dimensions, capacities and pressures. 30 pp. Ill. 6×9 in.

GARBAGE RECEIVERS

- Edwin A. Jackson & Bro., Inc.**, 50 Beekman St., New York.

- 170. Booklet showing general construction and sizes of garbage receivers to be placed underground for suburban use; also types to be built into the wall of city homes and apartments; also types for suburban wall with opening on inside for the maid and outside for the garbage man.** Size $3\frac{1}{2} \times 6\frac{1}{4}$ in. 16 pp.

GARDENS

- Julius Roehrs Company**, Rutherford, N. J.

- 406. The Ten-Ten books issued three times a year—covering nursery stock in general, such things as fruit trees, roses and perennials. Also one general greenhouse catalog, listing orchids and greenhouse plants.**

GLASS

- Plate Glass Manufacturers of America**, First National Bank Bldg., Pittsburgh, Pa.

- 484. The Part that Plate Glass Plays in the Life of Every Man.** An illustrated folder describing the many uses of plate glass. Ask also for special circular for work in hand. 6 pp. Ill. in color. $3\frac{1}{2} \times 6\frac{1}{4}$ in.

GRANITE—See Stone**GUNITE**

- Cement Gun Company**, Allentown, Pa.

- 504. The Cement Gun, Its Application and Uses.** Reprint of a paper by Bryan C. Collier, M. Am. Soc. C. E. A description of what the cement gun is and how it works, together with reports on tests. 21 pp. Ill. 6×9 in. Ask also for companion pamphlet "Gunite Slabs" containing working tablets for designers and reports on slab tests. 30 pp. Ill. 6×9 in.

GUTTERS AND DOWNSPOUTS—See also Roofing

- The New Jersey Zinc Co.**, 160 Front Street, New York, N. Y.

- 220. Zinc Spouting.** Describes leaders, gutters, etc. "Made from Horse Head Zinc," giving information concerning their economy and durability. 8 pp. Ill. 6×9 in.

HARDWARE

- Allith-Prouty Co.**, Danville, Illinois.

- 596. General Catalog No. 90.** This catalog embraces a description of a complete line of door hangers and tracks, garage door hardware, spring hinges, rolling ladders, fire door hardware, overhead carriers, light hardware and hardware specialties. 144 pp. Ill. $7\frac{1}{4} \times 10\frac{1}{2}$ in.

- The Casement Hardware Co.**, 227 Pelouze Bldg., Chicago, Ill.

- 627. Win-Dor Casement Hardware.** A booklet describing the general use of casement windows and description, specifications and details of the casement window and the operating devices suitable for all uses. 22 pp. Ill. $5\frac{1}{2} \times 8\frac{1}{2}$ in.

- P. & F. Corbin**, New Britain, Conn.

- 540. Automatic Exit Fixtures.** A catalog of fixtures that provide a ready exit at all times, as a child can operate them with ease. Doors to which they are applied can always be opened from the inside, even when locked against entrance. 4 pp. Ill. $8\frac{1}{4} \times 11\frac{1}{4}$ in.

- Monarch Metal Products Co.**, 5060 Penrose St., St. Louis, Mo.

- 428. Monarch Casement Hardware.** A book describing hardware for casement windows. This Manual and folder comply with all suggestions made by the Structural Service Committee of the A. I. A. 18 pp. Ill. $7\frac{1}{4} \times 10\frac{1}{2}$ in., in heavy folder for vertical file properly indexed.

- Pullman Mfg. Co.**, 220 South Ave., Rochester, N. Y.

- 485. Pullman Unit Sash Balances.** The Pullman Unit Sash Balance is a coiled spring in a housing that replaces weights and cords. This book tells why it costs less on nearly all installations; why it is better in all respects; and gives a list of important buildings in which this balance is in satisfactory use. Contains blue print sheet of details. 12 pp. Ill. 8×11 in.

- Richards-Wileox Mfg. Co.**, Aurora, Ill.

- 330. Modern Hardware for Your Home.** Catalog of hangers for vanishing French doors; "Air-Way" multifold hardware for sun parlors and sleeping porches; "Slidite" garage door hardware. 24 pp. Ill. $8\frac{1}{4} \times 11$ in.

- 425. Distinctive Garage Door Hardware. Catalog No. A-22.** This is more than a catalog. It is a treatise for architects and builders on the door equipment of garages, covering sliding, folding and combination sliding and folding doors, with their hardware. 94 pp. Ill. $8\frac{1}{4} \times 11$ in.

- 436. Sliding Door Hardware, Catalog No. A-17.** A catalog of sliding door hardware of Parallel, Accordion and Flush Door partitions. 32 pp. Ill. 7×10 in.

- 632. Distinctive Garage Door Hardware. Catalog A No. 20.** A complete treatise on garage doors of every kind both hand and mechanically operated with description of standard and special hardware and accessories. 66 pp. Ill. $8\frac{1}{4} \times 11$ in.

- Russell & Erwin Mfg. Co.**, New Britain, Conn.

- 609. Russwin Period Hardware.** A brochure illustrating hardware trim in twelve architectural styles or periods. 71 pp. Ill. 5×8 in.

- 610. Catalog of Hardware, Volume Fourteen.** A complete catalog of building hardware, trim, locks, butts and accessories. 359 pp. Ill. 8×11 in.

- Sargent & Company**, New Haven, Conn.

- 560. Sargent Locks and Hardware for Architects.** The latest complete catalog of locks and hardware. 762 pp. Ill. 9×12 in.

- The Stanley Works**, New Britain, Conn.

- 11. Wrought Hardware. New 1921 Catalog.** This new catalog describes additions to the Stanley line of Wrought Hardware, as well as the older well known specialties and various styles of butts, hinges, bolts, etc. 376 pp. Ill. $6\frac{1}{2} \times 9\frac{1}{2}$ in.

- 12. Garage Hardware. Booklet, illustrated.** Garages and their equipment, such as hinges, hasps, door holders, latch sets, chain and hand bolts, showing illustrations and text with dimensions of garages, describing the Stanley Works product. Size 6×9 in. 24 pp.

- 13. Eight Garages and Their Stanley Hardware.** Booklet Plans, drawings and complete hardware specifications. Size 5×7 in. 32 pp.

- 127. The Stanley Works Ball Bearing Butts.** Booklet, illustrated. Description with full size illustrations of many typed butts and their parts, dimensions and finish. Size $5 \times 7\frac{1}{2}$ in. 32 pp.

- 495. Stanley Detail Manual.** A catalog in loose leaf binder, consisting of five sections on Butts, Bolts, Blind and Shutter Hardware, Stanley Garage Hardware, Screen and Sash Hardware. Detail drawings are given, showing clearances and other data needed by detailers. 116 pp. Ill. $7\frac{1}{2} \times 10\frac{1}{2}$ in.

- Vonnegut Hardware Co.**, Indianapolis, Ind.

- 309. Von Duprin Self-Releasing Fire Exit Devices.** A catalog and educational work on panic-proof, burglar-proof self releasing exit devices for doors and windows of buildings of any kind of occupancy. 41 pp. Ill. 8×11 in.

- 310. Prince Self-releasing Fire Exit Devices. Supplement to Von Duprin Catalog No. 12.** Contains valuable information for architects on the selection, detailing, etc., of Prince devices for doors and windows to insure safety against fire panic. 32 pp. Ill. 8×11 in.

HEATERS—See Water Heaters**HEATING**

- American Radiator Company**, 104-108 W. 42nd St., New York, N. Y.

- 427. Ideal-Arcola Heating Outfits.** A book describing a system of hot water heating for small and medium size houses. The boiler is placed in a room and resembles a stove. No cellar required. The ash carrying reduced to a minimum. 24 pp. Ill. $6 \times 8\frac{1}{2}$ in.

- Crane Company**, 836 So. Michigan Ave., Chicago, Ill.
241. Steam Catalogue. A book containing full descriptions of the complete line of Crane valves, fittings, etc. 800 pp. Ill. 6×9 in.

- The Farquhar Furnace Company**, Wilmington, Ohio.

- 355. Healthful Helpful Hints.** A discussion of furnace and chimney design and capacity for hot air heating and ventilation. 16 pp. Ill. $4\frac{1}{2} \times 9\frac{1}{4}$ in.

- 356. A Plain Presentation to Dealers.** A book of selling talk for dealers in Farquhar Furnaces. Four model heating layouts are shown and there is a page of useful "Do and Don't" advice. 24 pp. Ill. $8\frac{1}{2} \times 11$ in.

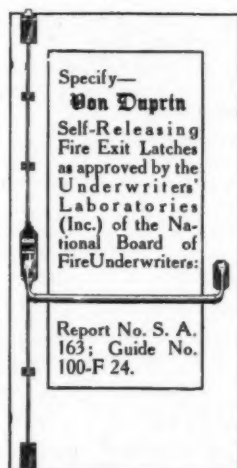
- General Boilers Company**, Waukegan, Ill.

- 444. Catalog No. 7.** A catalog completely describing the construction and operation of Pacific Steel Boilers. Contains also specifications and price lists. 32 pp. Ill. 6×9 in.

Von Duprin

Self-Releasing Fire Exit Latches

Progress



Compared to the **Von Duprin** latch of today, the first model was a crude, cumbersome thing.

Yet that first **Von Duprin** latch was a revolutionary step in door hardware design. For the first time in history the inmates of large buildings were assured of safe exit, once they reached the doors. The deadly crush at the exits was defeated.

Since that time there have been many improvements and refinements in **Von Duprin** latches, and as fast as new needs arise there will be new improvements to meet them. Everything possible is being done—and will be done in the future—to give the people living or working in a **Von Duprin** equipped building every conceivable protection against the hazards of panics and locked doors.

Complete details in "Sweet's," pages 1415-1419, or ask us for Catalog 12-Q.

