

THE
AMERICAN ARCHITECT
AND
BUILDING NEWS



VOL. LXXXIV

April - June

1904

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A WEEKLY JOURNAL OF CONSTRUCTIVE AND DECORATIVE ART

VOL. LXXXIV.—No. 1475.]

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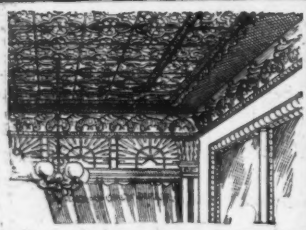
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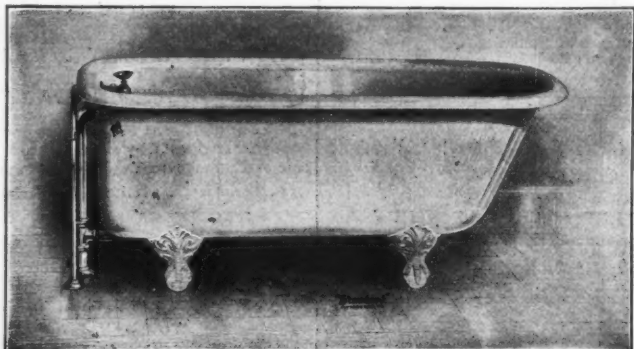


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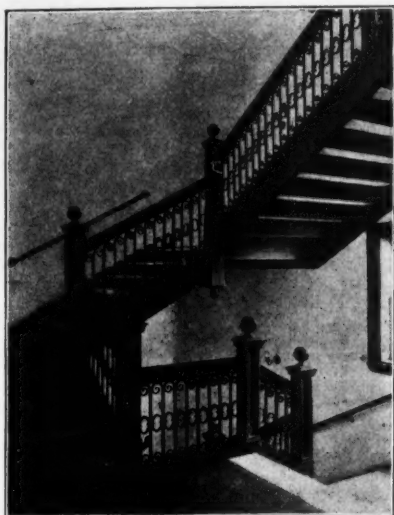
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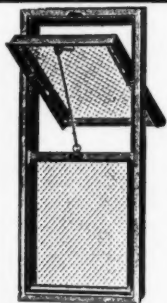
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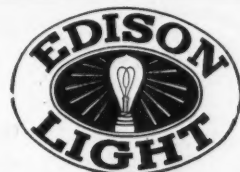
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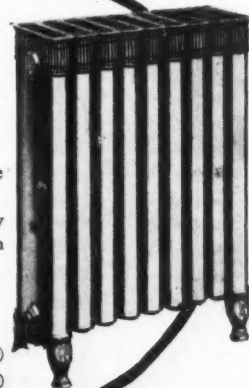
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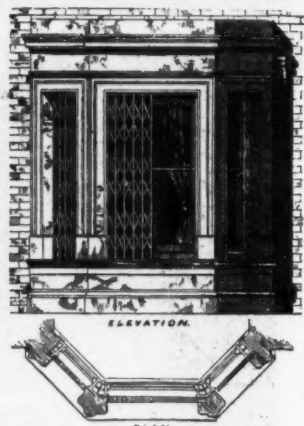




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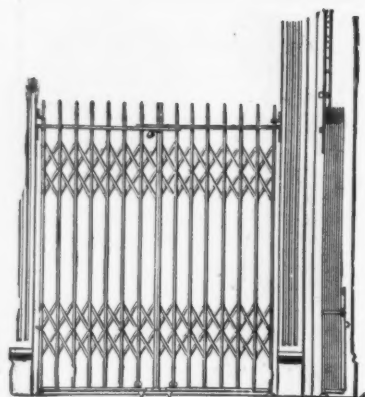


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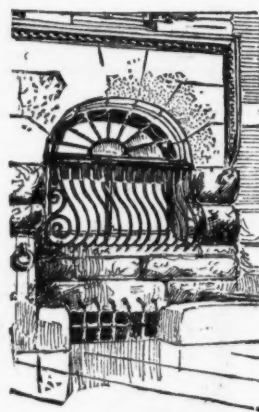
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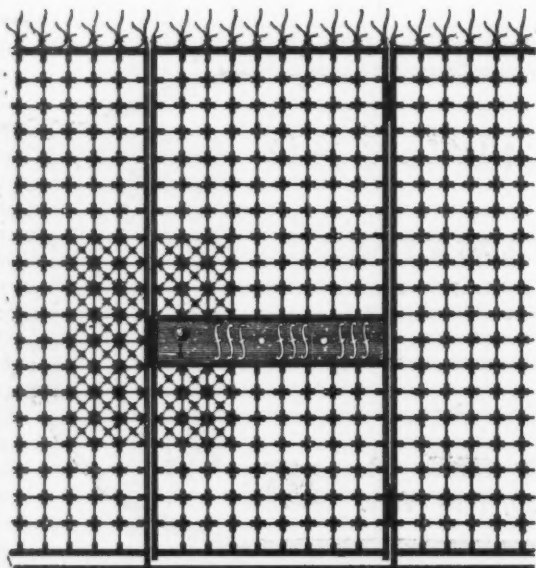
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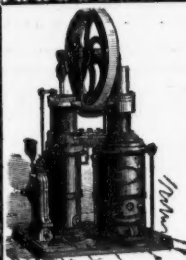


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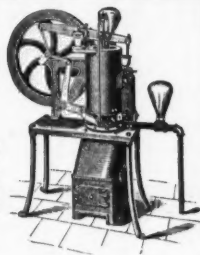
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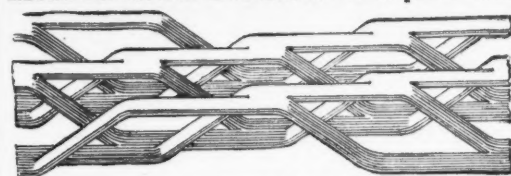
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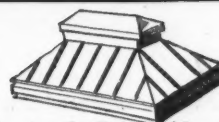
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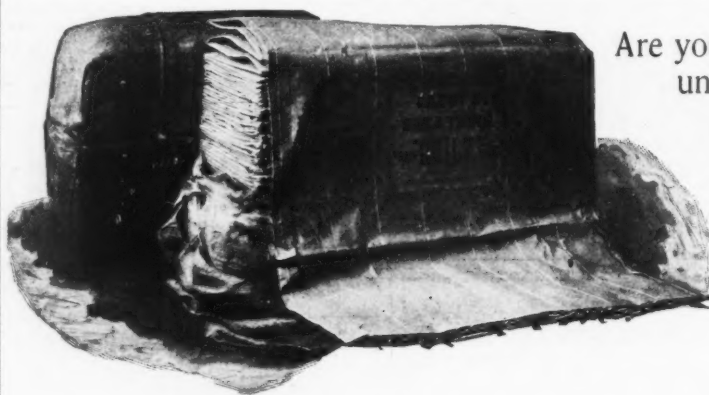
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THE AMERICAN ARCHITECT AND BUILDING NEWS

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THE record of the Art Commission for New York — largely, or wholly, an unpaid body — for the past year is rather a surprising one, and certainly one upon which its members may look with satisfaction. It has had before it for consideration and approval municipal work, in which one form or another of artistic manifestation was involved, that reached a total value of more than thirty millions of dollars, and that there is a very real responsibility in its functions is revealed by the fact that, to a very large degree, it held in each case the veto power and by its unfair or unreasonable exercise might have blocked municipal improvements of very great consequence to the public. The reality of the Commission's power of veto was established in the matter of the Blackwell's Island Bridge, which the contractor was ready to carry out according to plans which had been approved by all other parties concerned, but which the Art Commission declined to approve. When the matter was taken into court, the decision arrived at declared that, as the Commission was by law vested with the veto power and as it had disapproved of the design, its "disapproval disposed of it," and the bridge could not be erected in accordance with the rejected design. It is testimony to the discretion and reserve with which the Commission has exercised its powers that there has been so little outcry against its action, and that people have been willing to agree that its decisions, if not absolutely right — for when canons of taste vary, where can the line between right and wrong be drawn? — have at least been right enough under existing circumstances and conditions. During the year, it passed upon more than fifty more matters submitted to it than in the year before, nearly one hundred more than it had to act upon two years before. In nearly half the cases submitted, it required alterations to be made before approval could be signified; but this can only mean that the amended designs were better than the originals, and, perhaps, as near to the desired perfection as the ability of the designer in question enabled him to go. In no case, probably, would the Art Commission be willing to have it understood that its approval stamped the work as a consummate work of art, one than which no better could be produced by any one.