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REFERENCE LIST OF BUSINESS LITERATURE—Continued

HEATING

- Hess Warming & Ventilating Co.**, 1209 Tacoma Bldg., Chicago, Ill.
178. *Modern Furnace Heating*. An illustrated book on the Hess Welded Steel Furnaces. Pipe and Pipeless, notes for installation, sectional views, showing parts and operation, dimensions, register designs, pipes and fittings. Size 6 x 9½ in. 48 pp.
- Illinois Engineering Co.**, Racine Ave., at 21st St., Chicago, Ill.
501. *Illinois Heating Systems. Vapor Details Bulletin 20*. This bulletin contains typical plans and elevations of heating systems, with description of details and "Standards for Computing Radiation and Boiler Sizes" of the Chicago Master Steam Fitters' Association. 18 pp. Ill. 8 x 10¼ in.
502. *Illinois Bulletins*. No. 102 contains detailed description with capacities and dimensions of Eclipse Pressure Reducing Valves. 20 pp. Ill. Nos. 202, 302, 452, 502 and 703 describe, with illustrations, Steam Specialties, Back Pressure Valves, Stop and Check Valves, Exhaust Heads, Balanced Valves, Separators, Steam Traps.
- Jenkins Bros.**, 30 White St., New York, N. Y.
235. *Catalog No. 12*. This catalog contains descriptions of all the valves, packing, etc., manufactured by Jenkins Bros. Includes also dimensions and price lists of valves and parts. 271 pp. Ill. 4 x 6¼ in. Stiff paper cover.
237. *The Value Behind a Good Heating System*. This booklet describes Jenkins Radiator Valves, Automatic Air Valves and other valves used in connection with steam and hot water heating. 16 pp. 4½ x 7½ in. Stiff paper cover.
- Johnson Service Company**, 149 Michigan St., Milwaukee, Wis.
301. *The Regulation of Temperature and Humidity*. A description of the Johnson System of temperature regulation and humidity control for buildings; showing many kinds of thermostatic appliances for automatically maintaining uniform temperatures. 63 pp. Ill. 8½ x 11 in.
302. *Johnson Electric Thermostat, Valves and Controllers*. A catalog of devices mentioned in the title. 24 pp. Ill. 3½ x 6 in.
- Kewanee Boiler Co.**, Kewanee, Illinois.
572. *Kewanee Radiators, Catalog No. 72*. A descriptive catalog of the standard types of cast iron radiation including wall radiation, wall boxes, radiator brackets and accessories. Tables of capacities, rough in dimensions and other data. 23 pp. and supplement. Ill. 6 x 9 in.
- Minneapolis Heat Regulator Co.**, Minneapolis, Minn.
600. *Minneapolis Dual Control*. This circular describes in detail the No. 65 Hydrostat and No. 70 Pressurestat and their application for the automatic heat control of hot water, steam or vapor systems. 12 pp. Ill. 3¼ x 6 in.
- Richardson & Boynton Co.**, New York, N. Y., Chicago, Ill., Philadelphia, Pa., Providence, R. I., Boston, Mass.
290. *The Richardson Vapor Vacuum-Pressure Heating System*. An interesting book which presents in clear non-technical language the principles of Vapor-Vacuum-Pressure heating; the economy over ordinary steam heating, steam and hot-water systems may be altered to use this principle with views of buildings where the V-V-P system is installed. 14 pp. Ill. 8 x 11 in.
291. *Perfect Warm Air Furnaces*. No. 203. Contains a full description of various types of warm air furnaces and parts, with dimensions and necessary data. 24 pp. Ill. 8 x 10½ in.
292. *Perfect Cooking Ranges*. Description and dimensions of the complete line of the new high enamel finish Richardson Perfect ranges, with charts and information regarding combination coal and gas cooking ranges. 40 pp. Ill. 8½ x 11 in.
- Sterling Engineering Company**, 419 Third St., Milwaukee, Wis.
430. *Sterling Bulletins*. No. 33 describes the Sterling System of vacuum heating. 11 pp. No. 32 describes the Sterling System of vapor heating. 14 pp. No. 31 describes the Sterling slide valve return trap. 4 pp. They are all illustrated. 6 x 9 in.
- Tuttle & Bailey Mfg. Co.**, 2 West 45th St., New York, N. Y.
395. *About Radiator Enclosures*. A booklet showing how easily and effectively unsightly radiators may be concealed by enclosures which adorn a room. 15 pp. Ill. 6¼ x 9¼ in.
396. *Special Designs, Catalog 6A*. A book of designs for grilles, screens, registers and ventilators to be used in connection with heating installations. Made of bronze, brass, iron and steel. 40 pp. Ill. 6¼ x ¾ in.
- Utica Heater Company**, Utica, N. Y.
557. *Utica Imperial Super-Smokeless Boilers*. These boilers burn all fuels and consume soft coal without smoke. The illustrated catalog contains complete technical data with lists of illustrations. 76 pp. Ill. 8½ x 11 in. (Separate bulletins may be had featuring the following buildings: Schools, Churches, Public Buildings, Apartments, Hotels, Residences, Industrial Buildings, Office and Theatres.)
558. *Warm Air Heating*. A folder featuring warm air heating equipment including New Idea pipeless furnaces. Superior pipe furnaces and Super-Smokeless furnaces for burning soft coal.

HEATING AND VENTILATION

- American Blower Co.**, Detroit, Mich.
361. *Sirocco Service*. A quarterly publication containing descriptions of heating and ventilating systems installed by the American Blower Company, together with useful data for architects and engineers. 16 pp. Ill. 8½ x 11 in.
362. *General Catalog "ABC" Products*. A book full of useful data for all men who have to deal with heating and ventilating problems. 132 pp. Ill. 8½ x 11 in.
645. Special bulletins describing in detail all of the apparatus in their general catalog. Sent on request. Ill. 8½ x 11 in.
- Buffalo Forge Co.**, 490 Broadway, Buffalo, N. Y.
215. *Buffalo Fan System of Heating, Ventilating and Humidifying*. Catalog 700. This contains a general discussion of heating and ventilating under four heads. Part 1, Public Buildings. Part 2, Industrial Plants. Part 3, Buffalo Apparatus. Part 4, Fan Engineering.
- Garden City Fan Co.**, McCormick Bldg., Chicago, Ill.
673. *New Sectional Catalog No. 200*. Describing the latest improved cycloidal multivane fans for heating, ventilating and drying also standard steel plate fans and pipe coil heaters. Details, capacity tables and specifications. 24 pp. Ill. 7½ x 10½ in.
- The H. W. Nelson Corporation** (formerly Moline Heat), Moline, Ill.
411. *Univent Ventilation, Architects' and Engineers' Edition*. A scientific treatise on ventilation for schools, offices and similar buildings; with 40 pages of engineering data on ventilation for architects and engineers. 72 pp. Also "Supplement A" on Air Conditioning. 12 pp. Ill. with half-tones, line drawings and designing charts. 8½ x 11 in.

HOISTS—See Elevators and Ash Hoists

INCINERATORS—See Garbage Destroyers

INSULATION—See also Stucco Base

- Insulate Division, Minnesota & Ontario Paper Company**, International Falls, Minn.
487. *Universal Insulate in Building Construction*. Describes a clean, sanitary, odorless and vermin proof board made from selected waterproofed wood fibres, felted into light, strong, uniform sheets. Examples are given for use indoors and outdoors together with details and useful data. 37 pp. Ill. 8½ x 11 in.
- United States Mineral Wool Co.**, 280 Madison Ave., New York.
83. *The Uses of Mineral Wool in Architecture*. Illustrated booklet. Properties of insulation against heat, frost, sound, and as a fire-proofing, with section drawings and specifications for use. It gives rule for estimate and cost. Size 5¼ x 6½ in. 24 pp.

IRON AND STEEL—See also Metals

- The American Rolling Mill Co.**, Middletown, Ohio.
658. *The Story of Commercially Pure Iron*. A most interesting booklet recounting the historical development of iron and its present day manufacture in commercially pure, durable form. 48 pp. Ill. 6 x 9 in.
682. *What's Under the Galvanized Coating?* A booklet describing the process of galvanizing, its protective service and also the necessity for pure iron as a basis for galvanizing. 16 pp. Ill. 8¼ x 6¼ in.
- F785. *What Causes Rust*. A booklet giving valuable information concerning the cause of rust and the composition of various irons and steel. 16 pp. Ill. 3¼ x 6¼ in.
- Mitchell-Tappen Company**, 15 John St., New York, N. Y.
257. *Booklet 14 on Standardized Metal Caging*. Description of various ways of reinforcing the concrete fireproofing on structural steel work, with particular reference to Standardized Metal Caging.

KITCHEN EQUIPMENT—See also Stoves

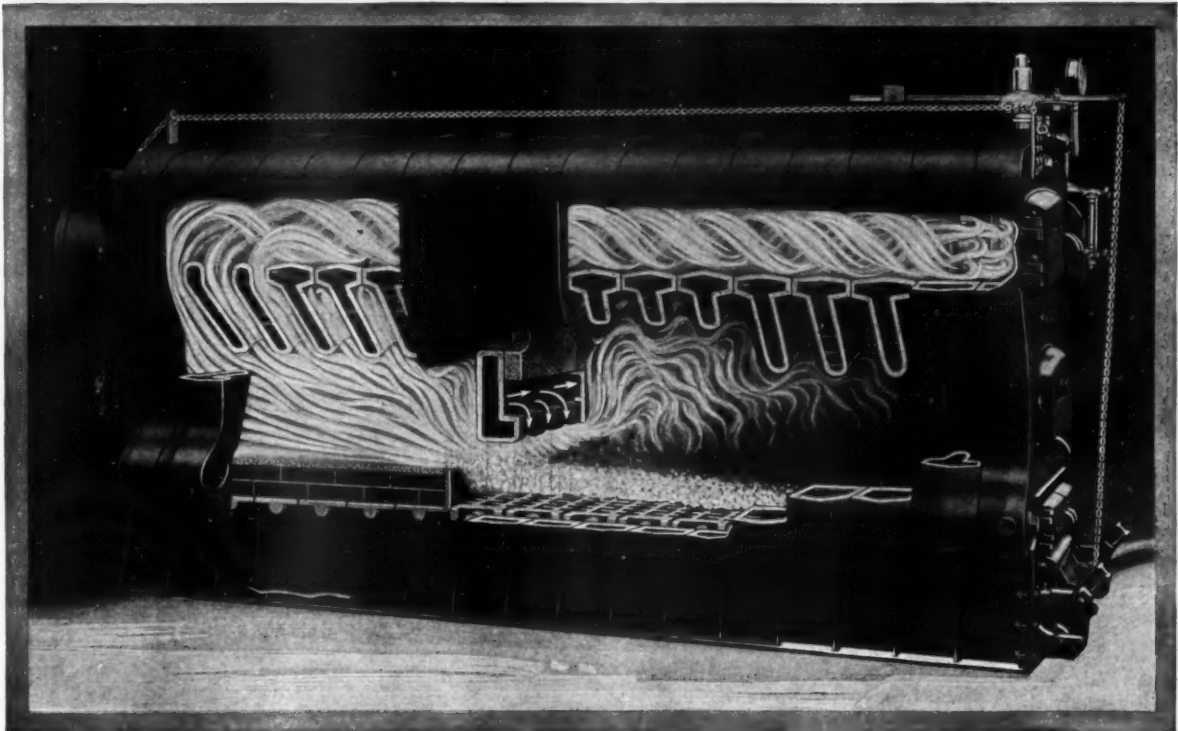
- Bramhall, Deane Co.**, 261-A West 36th St., New York.
50. *The Heart of the Home*. Booklet, illustrated. Deane's French Ranges (all fuels), cook's tables and plate warmers. Size 6 x 9 in. 32 pp.