THE report of another New York Commission, that of the State Board of Mediation and Arbitration, is also interesting, though it can claim for itself little more than a negative usefulness; and the fact that it can show such feeble results distinctly declares that in the principle of arbitration disputants are not yet ready to recognize a panacea, whether the arbitrators sit at The Hague or at Albany, N. Y. That out of the one hundred and ninety-two labor disputes occurring in New York State last year only twenty-eight — less than fifteen per cent — in any degree fell under the Board's influence must be discouraging to its members, to say the least; and the further fact that in only five of these twenty-eight cases was the

Board's aid voluntarily entreated shows that the arbitration propaganda has not as yet won many adherents. From the fact that in the five cases mentioned the appeal came from the employes, not from the employers, may be deduced all sorts of conclusions, and perhaps as fair a deduction as any would be to conclude that in these five cases the workmen felt they had the weakest case and hoped to strengthen it by taking the step. Of the twenty-eight cases where the Board attempted to do something, only eight were settled by its intervention. Six times its efforts were unproductive of any effect whatever, and three times its proffered aid was declined. As the members of the Board were not very actively engaged in arbitrating, they have been able to spend their energies in collecting statistics for their report, and these are in several ways interesting. The largest number of disputes concerned the matter of increase of wages, about a third of these disputes being settled by compromises, and of the remainder the workmen winning in the proportion of twenty-six to nineteen. This was obviously to be expected, since it was generally known that living-expenses had increased and it was only equitable that wages should advance, more or less, in proportion. The cause of dispute next in numerical rank was recognition of the union, and here the employers won in the proportion of twenty-two to nine. Next as a cause came reduction of hours — the workmen presumably demanding the same pay as before — and again the employers won in a bare majority of the cases. The great building strike in New York City is the occasion for some very imposing figures, since it is estimated that when, during twenty-two weeks, organized labor and associated capital locked horns, there was lost to the welfare of the community the productive work of 1,707,019 working days and the wages for those working days was lost to the 25,834 workmen actually out on strike, involving them in a constructive loss during that period of more than six million dollars.

CONSIDERING what is known and what is merely suspected about the causation of building strikes for many years, and still more remembering the barely veiled accusations that were directed at the George A. Fuller Company during some portion of the term of the great strike of last year, it is only reasonable that, hereafter, in considering serious labor troubles the entire field should be scrutinized, before accepting one theory or another as the true explanation of the disturbance. The most obvious explanation is not necessarily the true one, and prolonged investigation may sometimes discover, however obscure the connection, that such strikes are in reality engineered, not in favor of the members of the striking union, but either for or against the interests of some great moneyed power or manufacturing corporation. Thus, in the case of the present bricklayers' strike in New York, there are those who believe that the welfare of the National Fireproofing Company is in some way intimately involved, for, as is generally known, the determining whether bricklayers may or may not set fireproof blocks, terra-cotta work and so on, is one of the most fruitful causes of these disastrous bickerings. It is argued that it is for the advantage of the fireproofing company mentioned that the greatest quantity of the goods it manufactures should be handled and put into buildings, and that it is quite immaterial to its interests whether the men handling it are bricklayers or some other body of skilled workmen; and as the agreement now existing between the unions and the Mason Builders' Association, which leaves the setting of fireproofing in the hands of the bricklayers, expires on May 1, it is not unreasonable to suspect that the fireproofing concern may be working for a more "open door" treatment, which the bricklayers as naturally are opposing. Among possible explanations, this one is at least plausible.

THE real value of modern fireproof building has at length reached a monetary expression in concrete form, as one of the outcomes of the Baltimore fire, through the adjustment of the insurance upon two of the steel-frame buildings damaged by that fire. The Union Trust Building, which cost four hundred thousand dollars, is conceded to have suffered seventy-five per cent of damage as compared with a total loss, and the loss is adjusted on that basis; while the Calvert Building, which cost six hundred thousand dollars, was damaged by fifty per

cent of its cost, and the adjustment follows at that rate. Unquestionably it may be in a degree consoling to the owners of the Calvert Building, when they gaze at its gaunt, windowless and smoke-stained front, to feel that before them still stands, in a sense intact, three hundred thousand dollars' worth of their investment; but they may well ask one another, and may demand an answer, too, from architects, engineers and firemen, who just now are felicitating themselves on the triumph of modern fireproofing methods, whether, to procure this proof, it was really needful to waste the other three hundred thousand of their dollars. It seems, after all, but a sorry outcome, this fifty per cent of salvage, and it is salvage, too, only on the building itself; the contents entrusted to its fireproof protection have vanished, as much so as the coal enclosed in the fire-box of a kitchen stove, which also is fireproof. Something has been gained in the practice of modern methods, but we seriously question whether much of real substantial worth has been accomplished by all the vast outlay of money and ingenuity, when the result is merely a patent fraud so far as the contents of the building go. Observers at the Baltimore fire noted how buildings, whose contents had been heated to the ignition point by the radiant heat that passed through their own glass windows, suddenly burst into flame on every floor at one and the same instant, and saw in the occurrence one more proof that the great and wise and powerful cannot avail against all-pervading treachery. No building can be made safe against the conflagration hazard in which the common glass is used in the window sashes, whether these last be of wood or metal.

ONE more opportunity for self-improvement is put within the reach of American architectural draughtsmen who, on the last day of April, do not exceed twenty-five years of age. The Society of Beaux-Arts Architects has long had it in view to establish a travelling-scholarship and now announces that it has "set aside" the sum of two thousand dollars, which shall be paid during the next two years to the young man who succeeds in getting first place in the series of competitions to be held between April 16 and July 4. The winner, under the guidance of the Society's committee, must spend two years abroad, of which eight months at least must be spent in a Paris *atelier*, and he must at least "try" for admission to the École itself. At the end of each year he must produce to the Society evidence of profitable employment, in the shape of measured drawings, as is usual in the case of similar scholarships. To the first competition, a twelve-hour sketch, which on April 15 is to be held in New York, St. Louis, Chicago, Providence, Philadelphia, Syracuse, Ithaca and Washington, any one within the age limit will be admitted. The five men ranking highest in this first competition and, should there be so many who wish to compete, fifteen others, who have not had to strive in the first competition since they have already secured a large number of values in the Society's regular competitions, are to constitute the entries in the second preliminary competition, which is to be a twenty-four-hour sketch, held in New York on April 23. The final competition, to which are to be admitted only the five men ranking highest in the second trial, is also to be held in New York and begins on April 30, ending July 4. The five men who take part in the concluding struggle are, as will be seen, called on to devote ten or eleven weeks' time to it, only in the case of four of them to meet with disappointment. The Society has understood that this consumption of time and this inevitable chagrin might be so real a deterrent as to make its programme nearly futile and, so, very wisely has decided to pay one hundred dollars to each of the four unsuccessful rivals, provided that their work does not fall below the desired standard of excellence. Full particulars can be had by addressing Mr. Lloyd Warren, 3 East Thirty-third Street, New York.

AT this writing the eighth competition for the John Stewardson Memorial Scholarship in Architecture is taking place, and before August expires some draughtsman or architect, under thirty years of age, who has studied or practised architecture within the State of Pennsylvania for at least one year, will set out for a year's travel and study in Europe, with a credit for one thousand dollars to draw on during that period. The "record" of previous competitions for the Travelling-Scholarship of the University of Pennsylvania, which is published with the programme, is interesting for one thing at least, and this is its revelation of grit and perseverance on the part of one or another of the competitors. For example, the third scholar,

Mr. Percy Ash, was "placed" in the two previous affairs, while the tenth holder, Mr. John Molitor, first appears as a placeman in the sixth competition; and the list reveals that there are others whose courage and determination to win at last have survived in the face of repeated partial failures.