LATH, EXPANDED WOOD

- Expanded Wood Lath Corporation**, 818-155 N. Clark St., Chicago, Ill.
605. *Ex-Wo Expanded Wood Lath*. An expanded wood lath made in sheets and attached to a sheathing paper. Description, directions for installation, specifications and tests. 2 and 4 pp. Ill. 9 x 11½ and 7½ x 11 in.

LATH, METAL

- American Steel & Wire Co.**, Chicago, Ill.
228. *Stucco Houses Reinforced With Triangle Mesh Fabric*. A pamphlet containing valuable data on stucco work with tables of quantities of material and many illustrations of houses covered with stucco applied on Triangle Mesh Fabric. 24 pp. Ill. 6 x 9 in.
- Concrete Engineering Co.**, Omaha, Neb.
346. *How to Use Ceco Lathing Materials*. An illustrated treatise on the use of expanded metal lath. Contains construction details and complete specifications, with sample piece of lath in pocket on cover of book. 16 pp. Ill. 8½ x 11 in.



SUPER-SMOKELESS BOILER (Patented Jan. 10, 1922) Showing Fire Travel and Special Baffle Wall.

UTICA-IMPERIAL SUPER-SMOKELESS BOILERS FOR HEATING ALL LARGE BUILDINGS *BURN SOFT COAL SMOKELESSLY*

SUPER-SMOKELESS Boilers now heat thousands of important buildings. Foremost architects and building owners recognize the unusual efficiency, fuel economy and smokeless operation of these scientifically designed heating boilers. Their cast iron sectional construction assures great durability and freedom from corrosion, as well as facility in shipment and installation anywhere.

The smokeless operation and economical consumption of fuel is due to the patented "Bunsen Burner" design. Heated air is admitted directly above the rear of the fuel bed, thus supplying additional oxygen to the combustible gases. The smoke-laden flames are transformed into intensely hot, clean

flames that swirl through the boiler. Smoke and soot are utilized as valuable fuel and maximum heat units are imparted to every inch of heating surface.

Architects are invited to write for SUPER-SMOKELESS Boiler Catalog. This book illustrates and describes the distinctive features of Utica-Imperial SUPER-SMOKELESS Boilers. Representative buildings, Super-Smokeless heated, are illustrated and many installations in the United States are classified and listed. The special Timmis Report is also available—this covers a series of investigations by Mr. Walter S. Timmis, a leading authority on heating and ventilating of buildings.

UTICA HEATER COMPANY, UTICA, N. Y.

218-220 West Kinzie St., CHICAGO

707 Union Building, CLEVELAND

1843 Grand Central Term'l, NEW YORK

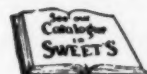


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Pages 1684
and 1685

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

REFERENCE LIST OF BUSINESS LITERATURE—Continued

LATH, METAL

The General Fireproofing Co., Youngstown, Ohio.

592. *Building for Permanence and Beauty*. A booklet containing illustrations and plans of residences with stucco exteriors and describing proper stucco construction on Herringbone Metal Lath. 36 pp. Ill. $5\frac{1}{2} \times 7\frac{1}{4}$ in.

685. *The Right Angle*. A monthly magazine devoted to fireproof construction involving the use of metal lath, expanded metal and steel lumber. Specifications and details. Circulation free to architects and contractors. 16 pp. Ill. $8\frac{1}{2} \times 11$ in.

Truscon Steel Company, Youngstown, Ohio.

310. *Hy-Rib and Metal Lath*. Tables, general data and illustrations of Hy-rib and metal lath construction. 6 pp. Ill. $8\frac{1}{2} \times 11$ in.

LAUNDRY EQUIPMENT

Chicago Dryer Co., 2210 N. Crawford Ave., Chicago, Ill.

66. *Laundry Appliances*. Illustrated catalog. Descriptions of Laundry Dryers, Electric Washing Machines and Ironing Machines, especially adapted for use in residences, apartment buildings and small institutions. Size $8\frac{1}{2} \times 11$ in. 48 pp.

The Pfaunder Company, Rochester, N. Y.

581. *Glass Lined Steel Laundry Chute*. Catalog describing a glass lined steel laundry chute with flushing ring at top and drain connection at bottom, specifications, dimensions and details adapted to hospitals and hotels. 14 pp. Ill. $5\frac{1}{2} \times 7\frac{1}{2}$ in.

LIGHTING—See also Electrical Equipment

Frank Adam Electric Co., 3649 Bell Ave., St. Louis, Mo.

620. *The Control of Lighting in Theatres*. A book describing means for complete control of lighting the stage, auditorium and other parts of theatres with distribution schedules and specifications. Also applications of control to Masonic buildings, schools and colleges. 32 pp. Ill. 8×11 in.

E. Erikson Electric Co., 6 Portland St., Boston, Mass.

613. *Erikson Reflectors*. Catalog No. 30. Description of and details for installing reflectors in show windows, display cases, art galleries, rug racks, banks, churches, and other buildings. 32 pp. Ill. $6\frac{1}{2} \times 9\frac{1}{2}$ in.

I. P. Frink, Inc., 24th St. and 10th Ave., New York.

150. *Light Service for Hospitals*. Catalogue 421. A booklet illustrated with photographs and drawings, showing the types of light for use in hospitals, as operating table reflectors, linolite and multilite concentrators, ward reflectors, bed lights and microscopic reflectors, giving sizes and dimensions, explaining their particular fitness for special use. Size 7×10 in. 12 pp.

218. *Picture Lighting*. Booklet 422. A pamphlet describing Frink Reflectors for lighting pictures, art galleries, decorated ceilings, cove lighting, the lighting of stained glass, etc., and containing a list of private and public galleries using Frink Reflectors. 24 pp. Ill. $5\frac{1}{2} \times 7$ in.

219. *Frink Reflectors and Lighting Specialties for Stores*. Catalog No. 423. A catalog containing a description of the Frink Lighting System for Stores; the Synthetic System of Window Illumination; and a number of appliances to produce the most effective lighting of displayed objects. 20 pp. Ill. 8×11 in.

220. *Frink Lighting Service for Banks and Insurance Companies*. Reflectors. Catalog No. 424. A very interesting treatise on the lighting of offices; with details of illustrations and description of lamps and reflectors. Contains a list, covering several pages, of banks using Frink Desk and Screen Fixtures. 36 pp. Ill. $8\frac{1}{2} \times 11$ in.

Harvey Hubbell, Inc., Bridgeport, Conn.

401. *Hubbell Flush Door Receptacles*. Description of a safe, convenient and practical wall outlet de luxe for fine residences, clubs, hotels, public buildings and offices. 4 pp. Ill. 8×10 in.

Mitchell Vance Co., Inc., 503-511 West 24th St., New York, N. Y.

369. *Catalog No. 25*. A descriptive catalog, with prices, of the "T. R. B." Lighting Unit, for perfect distribution of light without glare and without shadows. 24 pp. Ill. 8×10 in.

LIME

The Ohio Hydrate & Supply Co., Woodville, Ohio.

404. *A Job that Took a Million Years*. A description of how limestone is formed and how it is later converted into lime. All the processes are shown in detail and the uses of lime are illustrated. 16 pp. Ill. $8\frac{1}{2} \times 11$ in.

LINCRUSTA-WALTON—See also Wall Covering

The Lincrusta-Walton Company, Hackensack, N. J.

510. *Lincrusta-Walton*. This book gives directions for buying, caring for and applying Lincrusta-Walton; together with color chart and many pages showing patterns. 67 pp. $8\frac{1}{2} \times 11$ in. Ill. Bound in boards.

LOCKERS, STEEL—See Factory Equipment

LUMBER

Arkansas Soft Pine Bureau, Little Rock, Ark.

649. *Arkansas Soft Pine Handbook*. An exceptionally well prepared book containing technical descriptions, grading rules, standard molding designs including those by the American Institute of Architects and the National Lumber Manufacturers' Association. Price 50 cents. 82 pp. Ill. $8\frac{1}{2} \times 11$ in.

E. L. Bruce Co., Memphis, Tenn.

533. *Now the Cedar Clothes Closet*. A book illustrated in colors describing "Bruce Cedaline," for lining clothes closets as a complete protection against moths. 12 pp. Ill. $4\frac{1}{2} \times 6$ in.

The Long-Bell Lumber Co., R. A. Long Building, Kansas City, Mo.

203. *From Tree to Trade*. This book tells the story of the manufacture of lumber. Gives an idea of the scope of the business and the care and attention given to the manufacture and grading of Long-Bell trade-marked products. 100 illustrations. 48 pp. $8\frac{1}{2} \times 11$ in.

The Pacific Lumber Company of Illinois, 2060 McCormick Bldg., Chicago, Ill.

363. *Construction Digest*—The use of California Redwood in residential and industrial construction. Contains illustrations, grading rules, specifications and other technical data for architects and builders. 16 pp. Ill. $8\frac{1}{2} \times 11$ in.

364. *Engineering Digest*—The use of California Redwood in industrial construction and equipment for factories, railroads, mines and engineering projects. 16 pp. Ill. $8\frac{1}{2} \times 11$ in.

LUMBER, ASBESTOS

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.

54. *Ambler Asbestos Building Lumber*. Catalog illustrated. Describes uses of this fireproof product for both exteriors and interiors. Tables of sizes and illustrations of various types of buildings in which it has been used. Size $8\frac{1}{2} \times 11$ in. 32 pp.

MANTELS

Edwin A. Jackson & Bro., Inc., 50 Beekman St., New York.

90. *Wood Mantels*. Portfolio. Wood mantel designs of various types and openings, giving dimensions, projections and showing fireplace grate designs. Size $9 \times 6\frac{1}{4}$ in. 32 pp.

MARBLE—See Stone

The Georgia Marble Co., Tate, Pickens Co., Ga., New York Office, 1226 Broadway.

634. *Why Georgia Marble is Better*. Booklet $3\frac{1}{2} \times 6$ in. Gives analysis, physical qualities, comparison of absorption with granites, opinions of authorities, etc.

635. *Convincing Proof*. Booklet $3\frac{1}{2} \times 6$ in. 8 pp. Classified list of buildings and memorials in which Georgia Marble has been used, with names of architects and sculptors.

METALS—See also Iron and Steel—Roofing

American Brass Co., Main Office, Waterbury, Conn.

138. *Price List and Data Book*. Illustrated. Loose-leaf Catalog. Covers entire line of Sheets, Wire Rods, Tubes, etc., in various metals. Useful tables. Size $3\frac{1}{2} \times 7$ in. 168 pp.

American Sheet & Tin Plate Co., Frick Building, Pittsburgh, Pa.

452. *Reference Book*. Pocket Edition. Covers the complete line of Sheet and Tin Mill Products. 168 pp. Ill. $2\frac{1}{2} \times 4\frac{1}{2}$ in.

Bridgeport Brass Co., Bridgeport, Conn.

483. *Seven Centuries of Brass Making*. A brief history of the ancient art of brass making and its early (and even recent) method of production—contrasted with that of the Electric Furnace Process—covering tubular, rod and ornamental shapes. 80 pp. Ill. $8 \times 10\frac{1}{2}$ in.

Copper & Brass Research Association, 25 Broadway, New York, N. Y.

400. *How to Build a Better Home*. A book on building written for the prospective builder. It contains keyed illustrations of houses and details of houses and should be of value to architects in explaining technical terms to clients. 30 pp. Ill. $7\frac{1}{2} \times 10\frac{1}{2}$ in.

Rome Brass & Copper Company, Rome, N. Y.

473. *Price List No. 70*. A loose-leaf binder containing full price list of Rome Quality products, together with useful tables. $5\frac{1}{2} \times 7\frac{1}{4}$ in.

METAL MOLDINGS

National Metal Molding Co., Pittsburgh, Pa.

152. *Hand-book for the Man on the Job*. An illustrated book of fittings and methods with description and instructions for installing National Metal Molding under all conditions; a book meant to be conveniently carried and used on the job. Size $4\frac{1}{2} \times 6$ in. 102 pp.

MILLWORK—See also Lumber—Building Construction—Doors and Windows

MORTAR—See also Cement

Louisville Cement Company, Inc., Louisville, Ky.

311. *Brixment, the Perfect Mortar*. The reading of this little book gives one a feeling that definite valuable information has been acquired about one of the oldest building materials. Modern science has given the mason a strong water-resisting mortar with the desirable "feel" of the best rich lime mortar. 16 pp. Ill. in colors. $5\frac{1}{2} \times 7\frac{1}{2}$ in.

OFFICE EQUIPMENT

The General Fireproofing Co., Youngstown, Ohio.

686. *Allsteel Office Furniture*. A descriptive catalog of steel office furniture, filing cabinets, desks, tables, counterheights, steel shelving, fireproof safes. 96 pp. Ill. $5\frac{1}{2} \times 7\frac{3}{4}$ in.

ORNAMENTAL IRON AND BRASS

The American Brass Co., Waterbury, Conn.

139. *Illustrated Pamphlets*. Describes the use and adaptability of Extruded Architectural Shapes, Benedict Nickel, Brass and Copper Pipe in Iron Pipe sizes for plumbing installations. $8\frac{1}{2} \times 11$ in.

His Experience: A Saving In Construction Cost



An advertisement based
 on the personal experience of
 ★ E. E. BRINK, Contractor, KANKAKEE, ILL.
 [As reported to the H. P. Gould Company, Engineers]

The services of the competent architect have grown in favor and importance for the meritorious reason that the architect's planning and supervision pledge sturdy construction without waste in expenditure.

No one can better fulfill the hope of the builder in having maximum comfort and durability in the new home, at minimum cost, than the architect. No one can better advise that to spend too much is extravagance; to cheapen construction and lessen investment value is false economy.

The Experience of a Builder

Sturdy construction requires dependable material—dependable lumber. Experience has proved the reliability of Long-Bell lumber and the minimum waste in labor and material resulting from its use.

A positive saving in labor was made last year by E. E. Brink, a contractor at Kankakee, Illinois, for nearly a quarter of a century.

"I am firmly sold on Long-Bell lumber, as it is and does every-

thing that a contractor requires of good lumber," Mr. Brink states.

"It effects a positive saving, both in the elimination of waste and in reduced carpenters' time. This is due to its uniform quality, as it comes cut full length with ends squarely trimmed, and uniformly graded, so that a minimum of sorting and finishing on the job is required.

A Definite Saving

"On twelve jobs handled so far this year (1923), the average value was \$8,000, with a range in value from \$5,000 to \$12,000. I figure that I saved 140 hours of carpenter labor on the average, making a total labor saving of over \$1,500. As the carpenter labor on an \$8,000 house amounts to \$1,700, I have saved during the year almost the full cost of carpenter labor on one house.

"My one year's experience with Long-Bell Lumber has proved its superiority—not only to me, but also to my clients and to other local contractors. I prefer it and specify it on all jobs. It is standard with me.

The retail lumber dealer will co-operate with you in providing Long-Bell lumber



A page from ★ Mr. Brink's experience

On twelve house jobs in 1923, averaging \$8,000, Mr. Brink estimates that by using Long-Bell trade-marked lumber he saved almost enough in carpenter's time to pay the labor cost on one house. This is his estimate of the saving on one \$8,000 house:

Carpenter labor on ordinary lumber (2040 hours at 90 cents per hour) . .	\$1,836.00
Carpenter labor on Long-Bell lumber (1900 hours at 90 cents per hour) . .	1,710.00
Saving in labor on one house . .	\$ 126.00

Long-Bell

KNOW THE LUMBER YOU BUY

LONG-BELL LUMBER
IS TRADE-MARKED
ON THE END OF THE
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★ Send for the Whole Story

May we send you Mr. Brink's statement and other concise information regarding Long-Bell trade-marked lumber products?

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ADDRESS _____

CITY _____

The Long-Bell Lumber Company
 Lumbermen Since 1875
 607 R. A. Long Bldg., Kansas City, Mo.

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

REFERENCE LIST OF BUSINESS LITERATURE—Continued

PAINTS, STAINS, VARNISHES—See also **Waterproofing**
Samuel Cabot, Inc., 141 Milk St., Boston, Mass.

342. *Cabot's Creosote Stains*. Description of a standard stain for shingles, siding, boarding and timbers, with covering capacity and specifications. 16 pp. Ill. 4 x 8 1/4 in.

Joseph Dixon Crucible Co., Jersey City, N. J.

324. *Dixon's Silica-Graphite Paint*. A pamphlet describing the physical properties of silica-graphite paint and especially the wide difference between it and other protective paints. Contains also sample color card with specifications. 20 pp. and 6 pp. in color card. Ill. 3 1/4 x 6 1/4 in.

Samuel H. French & Co., Philadelphia, Pa.

312. *French's Paints and Varnishes*. A catalog and price list of paints, stains, varnishes, mortar, cement colors, cement colors and materials for plasterers, with instructions for selection of colors, etc. 44 pp. Ill. 4 x 8 in.

Hydrex Asphalt Products Corp., 120 Liberty St., New York.

62. *Dampproofing Walls, Above and Below Grade*. Illustrated booklet. Uses and specifications of Hydrex Paint, Hydrex (Bitumen). Compound and Hydrex Waterproof Primer for walls above and below grade, stainproofing cut stone, acid-proofing floors, etc., described. Size 8 1/2 x 11 in. 8 pp.

National Lead Company, 111 Broadway, New York, N. Y.

330. *Color Harmony*. Color card for glass finish and flat finish together with useful notes on painting and a collection of approximate formulas for obtaining the colors shown on the color card. 8 pp. Ill. 3 1/4 x 8 1/2 in.

336. *Dutch Boy Flattening Oil*. A booklet describing the characteristics of flat and glass paints, volatile thinners and a treatise on methods of obtaining special paint surfaces together with formulas. 24 pp. 3 1/2 x 6 in.

The New Jersey Zinc Co., 160 Front St., New York, N. Y.

227. *Pointing Specifications*. A booklet full of useful information concerning paint mixtures for application on various surfaces.

Parker, Preston & Co., Inc., Norwich, Conn.

337. *Art in Shingle Stains*. Description of waterproof, odorless shingle stains and waterproof coating for walls and floors with covering capacities and directions for use. 27 pp. 3 x 4 1/2 in.

Ripolin Co., The, Cleveland, Ohio.

410. *Ripolin Specification Book*. 8 x 10 1/4 in., 12 pp. Complete architectural specifications and general instructions for the application of Ripolin, the original Holland Enamel Paint. Directions for the proper finishing of wood, metal, plaster, concrete, brick and other surfaces, both interior and exterior, are included in this Specification Book.

Standard Varnish Works, 443 Fourth Ave., New York, N. Y.

565. *Immaculate Distinction*. A book describing Satinette Enamel, and enduring white enamel for interior and exterior use. Specifications are given for use on new and old work, metal, plaster, etc. 22 pp. Ill. 5 x 7 in.

566. *Architectural Reference Book, Third Edition*. A readily accessible and concise compilation of practical finishing information from which specifications readily can be written on varnishes, stains, fillers and enamels. 24 pp. Ill. in colors with samples on wood, etc. 8 1/4 x 11 in.

PARTITIONS

J. G. Wilson Corp., 2 East 36th St., New York.

618. *Folding Partitions and Sectionfold Partitions*. Two catalogs describing folding partitions operated on pivoted castors working in narrow flush floor track with overhead guide track, all doors equal width. 16 and 14 pp. Ill. 8 1/2 x 11 in.

PILES, CONCRETE

MacArthur Concrete Pile and Foundation Co., 12 John St., New York, N. Y.

323. *Concrete Pile Standards*. This treatise gives standard details for pile caps with standard specifications for concrete piles and has a valuable chapter entitled, "How a Pile Supports Its Load." Useful tables are presented with worked examples of computation for typical unusual conditions. 64 pp. Ill. 9 x 12 in.

Raymond Concrete Pile Co., 140 Cedar St., New York.

156. *Raymond Concrete Piles—Special Concrete Work*. A booklet with data concerning the scope of the Raymond Concrete Pile Co. for special concrete work. It classifies piles, showing by illustration, text and drawings, the relative value of special shape and manufacture of piles. It gives formulae for working loads, and relative economy. Size 8 1/2 x 11 1/4 in. 60 pp.

PIPE—See also Metals

Bridgeport Brass Company, Bridgeport, Conn.

556. *Brass Pipe and Piping; When and How it Should be Used*. *Bulletin No. 15*. This book contains valuable tables, charts and examples for the design of hot water installations, with illustrations of details and connections. It also discusses the use of pipe of different materials; various processes for preventing rust and corrosion in iron and steel pipes. It is a valuable treatise for all architects and engineers. 47 pp. Ill. 8 x 10 1/4 in.

A. M. Byers Company, Pittsburgh, Pa.

679. *What is Wrought Iron?* *Bulletin 26 A*. Contains the definition of wrought iron, methods of manufacture, chemical and physical characteristics; advantages of wrought iron as a pipe material; service records from old buildings equipped with Byers Genuine Wrought Iron Pipe. How to tell the difference between iron and steel pipe. 40 pp. Ill. 8 x 10 1/4 in.

A. M. Byers Company, Pittsburgh, Pa.

680. *The Installation Cost of Pipe*, *Bulletin 38*. Contains cost analysis of a variety of plumbing, heating, power and industrial systems, with notes on corrosive effects in different kinds of service. 32 pp. Ill. 8 x 10 1/4 in.