THE semi-historical account of the great French department of the Ponts et Chaussées, which we republished from the *Architect* in our last issue, was evidently written by some one whose mind was distinctly jaundiced with professional and national prejudice, in so far as it intimated that the Gold Medal of the Royal Institute of British Architects was improperly bestowed in being awarded this year to M. Auguste Choisy, the writer evidently assuming that the honor was found to be fitting because of the recipient's eminence as an engineer. But, howsoever great his claims may be on that score, the propriety of the award seems to rest on other and fairly unexceptionable foundations. Although M. Choisy was educated at the École Polytechnique, at Paris, and entered the service of the Ponts et Chaussées, of which he is now its Honorary Inspector-General, at the age of twenty-two, he, evidently because he was the son of an architect, was strongly attracted by architecture and devoted his leisure hours to its study. Being able to travel widely, he had better chances than most to fit his theories and examples together, and to lay them before a profession, of whose art he was only, as it were, an amateur, in a series of books of great value. It is his worth as a writer on architecture, more than his position as an engineer, that has gained for him the Gold Medal. His first book, "*L'Art de bâtir chez les Romains*," published in 1873, was the outcome of his travels in Italy, Sicily and Greece, and its success made almost obligatory the sequel, which, under the title "*L'Art de bâtir chez les Byzantins*," appeared in 1882, while a companion volume, "*L'Art de bâtir chez les Égyptiens*," appeared only a short time ago. His most important work, "*L'Histoire de l'Architecture*," which practically consumed twenty years in the preparation, is the digested results of his lectures at the École des Ponts et Chaussées and was issued in 1898. Besides these works he has written a number of slighter books and contributed frequent papers to architectural periodicals. In view of this record as a writer on architecture, the action of the Council of the Royal Institute of British Architects seems to be beyond criticism.

ONE never comes to the end of the seemingly strange results of the working of the judicial mind. It is small wonder that law libraries have to be large and that opposing counsel are able to cite decision after decision, of apparent irrefutable weight, in favor of seemingly irreconcilable contentions. One of the most oppressive of legal enactments, with which contractors, among other employers, have to contend, is the employers' liability law as it exists in most of the States of this country. No one more than the responsible contractor regrets that one of his workmen has met with mishap, even if that workman's negligence has been the actual cause of it, and no less does he feel it a hardship that the injured man and his family should not be able to recover damages, but he does feel it unfair that the law should extract these damages from his, the contractor's, pocket. Generally speaking, the courts incline to favor the injured workman, if a colorable excuse for such ruling can be found; but now and then the contractor benefits. A very extraordinary instance of this latter outcome is found in the ruling of the Massachusetts Supreme Court, in the case of a workman who, being charged with taking in the slack of a rope during hoisting operations, had his hands drawn into a snatch-block and mashed by the sudden starting up of the team of horses attached to the other end of the rope. The Court holds that he has no remedy since commonsense and "due care" on his own part should have caused him to drop the rope when the horses started. Perhaps the decision was wholly warranted, but we fancy that if all the judges had been seamen and knew more what it is to struggle with a rope and a snatch-block, they would have perceived that it is not always a simple and easy matter to let go of a rope. We wonder if the reverse of the position would be sustained by the honorable Court and, in the case where a painter, say, feeling the scaffold give way below him, had grasped something above him, only after a few moments of safety to fall at length to the ground to his essential injury, would the Court in such a case rule that the injured man had no remedy since "due care" on his part required that he should "hold on"?

BYZANTINE GREECE.—II.¹

THE tenth century witnessed not only the recovery of Crete for the Byzantine Empire and for the Christian faith, but also the spread of monasteries over Greece. When Nikon had concluded his Cretan mission he visited Athens, where he is said by his biographer to have enchanted the people with his sermons, penetrated as far as Thebes, and then returned to Sparta, where he founded a convent and established his headquarters. Thence he set out on missionary journeys among the Slavonic tribes of the Melings and Ezerits, who had again risen against the Imperial authority and had again been reduced to the payment of a tribute. Those wild clans continued, however, to harry the surrounding country, and the monastery of St. Nikon was only protected from their attacks by the awe which the holy man's memory inspired. Long after his death he was adored as the guardian of Sparta, where his memory is still green, and the Peloponnesian mariner, caught in a storm off Cape Matapan, would pray to him, as his ancestors had prayed to Castor and Pollux. For central Greece the career of the blessed Luke the younger was as important as that of St. Nikon for the South. The parents of this remarkable man had fled from Ægina, when the Cretan corsairs plundered that island, and had taken refuge in Macedonia, where Luke was born. Filled with the idea that he had a call to a holy life, the young Luke settled as a hermit on a lonely Greek mountain by the seashore, where for seven long years he devoted himself to prayer. A Bulgarian raid drove him to the Peloponnesos, where for ten years more he served as the attendant of another hermit, who, like the famous Stylites of old, lived on a pillar near Patras. After further adventures, he migrated to Stiris, between Delphi and Livadia, where the monastery which bears his name now stands.

The absorption of the Christianized Slavs by the Greeks was occasionally interrupted by the Bulgarian inroads, which now became frequent. Since the foundation of the first Bulgarian Empire towards the end of the ninth century, the power of that race had greatly increased, and the Byzantine sovereigns found formidable rivals in the Bulgarian tsars. About 929 the Bulgarians captured Nikópolis, and converted it into a Slavonic colony, which was only reconquered by considerable efforts. Arsenios, Metropolitan of Corfu, who was canonized later on, and was for centuries the patron saint of the island, where his festival is still celebrated and his remains repose, fell into the hands of these invaders, but was rescued by the valor of the islanders,² and a new tribe, called Slavians, probably an offshoot of the Bulgarians, made its way into the Peloponnesos. The troublesome clans of Melings and Ezerits seized this opportunity to demand the reduction of their tribute, which had been raised after their last rising. The Government wisely granted their demand, and so prevented a formidable insurrection. Athens was also disturbed by a domestic riot. A certain Chases, a high Byzantine official, had aroused the resentment of the people by his tyranny and the scandals of his life. Alarmed at the threatening attitude of the inhabitants, who had been joined by others from the country, he took refuge at the altar in the Church of the Virgin on the Akropolis, the ancient Parthenon. But the sanctuary did not protect him from the vengeance of his enemies, who stoned him to death at the altar, thus showing less reverence for the Virgin than the ancient Athenians had once shown under somewhat similar circumstances for the goddess Athena.

The Emperor Constantine Porphyrogenitus, who wrote about the middle of the tenth century, has left us a favorable sketch of the Peloponnesos as it was in his day. Forty cities were to be found in that Theme, and some idea of its resources may be formed from the statement that the Peloponnesians excused themselves from personal service in an Italian campaign by the payment of 7,200 pieces of gold and the presentation of 1,000 horses all equipped.³ The purple, parchment and silk industries, as well as the shipping trade, must have yielded considerable profits to those who carried them on, and the presence of many Jews at Sparta in the time of St. Nikon, who tried to expel them, shows that there was money to be made there. His biography represents that city — of which the contemporary Empress, Theophanó, wife of Romanós II and Nikephoros Phokás, was perhaps a native⁴ — as possessing a powerful aristocracy, and as having commercial relations with Venice. The reconquest of Crete, by freeing the coast-towns from the depredations of pirates, naturally increased the prosperity of Greece. Schools rose again at Athens and Corinth, and from that time down to the beginning of the thirteenth century the country improved, in spite of occasional invasions. Thus, the Bulgarian Tsar Samuel captured Larissa and carried off many of its inhabitants, as well as the remains of the Thessalian Archbishop, St. Achillios, which had long been the chief relic of the place. His standards were twice seen south of the Isthmus, and Attica was ravaged by his forces. To this period we may refer the statement above quoted that "all Epiros and a large part of Hellas and the Peloponnesos were occupied by Scythian Slavs." But when they arrived at the river Spercheiós on their

return march, they were surprised by a Byzantine army and utterly defeated. The Emperor Basil II, surnamed "the Bulgar-slayer," completed the destruction of the first Bulgarian Empire, and on his triumphal progress through Northern and Central Greece in 1019 found the bones of the slain still bleaching on the banks of the Spercheiós. After inspecting the fortifications of Thermopylæ, he proceeded to Athens, which no Byzantine Emperor had visited since the days of Constans II. The visit was an appropriate sequel to the campaign. For the first time for centuries the Byzantine dominions extended from the Bosphorus to the Danube, and the Balkan peninsula once again was under Greek domination. In the Church of the Virgin on the Akropolis, the very centre and shrine of the old Hellenic life in bygone days, the victorious Emperor offered up thanks to Almighty God for his successes, and showed his gratitude by rich offerings to the church out of the spoil which he had taken.⁵ The beauty of the building, which he seems to have enhanced by a series of frescos, traces of which are still visible, was justly celebrated in the next generation, and one curiosity of that holy spot, the ever-burning golden lamp, is specially mentioned by the author of the so-called *Book of Guido*, and by the Icelandic pilgrim, Saewulf. Other persons imitated the example of Basil, and the restoration or foundation of Athenian churches was one of the features of the first half of the eleventh century. . . .

Some years later [than 1037], the inhabitants of the Theme of Nikópolis murdered the Imperial tax-collector, and called in the Bulgarians, who had risen against fiscal extortion like themselves. While Naupaktos held out in the West, the Thebans, then a rich and flourishing community, abandoned their silk manufactories, and took the field against the Bulgarians. But they were defeated with great loss, and it has even been asserted that the victors occupied the Piræus with the connivance of the discontented Athenians.

This surmise, which has, however, been rejected by the German historian of mediæval Athens, rests upon one of the most curious discoveries that have been made in connection with the place. Every visitor to Venice has seen the famous lions which adorn the front of the arsenal. One of these statues, brought home as a trophy by Morosini from the Piræus in 1688, has upon it a runic inscription, which has been deciphered by an expert. According to his version, the inscription commemorates the capture of the Piræus at this period by the celebrated Harold Hardrada, whom our King Harold defeated at Stamford Bridge, and who, in 1040, was commander of the Imperial Guard at Constantinople. In consequence, it appears, of an Athenian rising, Harold had been sent with a detachment of that force, composed largely of Norwegians, to put down the rebellion. After accomplishing their object, the Northmen, in the fashion of the modern tourist, scrawled their names and achievements on the patient lion, which then stood, like the lion of Lindau, at the entrance of the Piræus and gave to that harbor its later name of Porto Leone. It would be difficult to find a more curious piece of historical evidence than that a monument in Venice should tell us of a Norwegian descent upon Athens.

Dissension among the Bulgarians led to their collapse, and Greece enjoyed a complete freedom from barbarian inroads for the next forty years, with the exception of a passing invasion by the Uzes, a Turkish tribe, who left no mark upon the country. Athens at this period was regarded by the Byzantine officials who were sent there as the uttermost ends of the earth, though at Constantinople Philhellenism had a worthy representative in the historian Psellus, who constantly manifested a deep interest in "the muse of Athens." A more curious figure, typical of that monastic age, was the Capadocian monk Meletios, who established himself on the confines of Attica and Boeotia, and by means of his miracles gained great influence there. We find him descending from his solitary mountain to Athens to rescue a band of Roman pilgrims, who had taken refuge there and had been threatened with death by the bigoted Athenians. We hear of the convents which he founded in various parts of Greece, and it was to him that the land was largely indebted for the plague of monks, many of them merely robbers in disguise, which checked civic progress and injured all national life in the next century. Worse than this, the final separation of the Greek and Latin Churches in 1053, by kindling a fanatical hatred between West and East, brought countless woes upon the Levant, and was one of the causes of the Latin invasions which culminated in the overthrow of the Byzantine Empire in 1204.

There now appeared, for the first time in the history of Greece, that vigorous race which in the same century conquered our own island. The Normans of Italy, under their redoubtable leader, Robert Guiscard, resolved to emulate the doings of William the Conqueror by subduing the Byzantine Empire, which seemed to those daring spirits an easy prey. They began by the annexation of the Byzantine provinces of Apulia and Calabria, and then turned their eyes across the Adriatic to the opposite coast. An excuse was easily found for this invasion. One of Guiscard's daughters had been engaged to the son of the Emperor Michael VII. But the revolution, which overthrew Michael, sent his son into a monastery, and thus provided Guiscard with an opportunity of posing as the champion of the fallen dynasty. An impostor, who masqueraded as the deposed Emperor, implored his aid in the cause of legitimacy, and the great Pope, who then occupied the throne under the name of Gregory VII, bade the godly help in the contest against the

¹ Extracts from a paper by W. Miller in the *Westminster Review*. Continued from No. 1474, page 102.

² Mustoxidi: *Delle Cose Corciresi*, 409.

³ Constantine Porphyrogenitus: *De Administrando Imperio*, 51, 52.

⁴ The two large tombs in the crypt at Hósiou Loukás are perhaps those of Romanós II and Theophanó. Leo Didkonós calls her "the Laconian"; some say she was of low origin, others of a noble family of Constantinople. I noticed a great number of Hebrew inscriptions at Mistra, near Sparta, during a recent visit.

⁵ Cedrenus, 717; Zonaras, ii, 227.

schismatic Greeks. After long preparations Guiscard appeared in 1081 off Corfu, which surrendered to the Norman invader, and then directed his forces against the walls of Durazzo, now a crumbling Turkish fortress, then "the Western key of the empire." Menaced at the same moment by the Turks in Asia and the Normans in Europe, the Emperor Alexios I made peace with the former and then set out to the relief of Durazzo. But he did not trust to a land force alone, and as the Byzantine navy, like the Turkish fleet in our own days, had been neglected and the money intended for its maintenance had been misappropriated, he applied for aid to the mercantile Republic of Venice. The Venetians saw a chance of consolidating their trade in the Levant, and, as the price of their assistance, obtained from the embarrassed Emperor the right of free trade throughout the empire, where the Greek cities of Thebes, Athens, Corinth, Nauplia, Methone, Korone, Corfu, Euripos, and Demetrias are specially mentioned as their haunts. But the aid of a Venetian fleet did not prevent the victory of the Normans over Alexios on the plain near Durazzo, where Cæsar and Pompey had once contended. The Emperor retreated to Ochrida, where, two generations earlier, the Bulgarian Tsar Samuel had fixed his residence, while his conqueror, after taking Durazzo, marched across Albania and captured the city of Kastoria, which was defended by three hundred English, members of the Imperial Guard. Recalled to Italy by troubles in his own dominions and by the distress of his ally the Pope, Guiscard left the prosecution of the campaign to his son Bohemond, who penetrated into Thessaly, that historic battleground of the Near East. But the walls of Larissa and the gold of Alexios proved too much for the strength of the Normans, and Bohemond was forced to retire to Italy. He found his father fresh from his triumph at Rome, which he had delivered to the Pope, and ready for a second campaign against the Byzantine Empire. In 1084 Guiscard set sail again; after three naval battles with the Greeks and their Venetian allies, Corfu once more surrendered to the Normans, and their leader used it as a stepping-stone to the island of Kephallenia. But he contracted a fever there, which put an end to his life and to the expedition, of which he had been the heart and soul. The village of Phiskardo has perpetuated his name, thus marking the second attempt of the West to impose its sway upon the East.

Bohemond renewed, twenty-two years later, his father's attacks upon the Byzantine Empire. In the meanwhile, as the result of his share in the first crusade, he had become Prince of Antioch — one of those feudal States which now adjoined the immediate dominions of the Eastern Emperor — and exercised considerable social influence on the customs of his subjects. Aided by the Pisans, whose fleet ravaged the Ionian Island, Bohemond seemed likely to repeat the early successes of his father; but Alexios had learnt how to deal with the Latins, and the Normans' second assault on Durazzo ended in a treaty of peace, by which Bohemond swore fealty to the Emperor. For the next forty years Greece had nothing to fear from the Normans, but the evil results of the alliance with Venice now became manifest. The Republic of St. Mark had jealous commercial rivals in Italy, who envied her the monopoly of the Levantine trade. When, therefore, concessions were made to the Pisans and the previous charter of the Venetians was not renewed, the Empire found itself involved in a naval war with the latter from which the defenceless Greek islands suffered, and which was only ended by the renewal of the old Venetian privileges. The mercantile powers of Italy had come to treat the Byzantine possessions much as modern European States regard Turkey, as a Government from which trading concessions can be obtained. But every fresh grant offended some one and gave the favored party more and more influence in the affairs of the Empire. Fresh Venetian factories were founded in Greece, and the increasing prosperity of that country had the disadvantage of attracting the covetous foreigner.