The Durlin Company, Dayton, Ohio.

548. *Durlin Acid-Proof Drain Pipe*. This is a handbook for the architect and engineer on Durlin drain pipe fittings, exhaust fans, sinks, etc. Contains specifications for installations, detail dimensioned drawings, reports on corrosive tests, long partial list of successful installations, etc. 20 pp. Ill. 8 x 10 1/4 in.

National Tube Co., Frick Bldg., Pittsburgh, Pa.

670. *National Bulletin No. 25B, 3rd Edition*. Devoted to the installation of steel pipe in large buildings, architectural anti-corrosion engineering, gas piping, specifications and tables of strength and properties. 74 pp. Ill. 8 1/2 x 10 1/4 in.

Rome Brass and Copper Company, Rome, N. Y.

500. *Bulletin No. 1, Seamless Brass Pipe*. This bulletin illustrates in colors nine installations of hot water heaters between range boiler, basement furnace, tank and instantaneous heaters for one and two-family houses and larger buildings. Contains also a number of estimating and designing tables, rules and formulas. 22 pp. Ill. 7 1/2 x 11 1/4 in.

A. Wyckoff & Son Co., Elmira, N. Y.

397. *Wyckoff Wood Pipe*. *Catalog No. 42*. A description of machine-made woodstove pipe and Wyckoff's express steam pipe casing. Contains also a number of pages of useful formulas and tables for hydraulic computations. 92 pp. Ill. 6 x 9 in.

PIPE COVERING

The Philip Carey Co., Lockland, Cincinnati, Ohio.

370. *Pipe and Boiler Coverings*. *Catalog 1362*. A catalog and manual pipe and boiler coverings, cements, etc. Contains a number of valuable diagrams and tables. 71 pp. Ill. 6 x 9 in.

POTTERY AND FINE TILE

The Rookwood Pottery Company, Cincinnati, Ohio.

410. *Rookwood, Cincinnati*. A booklet dealing in a general way with the various products of this well known company. It is illustrated and contains 8 pages, 6 x 9 in. The company issues many small booklets, each one dealing with a special product.

PLUMBING EQUIPMENT—See also Drains

Bridgeport Brass Co., Bridgeport, Conn.

461. *Plumbing Supplies*. Catalog of adjustable swivel traps; basin and bath supplies and waste; basin and sink plugs; low tank bends; iron pipe sizes of brass pipe. 20 pp. Ill. 8 x 10 1/4 in.

Crane Company, 836 So. Michigan Ave., Chicago, Ill.

240. *General Plumbing Catalogue*. A very complete and well illustrated booklet describing the complete line of Crane plumbing goods. 80 pp. 8 1/2 x 11 in.

Philip Haas Company, Dayton, Ohio.

524. *Catalog B*. This catalog contains a complete description of the full line of waterclosets made by this company, together with illustrations of combinations for every type or class of service. Wall hanging closets are an innovation here fully described. A feature of interest to designers is the series of roughing in plates with dimensions. 81 pp. Ill. 6 1/2 x 9 1/4 in.

Jenkins Bros., 80 White St., New York, N. Y.

236. *Jenkins Valves for Plumbing Service*. This booklet contains all necessary information about Jenkins Valves commonly used in plumbing work. 16 pp. Ill. 4 1/4 x 7 1/4 in. Stiff paper cover.

Kohler Company, Kohler, Wisconsin.

209. *"Kohler of Kohler"*. A booklet on enameled plumbing ware describing processes of manufacture and cataloging staple baths, lavatories, kitchen sinks, slop sinks, laundry trays, closet combinations. 48 pp. Ill. 5 1/2 x 8 in. Roughing-in Measurement Sheets 5 x 8 in.

531. *Catalog F*. This is a complete catalog of Kohler enameled ware for plumbing installations, together with high grade fittings. There is also a brief and interesting description of the manufacture of high grade enameled ware and a statement of the facts about Kohler village one of the discussed experiments in modern industrial town building. 215 pp. cloth bound. Ill. 7 1/2 x 10 1/4 in.

The Vulcan Brass Manufacturing Co., Cleveland, Ohio.

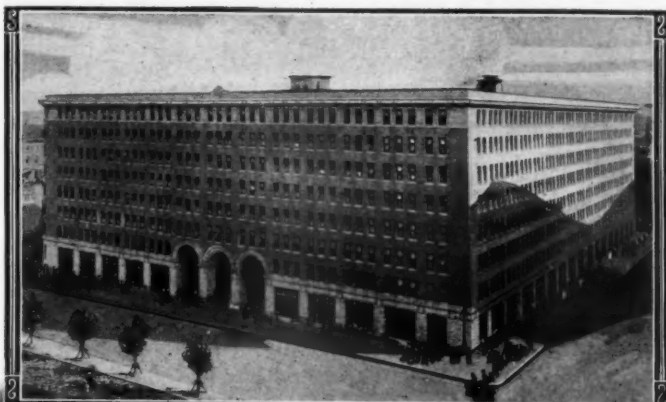
214. *Paragon Ball Bearing Self Closing Faucets, Bibbs and Stops—Catalog B*. Illustrated book showing sectional drawings, illustrations and text describing "Paragon" self-closing work, high pressure ball cocks, parts and valves.

678. *Paragon Brass Goods, Catalog C*. New catalog showing sectional drawings, illustrations and text describing exclusive feature of "Paragon" self closing basin and sink faucets and stops; high pressure ball cocks, vitreous china bubblers, compression and quick-compression work. 60 pp. Ill. 7 1/2 x 10 1/4 in.

PUMPS

The Dayton Pump and Manufacturing Company, Dayton, Ohio.

475. *Electric House Pumps and Water Supply Systems*. A heavy paper binder containing illustrated bulletins 8 1/2 x 11 in. These bulletins describe pumps as well as complete automatic electric and gasoline water supply systems and all accessories, together with specifications, detail drawings and tables of dimensions. 48 pp.



Through Earthquake and Fire!

IN 1919 the Japanese Government appointed a commission to study European and American building methods. The commission was so favorably impressed with American buildings, that a New York firm was invited to organize the Geo. A. Fuller Co. of the Orient, Ltd., their first work being the erection, in Tokio, of the two giant structures illustrated above.

These buildings were nearing completion when the disastrous earthquake and fire occurred. American building methods scored their crowning triumph when these structures emerged with amazingly small damage from the most terrible catastrophe in recorded history.

The larger of these buildings, the Marunouchi Building, now stands amidst devastation and ruin, a modern office building of gigantic proportions, a typical American steel frame structure.

The other edifice is the mammoth headquarters of the Nippon Yusen Kaisha. Both of these buildings contain all modern conveniences and safeguards to life and property, such as passenger elevators, electric light, plumbing, heating and other pipe systems. These latter include a number of services found only in the best equipped American business buildings, namely:

Heating System	Byers Pipe
Cold Water Supply Lines	Byers Pipe
Hot Water Supply Lines	Byers Pipe
Fire Lines	Byers Pipe
Sprinkler System	Byers Pipe
Refrigeration System	Byers Pipe
Drinking Water Lines	Byers Pipe
and Other Services	Byers Pipe
Vacuum Sweeper Lines	Byers Pipe

It will be noted that, with due recognition of its surpassing anti-corrosion properties, Byers pipe was chosen for all but one of the above services in both buildings.

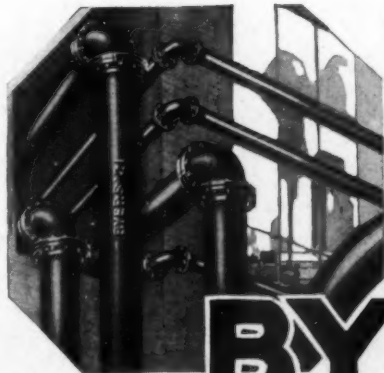
Free literature on request

A. M. BYERS COMPANY, Pittsburgh, Pa.

Established 1864

New York Philadelphia Boston Chicago Houston

Distributors in all Jobbing Centers



BYERS PIPE

GENUINE WROUGHT IRON

Look for the Name and Year rolled in every length

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

REFERENCE LIST OF BUSINESS LITERATURE—Continued

REFRIGERATION

The Automatic Refrigerating Co., Hartford, Conn.

298. *The Mechanics of Automatic Refrigeration and Automatic Refrigeration for Hospitals and Sanatoriums.* Two essential booklets for the library of designers and specification writers. 24 and 28 pp. Ill. $8\frac{1}{2} \times 11$ in.

370. *Automatic Refrigeration for Retail Markets.* A valuable treatise on the subject matter mentioned in the title. 30 pp. Ill. $8\frac{1}{2} \times 11$ in.

Baker Ice Machine Co., Inc., Omaha, Nebraska.

661. *Baker System Refrigeration.* A catalog explaining the application of refrigeration for hotels, hospitals, institutions and restaurants requiring up to 50 ton daily capacity including mechanical details and specifications. 20 pp. Ill. 9×12 in.

Jamison Cold Storage Door Co., Hagerstown, Md.

549. *Heavy Duty Cold Storage Doors. Catalog No. 10.* Complete description of both hinged and sliding cold storage doors for every equipment. Also description of cold storage windows and ice chutes. 79 pp. Ill. $5\frac{1}{2} \times 9$ in.

REFRIGERATORS

The Jewett Refrigerator Company, 27 Chandler Street, Buffalo, N. Y.

231. *Refrigeration and Health. Vital Facts You Ought to Know.* A booklet outlining the basic requirements of a good refrigerator and explaining how to use a refrigerator to secure best results. 16 pp. Ill. $4\frac{1}{2} \times 7\frac{1}{2}$ in.

635. *Manual of Refrigerators.* This manual completely describes the construction of refrigerators for use in hotels, clubs, hospitals, institutions and residences, with specifications. Numerous plans showing size and arrangement of refrigerators in kitchens, service and lunch rooms are included. 30 pp. Ill. $8\frac{1}{2} \times 11$ in.

McCray Refrigerator Co., Kendallville, Ind.

472. *Refrigerators and Cooling Rooms. Cat. 33.* A catalog of cooling equipment for hotels, restaurants, hospitals, institutions, colleges and clubs. Catalog No. 96 deals with refrigerators for residences. 52 pp. each. Ill. in colors. $7\frac{1}{2} \times 10$ in.

REINFORCING STEEL—See also Concrete, Reinforced

Rail Steel Products Association, Reinforcing Bar Division, Arcade Bldg., St. Louis, Mo.

582. *Rail Steel for Concrete Reinforcing.* A book describing the manufacturing, fabrication and physical properties of rolled, billet and rail steel bars with specifications for their use. 84 pp. Ill. $8\frac{1}{2} \times 11$ in.