Such was the state of affairs when, in 1146, Guiscard's nephew, King Roger of Sicily, availing himself of an insult to his honor, invaded Greece with far greater success than had attended his uncle. The Sicilian Admiral, George of Antioch, occupied Corfu, with the connivance of the poorer inhabitants, who complained of the heavy taxation of the Imperial Government,¹ but was repulsed by the bold inhabitants of the impregnable rock of Monemvasia; then, after plundering the west coast, he landed his troops at the modern Itea, on the north of the Gulf of Corinth, and thence marched past Delphi on Thebes, at that time the seat of the silk manufacture. The city was undefended, but that did not save it from the rapacity of the Normans. Alexander the Great had, at least, spared "the house of Pindaros" when he took Thebes; but its new conquerors left nothing that was of any value behind them. After they had thoroughly ransacked the houses and churches they made the Thebans swear on the Holy Scriptures that they had concealed nothing, and then departed, dragging with them the most skilful weavers and dyers so as to transfer the silk industry to Sicily. This last was a serious blow to the monopoly of the silk trades which Greece had hitherto enjoyed so far as Christian States were concerned. The secret of the manufacture had been jealously guarded; and the fishers who obtained the famous purple dye for the manufacturers were a privileged class, exempted from the payment of military taxes. Roger was well aware of the value of his captives; he established them and their families at Palermo, and at the con-

clusion of the war they were not restored to their homes in Greece. But the art of making and dying silk does not seem to have died out at Thebes, which, fifteen years after the Norman invasion, had recovered much of its former prosperity. . . .

From Thebes the Normans proceeded to the rich city of Corinth, which fell into their hands without a blow. Those who have ascended the grand natural fortress of Akrocorinth may easily understand the surprise of the warlike Normans at its surrender by the cowardly Byzantine commandant. "If Nikephoros Chalouphes" — such was his name — "had not been more timid than a woman," exclaimed the Sicilian admiral, "we should never have entered these walls." The town below yielded an even richer booty than Thebes — for it was then, as under the Romans, the great emporium of the Levantine trade in Greece — and laden with the spoils of Thebes and Corinth and with the relics of St. Theodore, the Norman fleet set sail on its homeward voyage. Nineteen vessels fell victims to privateers, but the surviving ships brought such a valuable cargo into the great harbor of Palermo that the admiral was able to build out of his share the bridge which is still called after him, Ponte dell' Ammiraglio. The Church of La Martorana, as its older name of Sta. Maria dell' Ammiraglio testifies, was also founded by him. The captives, except the silk-weavers, were afterwards restored to their homes, and Corfu was recaptured by the chivalrous Emperor, Manuel Komnenos, after a siege, in the course of which he performed such prodigies of valor as to win the admiration of the Norman commander.

The revival of material prosperity in Greece after the close of this conflict was most remarkable, and in the second half of the twelfth century that country must have been one of the most flourishing parts of the Empire. The Arabian geographer, Edrisi, who wrote in 1153, tells us that the Peloponnesos had thirteen cities, and alludes to the vegetation of Corfu, the size of Athens, and the fertility of the great Thessalian plain, while Halmýrós was then one of the most important marts of the Empire. Benjamin of Tudela tells us of Jewish communities in Larissa, Naupactos, Arta, Corinth, Patras, Eubœa, Corfu (consisting of one man), Zante and Ægina, as well as in Thebes, and this implies considerable wealth. Like St. Nikon, he found them in Sparta, and we may note as a curious phenomenon the existence of a colony of Jewish agriculturists on the slopes of Parnassos. When we remember how rare are Jews in Greece today, except at Corfu, their presence in such numbers in the twelfth century is all the more strange. Nor were they all engaged in money-making. The worthy rabbi met Jews at Thebes who were learned in the Talmud, while the Greek clergy had also some literary representatives. It was about this time that the biography of St. Nikon was composed; the philosophical and theological writings of Nicholas, Bishop of Methone, and Gregory, the Metropolitan of Corinth, belonged to the same epoch. Athens, after a long eclipse, had once more become a place of study. Young Georgians were sent there to learn Greek and make translations of philosophical treatises. More remarkable still, Englishmen frequented the Athenian school, owing, perhaps, to the connection which had sprung up between our island and the East through the English who served in the Emperor's Varangian guard. . . .

We have from the pen of Michael Akominátos, the last Greek Archbishop of Athens before the Latin conquest, who was appointed about 1175, a full if somewhat pessimistic account of the condition of his diocese, which then included ten bishoprics. Michael was a man of distinguished family, a brother of the Byzantine statesman and historian, Nikéas Choniátos, and a pupil of the great Homeric scholar, Eustáthios, who was Archbishop of Salonica. An ardent classical scholar, he had been enchanted at the prospect of taking up his abode in the episcopal residence on the Akropolis, of which he had formed the most glorified idea. But the golden dream of the learned divine vanished at the touch of reality. It was said of the Philhellenes, who went to aid the Greeks in the War of Independence, that they expected to find the Peloponnesos filled with "Plutarch's men"; finding that the modern Greeks were not ancient heroes and sages, they at once put them down as scoundrels and cut-throats. The worthy Michael seems to have experienced the same disillusionment and to have committed the same error as the Philhellenes. Fallen walls and rickety houses fringing mean streets gave him a bad impression as he entered the city in triumphal procession. His cathedral, it is true, with its frescos and its offerings from the time of Basil the Bulgar-slayer, with its eternal lamp, the wonder of every pilgrim, and with the noble memories of the golden age of Periklēs which clung round its venerable structure, seemed to him superior to Sta. Sophia in all its glory, a palace worthy of a king. And what bishop could boast of a minster such as the Parthenon? But the Athenians, "the offspring of true-born Athenians," as he styled them in his pompous inaugural address, did not appreciate, could scarcely even understand, the academic graces of his style. The soil of Attica, thin even in the time of Thucydides, had become a parched desert, where little or no water was; the classic fountain of Kallirrhoe had ceased to run, the olive-yards were withered up by the drought. The silk-weavers and dyers, traces of whose work have been found in the Odeon of Herodes Atticus, had disappeared, and there was not a carriage-maker in all the city. Piracy had once more become the scourge of the Attic coast; Ægina, a nest of corsairs, was, as in the olden days, "the eye-sore of the Piræus"; even the archbishop's nephew was wounded in a brush with those daring robbers. The

¹ In the twelfth century Corfu paid into the Imperial Treasury about 9,000,000 drachmai, or more than the present Greek Exchequer raises from all the Ionian Islands. — Paparregópoulos, *op. cit.*, iv, 51.

Imperial Government found the pirates a useful excuse for raising ship-money from Athens, which disappeared, of course, in the pockets of the collectors. Emigration threatened to reduce Attica to "a Scythian desert," and the exactions of the Byzantine officials completed the tale of woe, which Michael was ever ready to pour into the ear of a sympathetic correspondent. . . .

We must, therefore, not take too literally all the rhetorical complaints of the archbishop, which are incompatible with the great luxury of the Athenian Court under the French Dukes in the next century. As a good friend of Athens, he was anxious to make the city appear as poor as possible in the eyes of a grasping Government, for in the East it has always been a dangerous thing to appear rich. . . .

The history of the Fourth Crusade is well known and need not be repeated here. How the crusaders turned aside from their original object to restore the dethroned Emperor Isaac Angelos and his son to the throne, how they captured Constantinople and partitioned the Empire between them, has been often told. We are only concerned with that partition so far as it affected Greece, which now passed for a period of more than two centuries under the dominion of Western rulers. After one-quarter of the Byzantine possessions had been assigned to the new Latin Emperor, Baldwin I, the remaining three-quarters were divided between the Venetians and the army of crusaders, whose leader was Boniface, Marquis of Montferrat. The Greek provinces of Asia Minor and the island of Crete had at first been assigned to the latter; but Boniface preferred to exchange a distant sovereignty in Asia for a nearer kingdom in Europe, and accordingly received the so-called kingdom in Salonika, which comprised Macedonia, Thessaly and Continental Greece, and was practically independent of the Latin Empire of Constantinople, whose European dominions were limited to part of the capital, Thrace, and some of the islands. Crete was sold by the Marquis to the Venetians, who thus began their long occupation of that island. With the shrewd, practical sense of a commercial community, they managed to include within their share the best harbors, islands and markets in the Levant. An establishment at Constantinople, the Ionian and many of the Aegean islands, the north and south part of Euboea, Salamis and Egina, a large part of Akarnania and Etolia, Epiros, the whole of the Peloponnesos in theory, and the two valuable Messenian stations of Koróné and Methóné in practice,¹ were among the spoils of the Republic, whose Doge henceforth styled himself "Lord of one-fourth and one-eighth of the Empire of Romania." But the Venetians were unable to take possession of some of their new dominions. Just as in Asia two new Greek Empires rose at Nice and Trebizond, so in Epiros an independent Greek principality was formed in a land which had been assigned to them on paper. Like every other partition treaty that has been signed, this instrument depended for its validity upon the capacity of the signatories to enforce their claims, a condition all the more important in the present case, because, though Constantinople had fallen, Greece had not yet been conquered, and the several parties were therefore assigning to each other what was not yet theirs.