RESTAURANT EQUIPMENT—See Kitchen Equipment

ROOFING—See also Slate—Metals—Shingles

American Brass Company, Main Office, Waterbury, Conn.

515. *Copper Roofing. Service Sheet.* This service sheet contains details for laying copper roofing together with standard specifications. 17 x 22 in. folding to $8\frac{1}{2} \times 11$ in. printed both sides.

American Sheet & Tin Plate Co., Frick Building, Pittsburgh, Pa.

463. *Copper—its Effect Upon Steel for Roofing Tin.* Describes the merits of high grade roofing tin plates and the advantages of the copper-steel alloy. 28 pp. Ill. $8\frac{1}{2} \times 11$ in.

Asbestos Shingle, Slate & Roofing Co., Ambler, Pa.

53. *Ambler Asbestos Corrugated Roofing.* Catalog gives complete data for specifying, drawings, methods of application, tables, etc. Size $8\frac{1}{2} \times 11$ in. 20 pp.

The Barber Asphalt Company, Land Title Bldg., Philadelphia, Pa.

423. *Standard Trinidad Built-Up Roofing Specifications.* Contains two specifications for applying a built-up roof over boards and two for applying over concrete. Gives quantities of materials and useful data. 8 pp. $8 \times 10\frac{1}{2}$ in. Ask at same time for Good Roof Guide Book. 32 pp. Ill. 6×9 in.

John Boyle & Co., Inc., 113-114 Duane St., New York, N. Y.

212. *Boyle's Bayonne Roof and Deck Cloth.* List B 93. A prepared roofing canvas guaranteed waterproof for decks and the roofs and floors of piazzas, sun-parlors, sleeping porches, etc.

The Philip Carey Co., Lockland, Cincinnati, Ohio.

378. *Architects' Specification Book on Built-Up Roofing.* A manual for detailers and specification writers. Contains complete details and specifications for each type of Carey Asphalt Built-Up Roof. 20 pp. Ill. $8\frac{1}{2} \times 11$ in.

The Copper and Brass Research Association, 25 Broadway, New York, N. Y.

468. *Copper Roofing.* Weights of various roofing materials. Up-to-date practice in the laying of copper roofs—Batten or wood rib method. Standing seam method, flat copper roofs. Copper shingles. Suggestions for avoiding error and obtaining the full value of copper. Decorative effects and how to obtain them. Flashings, reglets, gutters and leaders. Cornices. Copper-covered walls. Specifications. 32 pp. Ill. $8\frac{1}{2} \times 11$ in.

The Edwards Manufacturing Company, Cincinnati, Ohio.

535. *Shingles and Spanish Tile of Copper.* This book, illustrated in colors, describes the forms, sizes, weights and methods of application of roof coverings, gutters, downspouts, etc., of copper. 16 pp. Ill. in special indexed folder for letter size vertical file.

Ludowici-Celadon Co., Chicago, Ill.

120. *Roofing Tile.* A detailed Reference for Architects' Use. Sheets of detailed construction drawings to scale of tile sections of various types and dimensions, giving notes of their uses and positions for various conditions of architectural necessity. Size $9\frac{1}{2} \times 13\frac{1}{2}$ in. 106 plates.

154. *The Roof Beautiful.* Booklet. Well illustrated with photographs and drawings, giving history and origin of roofing tile, and advantages over other forms of roofing. Types shown by detailed illustrations. Size $8 \times 10\frac{1}{4}$ in. 32 pp.

The Richardson Company, Lockland, Cincinnati, Ohio.

492. *Viskali Membrane Roofs.* Contains specifications for applying Membrane roof over boards and also for applying over concrete. Illustrated with line drawings of several approved methods of flashings. 3 pp. $8\frac{1}{2} \times 11$ in.

Rising and Nelson Slate Company, 101 Park Ave., New York, N. Y.

496. *Tudor Stone Roofs.* This leaflet discusses colors and sizes of Tudor hand-wrought slates; deals with the service given to architects and tells how the material is quarried for each product after careful drawings and specifications are prepared in co-operation with architects. Special grades are described in detail and illustrations are given of buildings with Tudor slate roofs. Contains also specifications of laying slate. 4 pp. Ill. $8\frac{1}{2} \times 11$ in.

571. *Tudor Stone Roofs.* A brochure describing the 7 special grades of Tudor Stone and the 7 grades of commercial slate produced by this company with illustrations of many structures on which it has been used. 28 pp. Ill. $6 \times 9\frac{1}{2}$ in.

Vendor Slate Co., Easton, Pa.

333. Occasional brochures on architecturally pertinent phases of roofing slate sent on request. See also listing under Slate.

ROOF-LIGHTS—See Glass Construction

SANDSTONE—See Stone

SAFES

The General Fireproofing Co., Youngstown, Ohio.

F786. *Safeguarding Vital Records of Business.* An illustrated book dealing with the protection of business records from fire. Contains colored plates of Underwriters' Class A and Class B safes. 48 pp. Ill. $8\frac{1}{2} \times 11$ in.

SASH—See Doors and Windows

SHEATHING—See also Stucco Base

The Hydrex Asphalt Products Corp., 120 Liberty Street, New York.

63. *Sheathing and Insulating Paper—Waterproof.* Illustrated pamphlet. Describes Hydrex "Novento" and gives specifications for use under floors, in walls, and under roofs.

SHELVING—STEEL

Art Metal Construction Company, Inc., Jamestown, New York.

543. *Art Metal Steel Shelving.* Describes steel shelving for the storage of goods from stationery to heavy castings in stock and storerooms; for the display of goods in retail establishments; for the orderly disposal of material in vaults and offices. 34 pp. Ill. 6×9 in.

SCREENS

American Wire Fabrics Company, 208 So. La Salle St., Chicago, Illinois.

305. *Catalog of Screen Wire Cloth.* A catalog and price list of screen wire cloth, black enamelled, galvanized, aluminoid, copper, bronze. 50 pp. Ill. $3\frac{1}{2} \times 6\frac{1}{4}$ in.

The Higgin Manufacturing Co., 5th and Washington Ave., Newport, Ky.

353. *Screen your Home in the Higgin Way.* A description of Higgin door and window screens with practical data. 16 pp. Ill. $8\frac{1}{2} \times 11\frac{1}{2}$ in.

New Jersey Wire Cloth Company, 614 South Broad St., Trenton, N. J.

409. *A Matter of Health and Comfort. Booklet No. 2331.* A booklet telling all about screens, the durability of copper and its superiority over all other metals for screen purposes. 16 pp. Ill. $5 \times 7\frac{1}{2}$ in.

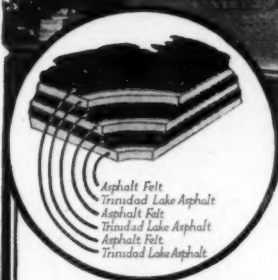
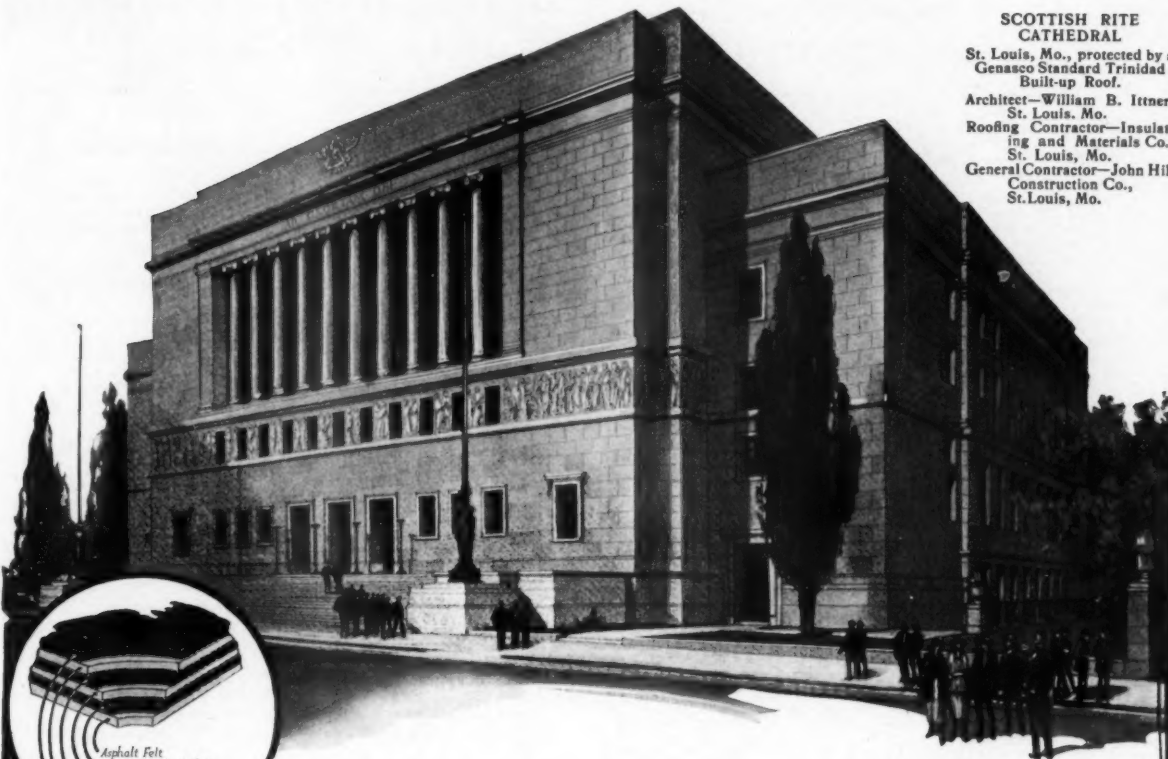
SHINGLES—See also Roofing

The Philip Carey Co., Lockland, Cincinnati, Ohio.

381. *Carey Asphalt Shingles.* Folder containing illustrations of attractive buildings and residences on which Carey Asphalt Shingles have been used. Describes this type of shingle, showing its special claims and advantages.

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

SCOTTISH RITE
CATHEDRAL
St. Louis, Mo., protected by a
Genasco Standard Trinidad
Built-up Roof.
Architect—William B. Ittner,
St. Louis, Mo.
Roofing Contractor—Insulat-
ing and Materials Co.,
St. Louis, Mo.
General Contractor—John Hill
Construction Co.,
St. Louis, Mo.



Cross-sectional view
of a Genasco Standard
Trinidad Built-up Roof,
showing method of con-
struction.

"We want the best roof we can get"

—said the builders of Scottish Rite Cathedral, St. Louis, Mo., and the Architect specified Genasco Standard Trinidad, the *smooth-surface* built-up roofing.

Genasco Standard Trinidad is composed by weight of 85 per cent. pure water-proofing—Trinidad Lake Asphalt, a nature-made, world-old, ages-seasoned product.