Short-lived as the Latin Empire and the Latin Kingdom of Salonika proved to be, the partition which created them had a decisive effect upon the fortunes of Greece for the next two or more centuries. The tie between Hellas and Constantinople was broken; the ancient Greek lands were divided up into separate feudal States, without cohesion with themselves or with the capital, and the old Hellenic world assumed an aspect of variety and a lack of unity which continued to mark it till the completion of the Turkish conquest.

THE NEW YORK BUILDING-LOAN SYSTEM.

A RECENT issue of the New York *Evening Post* gives the following interesting account of the method of procuring a building-loan in New York, which seems to have been followed in the Hotel Darlington case:

Renewed interest in the building-loan system is aroused by the collapse of the Darlington Hotel, and this week's testimony as to the cause. Among the facts brought out in the evidence was that the builder, Eugene C. Allison, was not a builder at all, but a lawyer. His brother, who was killed, and who was supposed to be the superintendent of construction, was a sailor. The steel contractors, Pole & Schwandter, are, so far as can be learned, unknown among representative real-estate and building-loan men. No engineer or architect was employed regularly to inspect the work. Plans drawn and approved by the Building Department were laid aside and others substituted. A question generally asked, as these facts became known, was whether most construction work, especially of the apartment-hotel order, is of this kind, and whether the average building-loan operator is in the habit of entrusting his money to irresponsible persons, and then failing to keep watch upon the work.

The present building-loan system was originated about twenty-five years ago. Most of the building in Manhattan since has been upon this basis. The whole lower East Side has been rebuilt by speculative builders operating on building-loans. The West Side and Harlem have been constructed on the same basis. The next great construction movement will probably be on Washington Heights, from One Hundred and Fifty-fifth Street north; and this, too, must all be done

on building-loans. Formerly only the smaller class of operations, tenements and medium-priced private houses, were financed in this way. With the growth of the city, however, the building-loan system, though with necessary modifications, has been extended to practically every class of work. The West Side apartment-house, ranging in cost from \$50,000 to \$500,000, is included in the system. In the last three years there has been little less than an apartment-hotel mania, all put up with building-loans. Private dwellings, designed to sell from \$100,000 to \$400,000, even the most expensive office-buildings, have been building-loan undertakings. The builder with capital enough to buy his land, and erect his house on his own responsibility, is an exceedingly rare bird. So far as can be learned, this system is peculiar to New York. In Chicago, for example, it is unknown, the lien laws of Illinois not being favorable to its growth.

There are three variations of the building-loan system. In the first case, the builder himself may be strong enough to purchase his own lots. In this case, he has no difficulty in obtaining a building-loan, for he is a very much sought-for customer. In the second case, the loan operator both buys the lots for the builder, and lends him the money for his operation. Lastly, the loan operator sells the builder the land, and procures him a loan from some other source. In the last two cases the builder's position is the same, though the loan operator's is somewhat different. The Darlington undertaking was of this latter class. In 1902 Jackson & Stern, building-loan operators, purchased the Forty-sixth Street land for a price not stated in the deed, but subject to a mortgage of \$90,000. Later they sold the property to the Allison Realty Company, agreeing at the time to secure a building-loan. This, to the extent of \$250,000, was afterwards made by one of the title companies. Just what the arrangement was in this particular case is not known. Ordinarily, however, part of the \$250,000 would be used to satisfy the original mortgage of \$90,000. As security the title company took a first mortgage on the land and the projected building. Jackson & Stern took a second mortgage for \$43,000. This \$43,000 probably represented the money they had themselves advanced, and whatever additional profit they expected from the operation. It is quite probable that the Allison Realty Company itself advanced some cash, perhaps \$5,000 or \$10,000. The greatest risk assumed was that of Jackson & Stern and the Allison. The latter, in view of such a calamity as occurred, lost whatever amount they had in the operation. For them there is absolutely no security. Probably the makers of the building-loan lose nothing. It is not likely that they had made more than one or two payments, and whatever they had advanced is abundantly secured by the land, which is worth at least \$150,000. There may be enough value in the land and foundation above what the title company paid in to partly recoup the loan operators. Every other claim, however, is secondary to the building-loan. Even the contractors and the material-men have no recovery.

It is evident from the above that the final arrangements for such operations are rather intricate. The point is that the builder himself usually has a small capital of his own, frequently none. He receives his money in instalments from the building-loan man. When the foundations are made he gets the first; when the first tier of beams is up, the second; and so on. When the whole thing is finished the full amount of the loan contracted for is paid in. Building-loans, however, are for short periods and at a high rate of interest, usually six per cent. The new mortgage is at the prevailing rates of conservative investments, five, four and one-half or four. Out of this, when secured, the building-loan operator gets a large part of the money advanced, sometimes all. The builder himself must wait until the property is sold, in order to make a profit, or, more frequently, to get out whole. Rapid construction is thus almost indispensable to success. The builder is always hard-pressed for money and cannot obtain it from his loan man until the work it is intended to cover is finished. He usually has a gang of creditors pressing on his heels. He buys his material on credit; and is usually backward in paying his creditors. There is only one way to obtain money to pay them — to finish the work and get the loan. It would not be surprising, therefore, if in his hurry the builder should not be particular about putting in all the flourishes the law requires. The usual methods of bolting and riveting are too slow for him. He frequently rushes the skeleton up, putting in one rivet where three or four are required, and thus obtains early payment from his loan man. Then he can afford to go over the job again and finish it. It is evident from this how a not over-scrupulous builder might, in his rush for his loan money, put up a flimsy structure that would not stand long enough for the retouching process. It cannot be said, on present evidence, that financial embarrassment was the cause of flimsy construction in the Darlington; but it is not at all unlikely.

With such perils as this surrounding practically all building operations in New York, what safeguards have the public? That an immense amount of flimsy construction has been done is no secret. Few of the thousands of buildings put up, however, actually fall down. Nearly all that do, fall while the construction is going on. It is generally believed that, had the Darlington been enclosed, it, too, would have stood. Practically the only security, however, is the building-loan operator himself. He has a bad name, and to a great extent deserves it; there are, however, a few good men in the business. The best employ their own engineers to inspect the work. They do, that is, what the Building Department should do. By withholding payments unless everything is up to the specifications, they can stop this "skin business" if they will. Some draw the line, when it comes to "skinning a building" on the structural part.

¹ Παπαρρεγόπουλος, *op cit.*, v. 15, 30, 44.

They will tolerate any amount of poor plumbing, cold storage, and inferior woodwork, but insist upon substantial foundations and iron-work. The few that enforce this rule have been constantly thwarted in the past by the Building Department. The building-loan man's engineers may discover violations of the building laws, but be unable to make the building inspectors report the fact. They have simply been paid, of course, to look the other way. It is to be feared, however, that all building-loan operators are not too scrupulous in supervising work. The danger is that, whatever may happen, they are secured. Their first mortgage takes precedence of everything. A great building, like the Darlington, may be resolved into its original elements, and yet the man who makes the building-loan comes out unscathed.

PORTLAND CEMENT.¹

PORTLAND cement is now becoming such an indispensable constructive material to the engineer that it behooves him, if he has not already done so, to make himself thoroughly acquainted with its properties and characteristics, and yet, considering its almost universal employment in engineering constructive work, it is a matter of daily surprise how little is known about it by the engineering profession generally. Take, for instance, the matter of specifications, in which the engineer specifies exactly what particular properties the cement he requires is to possess. It too frequently happens that owing to imperfect knowledge of the subject a material is asked for which, whatever the engineer may have had in mind when drafting his specification, is certainly not Portland cement.