That's why Genasco Standard Trinidad is not covered with gravel or slag—why it is built in only 6 layers and weighs only 150 pounds per square.

Genasco Standard Trinidad is reinforced by 15 per cent. by weight of tough, long-fibred felt—chosen because of its great tensile strength, Mullin strength and power of absorption.

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STANDARD TRINIDAD *Built-up Roofing*

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

REFERENCE LIST OF BUSINESS LITERATURE—Continued

SIDEWALK LIGHTS—See also Vault Lights

SLATE—See also Roofing

Vendor Slate Co., Inc., Easton, Pa.

332. *The Vendor Book of Roofing Slate for Architects*. Contains original information on slate in various architectural uses; history, geology, sundry practical matters; complete descriptive classification; extended treatise on architectural roof design and specifications. 24 pp. Ill. $8\frac{1}{2} \times 11$ in.

STAINS—See also Paints, Stains, Varnishes

STEEL JOIST CONSTRUCTION

Truscon Steel Co., Youngstown, Ohio.

641. *Truscon Steel Joist Data Book*. Complete data of steel joists giving properties, dimensions, safe loads, coefficients of deflection, details of connections, specifications, directions for installations. 32 pp. Ill. $8\frac{1}{2} \times 11$ in.

STONE

The Appalachian Marble Company, Knoxville, Tenn.

503. *Appalachian Tennessee Marble*. A new booklet on the qualities to be demanded in marble and a treatise on Tennessee marble by T. Nelson Dale (Retired Geologist, U.S.G.S.). Contains also illustrations of the plant of the company, buildings in which Appalachian Tennessee Marble has been used and four-color process plates of the six major Appalachian marbles. In tough paper indexed cover. 12 pp. Ill. $8\frac{1}{2} \times 11$ in.

Indiana Limestone Quarrymen's Assn., P. O. Box 503, Bedford, Ind.

37. *Indiana Limestone*. Illustrated booklet. Vol. I, of the Limestone Library. Size 6×9 in. 36 pp.

295. *Folders, Series D*. Structural detail and data sheets showing methods of detailing cut stone work in connection with modern building construction. 4 pp. each. $8\frac{1}{2} \times 11$ in.

360. *Standard Specifications for Cut Stone Work*. This is Vol. III, Series "A-3," Service publications on Indiana Limestone, containing Specifications and Supplementary Data, relating to best methods of specifying and using this stone for all building purposes. This valuable work is not for general distribution. It can be obtained only from a Field Representative of the Association or through direct request from architect written on his letterhead. 56 pp. Ill. $8\frac{1}{2} \times 11$ in.

National Building Granite Quarries Assn., Inc., 31 State Street, Boston, Mass.

410. *Architectural Granite No. 1 of the Granite Series*. This booklet contains descriptions of various granites used for building purposes; surface finishes and how obtained; profiles of moldings and how to estimate cost; typical details; complete specifications and 19 plates in colors of granite from various quarries. 16 pp. Ill. $8\frac{1}{2} \times 11$ in.

STORE FRONTS

Detroit Show Case Co., Detroit, Mich.

77. *Designs*. A booklet. Store fronts and display window designs, giving plans and elevations, and descriptions. Size $9\frac{1}{4} \times 12$ in. 16 pp.

78. *Details*. Sheets of full size details of "Desco" awning transom bar covers, sill covers, side, head and jamb covers, ventilated hollow metal sash and profile of members. Size $16 \times 21\frac{1}{2}$ in. 3 sheets.

The Kawneer Company, Niles, Mich.

407. *A Collection of Successful Store Front Designs*. Illustrations of recently erected modern store fronts with all framing covered with solid copper. Maximum show window surface secured by these designs. Many classes of occupancy shown. 64 pp. Ill. $6\frac{1}{2} \times 9\frac{1}{4}$ in.

530. *Catalog L, 1922-1923 Edition*. Details of solid copper store fronts construction. This is a treatise on the installation of copper store fronts and contains sectional and detail views of Kawneer sash, corner and division bars, jambs, sill and transom bar coverings and other members. Intended for the detailer. 32 pp. Ill. $8\frac{1}{2} \times 11$ in.

STOVES

George M. Clark & Co., Division of American Stove Co., 179 No. Michigan Ave., Chicago, Ill.

458. *Gas Stove Catalog No. 114*. A complete catalog of Clark Jewell gas stoves; water heaters; room heaters; ovens; waffle irons; cake bakers; hot plates; etc. 76 pp. Ill. 6×9 in.

Dangler Stove Co., Division of American Stove Co., Cleveland, Ohio.

459. *Measured Heat Cookery, Catalog No. 161*. A catalog of gas cooking stoves, ranges and water heaters; featuring the Lorain Oven Heat Regulator, a device for obtaining uniform heat without constant supervision. 72 pp. Ill. $7\frac{1}{2} \times 10\frac{1}{2}$ in.

STUCCO—See also Cement

Portland Cement Association, 347 Madison Ave., N. Y. C.

504. *Portland Cement Stucco*. Illustrated leaflet of recommended practice for Portland Cement Stucco. Contains data on materials, proportions, application and curing. Table of colors for various tints, photographs of surface textures and drawings of construction details also given. 15 pp. Ill. $8\frac{1}{2} \times 11$ in.

STUCCO BASE

The Bishopric Manufacturing Company, Cincinnati, Ohio.

451. *Bishopric for All Time and Clime*. A booklet describing Bishopric materials; giving building data, detailed drawings and specifications. Illustrated with half tones from photographs of houses built of Bishopric materials. 52 pp. Ill. $8 \times 10\frac{1}{2}$ in.

TELEPHONES

Automatic Electric Co., 945 W. Van Buren St., Chicago, Ill.

683. *Architect's Specifications for Interior Telephone System*. A complete and short specification for the installation of interior telephone systems adapted to all kinds of buildings and uses. 4 pp. $8\frac{1}{2} \times 11$ in.

684. *The Straight Line*. A booklet devoted to interior communication by use of private automatic exchanges and the P-A-X Code Calls. Description of switchboards, instruments and accessories. 38 pp. Ill. 5×8 in.

Stromberg-Carlson Telephone Mfg. Co., Rochester, New York.

304. *Inter-Communicating Telephone Systems, Bulletin No. 1017*. A pamphlet giving just the information required for the installation of intercommunicating systems from 2 to 32 stations capacity. 15 pp. Ill. $7\frac{1}{4} \times 10$ in.

TERRA COTTA

Atlantic Terra Cotta Company, 350 Madison Avenue, New York, N. Y.

425. *Questions Answered*. A brief but full description of Atlantic Terra Cotta and its use in buildings. 32 pp. Ill. $5\frac{1}{4} \times 7$ in.

551. *Monthly Magazine, Atlantic Terra Cotta*. December issue illustrates the Renaissance Arch in Terra Cotta with beautiful examples from Bologna, Cremona and Piemonte. Also notes on the Japanese earthquake. 16 pp. Ill. $8\frac{1}{2} \times 11$ in.

National Terra Cotta Society, 19 West 44th St., New York City.

664. *Standard Specifications*. Contains complete detailed specifications for the manufacture, furnishing and setting of terra cotta, a glossary of terms relating to terra cotta and a short form specification for incorporating in architect's specification. 12 pp. $8\frac{1}{2} \times 11$ in.

666. *Color in Architecture*. An illustrated treatise upon the principles of color design and appropriate technique. 38 pages. Ill. $8\frac{1}{2} \times 11$ in.

667. *Present Day Schools*. Illustrating 42 examples of school building architecture with an article on school house design by James O. Betelle, A. I. A. 32 pp. Ill. $8\frac{1}{2} \times 11$ in.

668. *Better Banks*. Illustrating many banking buildings in terra cotta with an article on its use in bank design by Alfred C. Bosson, architect. 32 pp. Ill. $8\frac{1}{2} \times 11$ in.

The Northwestern Terra Cotta Co., 2525 Clybourn Ave., Chicago, Ill.

96. *Architectural Terra Cotta*. A collected set of advertisements in a book, giving examples of architectural terra cotta, ornamental designs and illustrations of examples of façades, of moving-picture houses, office buildings, shops, vestibules and corridors in which Northwestern Terra Cotta was used. Size $8\frac{1}{2} \times 11$ in. 78 pp.

TILE—ORNAMENTAL

The Associated Tile Manufacturers, Beaver Falls, Pa.

358. *Home Suggestions*. A new book in colors describing and illustrating the use of tiles in floors, walls, ceilings, fireplaces, garages, for exterior embellishment, etc. Full of suggestions. Sent to architects on request. $7\frac{1}{2} \times 10\frac{1}{2}$ in.

359. *Basic Information on Tiles*. Book giving practical information on ingredients, processes, gradings, sizes, shapes, colors, finishes and nomenclature. Sent to architects on request. $7\frac{1}{2} \times 10\frac{1}{2}$ in.

374. *Basic Specifications for Tilework and Related Documents, No. K-300*. This specification is prepared in a very systematic manner for the use of architects and builders. It is printed on one side of a sheet with facing page blank to receive memoranda. Various colored sheets make reference easy and simplify greatly the work of a specification writer in specifying tilework. 38 pp. $7\frac{1}{2} \times 10\frac{1}{2}$ in.

375. *"Work Sheets" for Specification Writers*. To be used in connection with "Basic Specification for Tilework and Related Documents." 16 sheets $7\frac{1}{2} \times 10\frac{1}{2}$ in.

TIME CLOCKS—See Clocks

TOILET PARTITIONS—See Wainscoting

TRIM—See also Doors and Windows

TRUSSES—See Building Construction

VARNISH—See Paints

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(More than a private telephone exchange—the Automatic Electric Services of the P-A-X include and co-ordinate interior telephony, code call, conference, watchman service and all other inter-communication needs)

A Pair of Wires and a Dial

All the Automatic Electric services of the P-A-X are rendered over one pair of wires which connect each P-A-X telephone to the central automatic switchboard. No elaborate cables are needed, no duplication of wires and wiring. This makes installation, maintenance and expansion of the P-A-X equipment simple and economical.

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One of our engineers will be pleased to explain just how the P-A-X will increase production and reduce overhead for your client. He has figures that show the cost of a P-A-X installation is soon repaid by the saving in operators' salaries and the rental of city phone equipment. Wire or write our nearest office.

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Branch Offices:

NEW YORK, 21 East 40th Street
CLEVELAND, 801 Cuyahoga Bldg.

In Canada—Address

Northern Electric Co., Ltd., 121
Shearer Street, Montreal, P. Q.

Abroad—Address

International Automatic Telephone
Co., Ltd., 60 Lincoln's Inn Fields,
London, W. C. 2, England

In Australia—Address

Automatic Telephones, Ltd., 207
Macquarie St., Sydney, Australia

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual



REFERENCE LIST OF BUSINESS LITERATURE—Continued

VAULT LIGHTS

American Three Way Luxfer Prism Co., 13th Street and 55th Court, Chicago, Ill.

424. *Daylighting. Catalog 21.* A complete catalog on glass prisms for use in transoms, sidewalk and floor lights, skylights, etc., for lighting places inaccessible to direct daylight. Contains also measurements, specifications and other data required by designers. 42 pp. Ill. 8½ x 11 in.

VENTILATION—See Heating and Ventilation

VENTILATORS

The Burt Manufacturing Co., Akron, Ohio.

207. *General Catalogue* covering entire line of Ventilators, Exhaust Heads and Filters. Separate leaflets on each type of ventilator, vent and damper.

525. *The Great Outdoors Brought Inside.* In this book is a description of the new rectangular combination skylight and ventilator; the Burt fan ventilator for removing odors, fumes, etc., when atmospheric conditions interfere with the gravity process; and a table giving prices, dimensions, weights and gauges of iron of the Burt Ventilator. Some good general information about ventilators is included. 16 pp. Ill. 3½ x 6¼ in.

WAINSCOTING

The Vitrolite Company, Chamber of Commerce Building, Chicago, Ill.

648. *Toilet Partitions and Wainscoting. Architects Tile Bulletin No. 7.* Describing the uses of Vitrolite, its physical properties, details of installation and specifications. 32 pp. Ill. 8½ x 11 in.

WALL COVERING—See also Lincrusta-Walton

Standard Textile Products Co., 320 Broadway, New York, N. Y.

111. *Sanitas, Modern Wall Covering.* Folio. Plates of color renderings of various interiors, with suggestions for the library, living room, dining room, boudoir, kitchen and church wall covering, using Sanitas. Size 11½ x 6 in. 15 plates.

112. *Sanitas, and Its Uses.* Booklet. Text and color illustrations of Sanitas as a wall covering, with tables for wall and ceiling measurements. Notes on sanitary character, cleanliness and durability of Sanitas. Size 5 x 7 in. 28 pp. 6 color plates and 2 sample sheets.

113. *Sanalining Sanitas Lining and Prepared Lining.* Folder. Notes on durability and cleanly character of the above three products. Size 3¼ x 6 in.

114. *Hints to Decorators.* Booklet. Instructions and specifications for the application of Sanitas, with notes on finishes and material. Size 5 x 6¼ in. 20 pp.

WATER HEATERS

Rund Manufacturing Co., Pittsburgh, Pa.

567. *Rund Gas Water Heaters.* Bulletins in filing folder describing instantaneous automatic water heaters for small homes and special uses, multi-coil automatic storage systems, automatic storage systems and tank water heaters. Details for connections, hot water service and specifications. 19 pp. Ill. 8½ x 11 in.

580. *Rund Automatic Storage Systems.* Catalog of automatic hot water storage systems for domestic, industrial and commercial uses. Details, capacities, dimensions and other data. 24 pp. Ill. 6 x 9 in.

590. *Rund Multi-Copper-Coil Automatic Storage Systems.* Catalog describing automatic hot water storage systems of large capacity for large residences, apartment buildings, hotels, hospitals, gymnasiums and factories. Details, capacities and dimensions for complete line. 32 pp. Ill. 6 x 9 in.

WATERPROOFING—See also Dampproofing

The General Fireproofing Co., Youngstown, Ohio.

646. *The Waterproofing Handbook* (Sixth Edition). A revised edition of this valuable book treating of sub-structure and super-structure waterproofing, cement and wood floor preservatives, technical paints and coatings and GF waterproofings, preservatives and their uses. 72 pp. Ill. 8½ x 11 in.

WATER PURIFICATION

The R. U. V. Company, Inc., 165 Broadway, New York.

606. *Ultra Violet Ray Sterilization.* Bulletins treating of water sterilization for homes, hotels, office buildings, hospitals, schools, industrial plants, breweries, ice plants, swimming pools, water works and other places. Ill.

WATER SOFTENERS

The Permutit Company, 440 Fourth Ave., New York.

105. *Permutit (Water Rectification Systems.)* Illustrated booklet. Describes all methods of softening water, including the original Zeolite process. For homes, hotels, apartment houses, swimming pools, laundries and industrial plants. Size 8½ x 11 in. 32 pp.

Wayne Tank and Pump Company, Fort Wayne, Ind.

482. *Bulletin No. 1600.* This bulletin treats of the value of soft water in the house and describes the Wayne Domestic Water Softening System. 6 pp. Ill. 8¼ x 10½ in.

WATER SUPPLY—See Pumps

WEATHER STRIPS

The Diamond Metal Weather Strip Co., Columbus, Ohio.

616. *The Diamond Way.* A catalog of full size details showing the application of Diamond metal weather strips to double hung and casement windows and doors with complete specifications. 34 pp. Ill. 8½ x 11 in.

The Higgin Manufacturing Co., 5th and Washington Ave., Newport, Ky.

354. *Higgin Metal Weather Strips.* A booklet of considerable value to architects and builders on the use of weather strips. Ask also for the companion book on "The Reason Why." Each booklet 12 pp. Ill. 6 x 9 in.

Monarch Metal Products Co., 5020 Penrose Street, St. Louis, Mo.

512. *Monarch Metal Weather Strips.* The publication embodies all the suggestions for advertising literature made by the Committee on Structural Service of the American Institute of Architects. It contains a treatise on leakage around windows together with description of Monarch Metal Weather Strips. Contains many detail working drawings. 48 pp. Ill. 7½ x 10½ in.

WINDOWS—See Doors and Windows

WIRE AND CABLE—See Electric Wire and Cable

WOODWORK—See also Doors and Windows—Lumber

Curtis Companies Service Bureau, Clinton, Iowa.

663. *Keeping Down the Cost of Your Woodwork.* A book illustrating Curtis interior woodwork and built-in cabinets and fixtures designed by Trowbridge and Ackerman, Architects, New York. Colored illustrations and details. 16 pp. Ill. 7 x 9¼ in.

Hartmann-Sanders Company, 6 East 39th St., New York, N. Y.

334. *Catalog No. 47.* Illustrating Kell's Patent Lock Joint wood stave columns for exterior and interior use. 48 pp. Ill. 7½ x 10 in.



HYDREX-NOVENTO is an extra heavy, durable, absolutely waterproof paper. It contains no tar or acids but impregnating oils under a coating of bitumen and soapstone which protect and preserve tin, copper, wire mesh and the nails in tile and slate. The soapstone finish on the weather side protects the paper against the action of the alkali in stucco.

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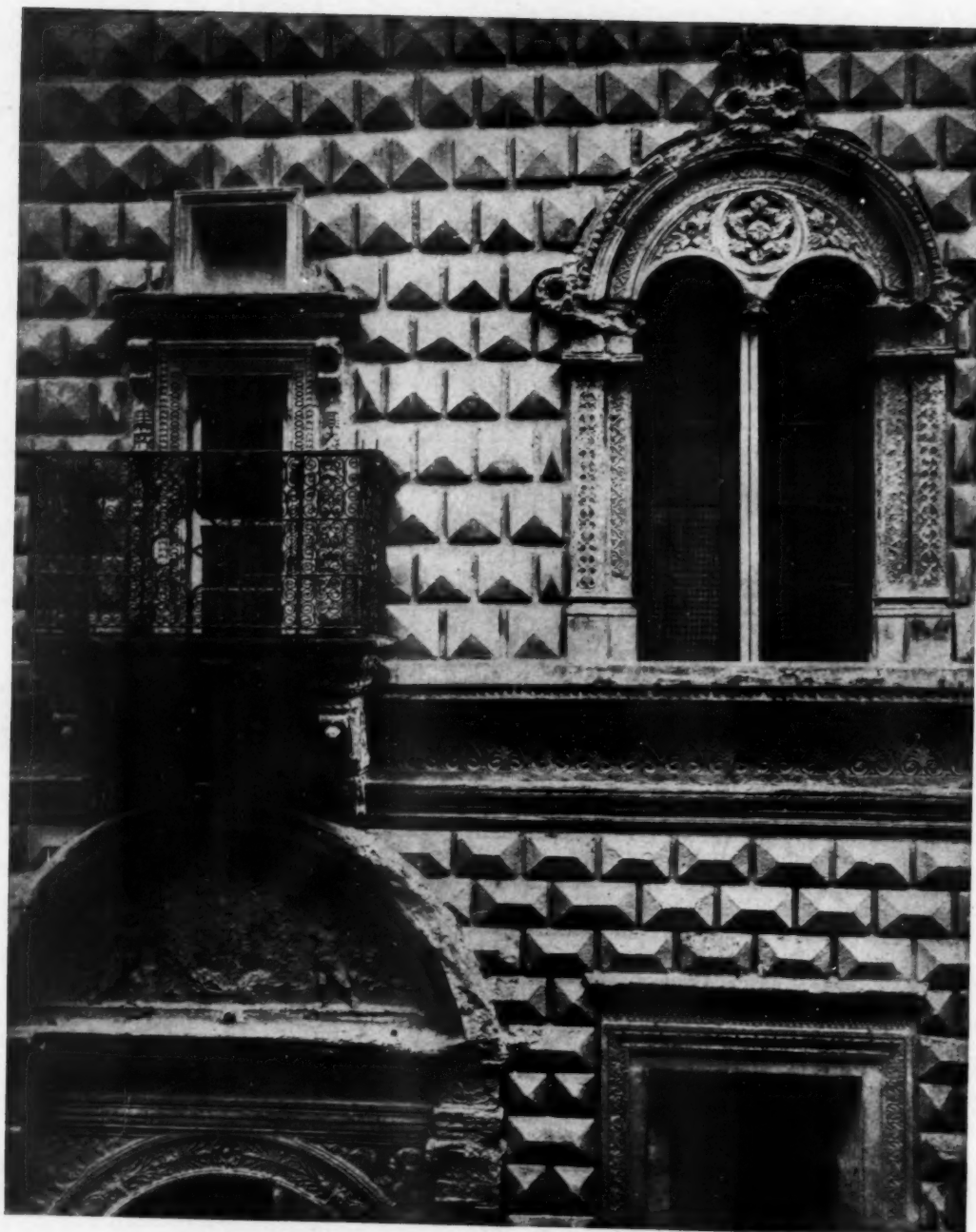
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HYDREX-SANIFLOR is a thick glaze-coated blanket-like felt. It lays flat; does not swell; gives a firm, even floor. An absolutely sanitary, waterproof, non-conductor of sound, heat and cold. It keeps out all vermin and at the same time makes a sound deadener of the highest type.



EXTERIOR DETAIL, PALAZZO BEVILACQUA, BOLOGNA

THE AMERICAN ARCHITECT