In writing the foregoing, I have in my mind a specification for cement for an important undertaking in one of our largest colonies, in which the city engineer, who signs the specification and is, therefore, presumably responsible for it, lays down certain physical tests and certain requirements as to chemical composition which are utterly incompatible and altogether impossible to work to; in fact, if the specification were to be strictly complied with, no one would probably be more surprised at the material obtained than the engineer himself, and I am afraid very disagreeably surprised too.

It is a well-known fact that, other things being equal, the more finely a cement is ground the greater is its cementitious value, and yet in an important technical case relating to cement a few months ago, an engineer of some repute stated as his reason for the rejection of a cement, that it was "over-ground," certainly a novel kind of defect and one which, as it adds considerably to the wear and tear of machinery and cost per ton, is not likely to be willingly indulged in by the manufacturer.

To begin at the beginning, however, and to commence with the manufacture of Portland cement, to quote the definition usually adopted, Portland cement is a compound consisting chiefly of silicates and aluminates of lime produced by the calcination to incipient vitrification of a mechanical mixture of chalk and clay or similar materials containing the requisite chemical constituents, the clinker thus produced being subsequently ground to a more or less impalpable powder. Speaking broadly from a chemical point-of-view, the above means that the carbonate of lime of the chalk, or calcareous material, and the silicate of alumina of the clay, or argillaceous material, are converted by heat into silicates of lime and aluminates of lime. Rough-and-ready experience has shown that the more lime a cement contains, compatible with soundness or constancy of volume, the greater is its strength, but according to recent synthetical researches by Messrs. Newberry, of New York, the richest calcic compounds which are constant in compound are tri-calcic silicate and di-calcic aluminate, i. e., 2.8 parts of lime to 1 of silicate and 1.1 of lime to 1 of alumina respectively. I have frequently been called upon to prepare cement from various raw materials on a small laboratory scale in order to demonstrate their practical value, and I have found the foregoing formulas as a rule to give very good results. In practice, of course, when dealing with raw materials on a large commercial scale, it is not possible to attain the same exactitude and accuracy in the various operations of manufacture, and therefore it is found that it is hardly safe to approach nearer than within two per cent of the theoretical maximum as ascertained by Newberry without considerable risk of unsoundness.

The process of cement manufacture may be divided into three distinct heads, all of them of equal importance as regards the quality of the resulting product. First, there is the mechanical mixing and blending of the raw materials, which, in theoretical perfection, should be so accurately and minutely blended as to be practically a homogeneous mass; upon the greater or less perfection of this mechanical blending depends to a very large extent the perfection of the subsequent conversion of the carbonate of lime and silicate of alumina into silicates and aluminates of lime. It is obvious that if by imperfect grinding and mixing a nodule of chalk or clay becomes segregated, it not only becomes a source of weakness in itself, but also robs the rest of the mixture of its proper proportion of chalk or clay, and thus throws the whole out of proportion.

Second, there is the calcination process, by which the mechanical mixture of chalk and clay is converted into the proper chemical compounds, i. e., calcic silicates and calcic aluminates. To bring this about, it is necessary to subject the mixture to just sufficient heat to cause clinkering or incipient vitrification; the greatest care is neces-

sary to arrive at exactly the correct temperature, insufficient heat not causing proper chemical combination, while excessive temperature causes fusion and utterly spoils the product.

The third and last operation is to reduce the clinker produced by the previous operation to an extremely fine powder, to enable it to combine with water and thereby set and harden. Experience has proved that more depends upon the efficient grinding and reduction of the clinker to powder than was at first realized in the earlier days of the industry; particles having a diameter of more than $\frac{1}{80}$ of an inch have but little practical value, decreasing in proportion as the diameter of the particle increases, till particles of $\frac{1}{80}$ inch diameter are practically inert. The setting activity of a cement depends upon its solubility, and as it is not a readily soluble material, it follows that only the absolutely impalpable powder is wholly attacked by water, the outside only of the coarser particles being dissolved off, while the internal portion appears to remain more or less inert.

The most striking improvement in cement manufacture of late years is the introduction of the rotary-kiln method of calcination, which, after the raw materials have once been placed in the mixing mills, enables the whole process of manufacture to be completed without any manual labor whatever. In all other processes of calcination, whether by continuous or intermittent kilns, the loading of kilns and the withdrawal of the clinkered product have to be accomplished by manual labor, the loading especially being a matter requiring skilled labor of the highest type to obtain good results. The rotary kiln is still another instance of an idea which originated in England being worked out and perfected by our cousins across the Atlantic. Some twenty years ago an English inventor, the late Mr. Frederick Ransome, brought out a rotary cement kiln which, after exhaustive trials and only a very small degree of success, was finally abandoned in this country as impracticable and unreliable. In America, however, where labor is a much more expensive item than in England, Ransome's kiln was, after an expenditure of much time and money, perfected and made a practical success, so that at the present time at least ninety per cent of the cement produced in that country is the product of rotary kilns. It would be impossible, nay, undesirable, in an address of this kind, to give a detailed description of the kiln, but it may be briefly described as a slowly revolving tube or cylinder of boiler-plate, lined with firebrick, about 70 feet long and 6 feet external diameter; it is a few inches out of the horizontal and into the lower end is forced a blast jet of gas, petroleum or finely powdered coal, while into the upper end is fed the material to be calcined, in the form either of powder or of a thick fluid, according to the method employed of mixing the raw materials. The greatest heat is naturally near the fuel jet, and as the cylinder revolves the raw mixture slowly travels down towards it, becoming gradually heated *en route* until it reaches the hottest part, or clinkering zone, and eventually falls out at the lower end of the tube a perfectly clinkered material. Apart from its economy in labor, the great advantage of this kiln is that the process of calcination is in full view of the operator and can be controlled by him to a nicety. By altering the rotating speed of the cylinder, decreasing or increasing the feed of the raw mixture, or varying the force of the blast and the fuel supply, he is, or ought to be, able to regulate the burning to any desired degree. With the old-fashioned intermittent vertical shaft kiln, on the other hand, there is no adjustment possible, except of the draught by means of dampers, and once the charge of coke and raw mixture is put into it, it must be left to take its chance of change of winds, and any other adverse atmospheric influences that may arise. The condition of the resulting twenty or thirty tons of clinker, as the case may be, consequently depends entirely upon the skill and foresight of the kiln foreman at the time of loading. In pointing out some of the advantages of the rotary kiln, I do not wish it to be inferred that the ordinary intermittent kiln does not, as a rule, give satisfactory results, which it undoubtedly has done in the past and is still doing in the majority of English works; at the same time the burning process is not so well under control as with the rotary kiln and more has to be left to chance. As yet only a very small percentage of the output of the United Kingdom is the product of rotary kilns, but fresh plants are constantly being erected and it is not a very rash prophecy to make that in ten years, or less, the rotary kiln will be as universal in England as it is in the United States to-day.

Judging from the samples which daily pass through my hands for testing purposes, I am pleased to find that the cement industry has made considerable strides as regards quality during the past few years, and more especially as regards the all-important quality of soundness or freedom from disruptive tendencies, which was much more unsatisfactory a few years ago than at the present time. The general strength, fineness and cementitious value of the material has also considerably improved during the past decade or so. As a case in point there is a certain recently established factory in the Midlands, equipped with the most modern plant and machinery, and consequently producing a cement much above the average, which had considerable difficulty at first in selling its product, owing to the high tensile strain developed. Consumers who had been accustomed to a tensile strain of about 400 pounds per square inch after seven days, looked rather askance at a cement which developed nearly double that strain, and declined at first to use it, suspecting overliming and risk of subsequent disintegration. The days, however, have long since passed when a high tensile strain necessarily denotes overliming and consequent tendency to unsoundness, which

¹Opening address of Mr. David Butler Butler, President of the Society of Engineers, [English] February 1, 1904.

is doubtless owing to improvements in the several processes of manufacture and the exercise of greater care in carrying them out. As an example I may quote the product of a certain factory which passes through my hands for testing purposes at regular intervals, which on the average develops a tensile strain of 900 pounds neat and 350 pounds sand at seven days. It generally contains less than sixty-two per cent of lime and perfectly withstands every known test for constancy of volume, even subjection to boiling water when twenty-four hours old. Such a result shows what can be produced by extreme care in manufacture and strict attention to the chemical aspect of the question. Those unacquainted with the subject may be under the impression that the manufacture of cements is so much mere navvying, the mere lumping together of so many tons of chalk and clay; let me assure them that such is a totally erroneous impression, and that it is, on the contrary, a delicate chemical operation requiring the utmost nicety and exactness in the proportioning of the raw materials, their efficient mixture and thorough calcination, in order to bring about the necessary chemical reaction and combination. Only those who have had charge of the manufacture are able to realize this fact, and it will perhaps be somewhat of a surprise to those not acquainted with the industry that a difference of one-half per cent above or below the correct quantity of chalk or carbonate of lime in the raw mixture will frequently be sufficient to render the resulting cement totally unsatisfactory. More especially does this remark apply to a rotary-kiln plant, where the greatest exactness in the proportioning of calcareous and argillaceous ingredients is necessary.

As regards the testing of cement, there have been no fresh tests of any value put forward during the past few years. What is really wanted is some reliable method of quickly and accurately ascertaining the strength and quality of a sample without having to wait the usual periods of seven, fourteen or twenty-eight days, to allow the test pieces to set and harden before being tested. The Faija warm-water test of 120 degrees Fahr., and the somewhat severe Deval test of 176 degrees Fahr., are valuable as tests for soundness, but it is very doubtful if they are altogether reliable as a means of accelerating the hardening of briquettes and similar test pieces, which have to be subjected to tensile and other stresses. Time, after all, is the only true test of the value of a material, and it is more than doubtful if the above warm-water bath processes accelerate the hardening in strictly the same proportion in every case. Another thing that is badly wanted in the interests both of the manufacturer and user is a standard method of carrying out the various tests, and it is to be hoped that the labors of the recently appointed Standards Committee of the engineering institutions will result in a workable standard being adopted. At the present time each engineer specifies, and each operator adopts, whatever method seems to him the best, the result being hopeless confusion and totally incomparable results. As I pointed out in a paper which I had the honor of reading before you in May last, even in the simple matter of the thickness of sieve wire there is no agreement in this country, each engineer, if he specifies it at all, specifying whatever seems to him the most convenient, with results varying as much as 30 and 40 per cent. The same remarks apply to nearly the whole of the apparatus used in testing, and the methods of carrying out tests. Take, for instance, the estimation of setting time; in one instance it is estimated with a needle $\frac{1}{16}$ -inch diameter weighted to $2\frac{1}{2}$ pounds, and in another $\frac{1}{16}$ -inch weighted to 3 pounds. Then again, there is the method of making the briquettes or test pieces; in some cases 30 per cent of water is used, the mixture consequently being of the consistency of cream and having to be poured into the moulds, while by another method 20 per cent only is used, and the mixture is rammed into the moulds in the condition of damp earth; here also the results may differ by nearly 50 per cent. After all, laboratory tests of strength are only comparative, and, provided exactly the same method is adopted in each case, it cannot matter whether the method develops the full strength of the cement or only 50 per cent of it. In his little treatise on the subject, called "Portland Cement for Users," first published in 1881, the late Henry Faija says: "In testing the tensile strength of cement it must be premised that the object is to obtain the very best results possible compatible with certain rules which custom has laid down, and which, therefore, may be considered as a fair test." Until some standard is universally agreed upon, these are the lines which always have been and always will be followed in my laboratory. Experience has proved that the minimum of water gives the best results, provided sufficient is used to make the material flux together, a condition which is indicated by a slight excess of water rising to the surface after lightly ramming and shaking. Since it is almost impossible to always make exact allowance for the varied conditions under which cement is used in practice, my contention is that the laboratory test should show what a cement is capable of under the most favorable conditions, and it is to the user's interest in practical work to approximate these conditions as near as he can compatibly with due economy.

The uses and application of cement are increasing day by day, but perhaps the most important advance in this respect of late years has been the use of cement in combination with iron and steel, or, as it is generally called, ferro-concrete. Since the resistance of cement to crushing stresses is about ten times as great as its resistance to tensile stresses, and the tensile strength of steel is about 100 times that of cement, it is obvious that if the steel can be distributed, say in a concrete beam, so as to take the tensile stresses in such a manner

as to about balance the crushing resistance of the concrete, the strength of the beam is enormously increased, with, as a rule, but moderate increase in cost. The most striking adaptation of ferro-concrete is its use for making piles. You will doubtless recollect having seen a splendid example of work of this description during our visit to Southampton Docks two years ago, where ferro-concrete piles were being made and used for general dockwork. The great advantage of concrete piles is, of course, that for all intents and purposes they are imperishable, and while the concrete, if properly made, forms an air-tight and water-tight sheathing for the steel embedded in it, and thus prevents oxidization, it is itself impervious to the attack of sea-water and the worms which in certain tropical waters are so destructive to timber piles. Another advantage which a concrete pile possesses is that, if by any mischance it proves too short, it may be lengthened by moulding a further length of concrete on the top. This, of course, is a little expensive per foot run, and also involves a somewhat lengthy wait to allow the concrete to set and harden before the pile can be again driven, but even with these drawbacks it is in many cases of very great convenience.

One of the characteristics of cement which I find is even yet scarcely appreciated by users, is its susceptibility to the influence of temperature and atmospheric conditions upon its setting and hardening properties. Cases are frequently coming before me during the cold winter months in which complaint is made that the concrete will not set, or "go off," as the usual term is. On investigation it is usually found that a sudden spell of cold weather has retarded the setting and hardening process to such an extent as to cause serious alarm, whereas by the exercise of a little patience combined perhaps with the advent of slightly warmer weather, matters have eventually righted themselves. The setting of cement being a chemical action of crystallization, it is, like most such chemical actions, accelerated by heat and retarded by cold, and, therefore, it is against the law of nature for a concrete to set as quickly in very cold, or as slowly in very hot weather, as during normal atmospheric conditions. Experiments on this subject made some eight years ago showed that, taking 60 degrees Fahr. as the average temperature, increasing the temperature to 80 degrees accelerated the initial set by 41 per cent and the final set by 14 per cent, whereas decreasing the temperature to 40 degrees retarded the initial set by 154 per cent and the set hard by 114 per cent.

Many of the little trials and troubles which occasionally befall the user of cement, as indeed in most other walks of life, are caused by the want of a little common sense. The exercise of a little common sense, for instance, would at once suggest that if a dry porous aggregate were used it would absorb some of the water necessary for the proper setting of the cement, and, therefore, either a greater proportion of water should be added or else the aggregate should be well soaked before mixing; and yet how often such simple precautions are neglected. You will doubtless remember the story of the celebrated artist who was once asked what he mixed his colors with to produce such splendid effects, and the reply was that he mixed them with "brains, my dear sir, brains." Similarly, if cement users were to always mix their concrete with "common sense," I feel sure that many of the causes of complaint against a unique constructive material would cease to exist. I do not mean to insinuate that no such thing as bad or indifferent cement is ever to be found: such, fortunately for me, is not the case or, like Othello, I should quickly find my "occupation gone"; at the same time, I do know that by far the majority of the cases of failure which occasionally occur are more frequently due to imperfect comprehension of the general properties of the material than to an inherently bad cement.

In conclusion, I would tender you my hearty thanks for your kind attention to this somewhat discursive essay on what I am afraid to the majority is a very dry and dusty subject, but dry and dusty though it be, my apology must be its vast and growing importance, for I venture the opinion that without exception there is no constructive material more invaluable to the engineer, nor one which he could less easily afford to do without at the present day, than Portland cement. — *The Architect.*

ILLUSTRATIONS

[Contributors of drawings are requested to send also plans and a full and adequate description of the buildings, including a statement of cost.]

THE UNION RAILWAY STATION, TROY, N. Y. MESSRS. REED & STEM, ARCHITECTS, NEW YORK, N. Y.

THE problem to be solved in the planning consisted in providing for adequate station facilities on a long but extremely narrow lot.

It was found, after providing for the working space, such as baggage and express rooms, that the general waiting-room was not large enough, and in order to overcome this difficulty, the subway below the tracks was fitted up in every way equal to the main waiting-room, making it in fact an auxiliary waiting-room.

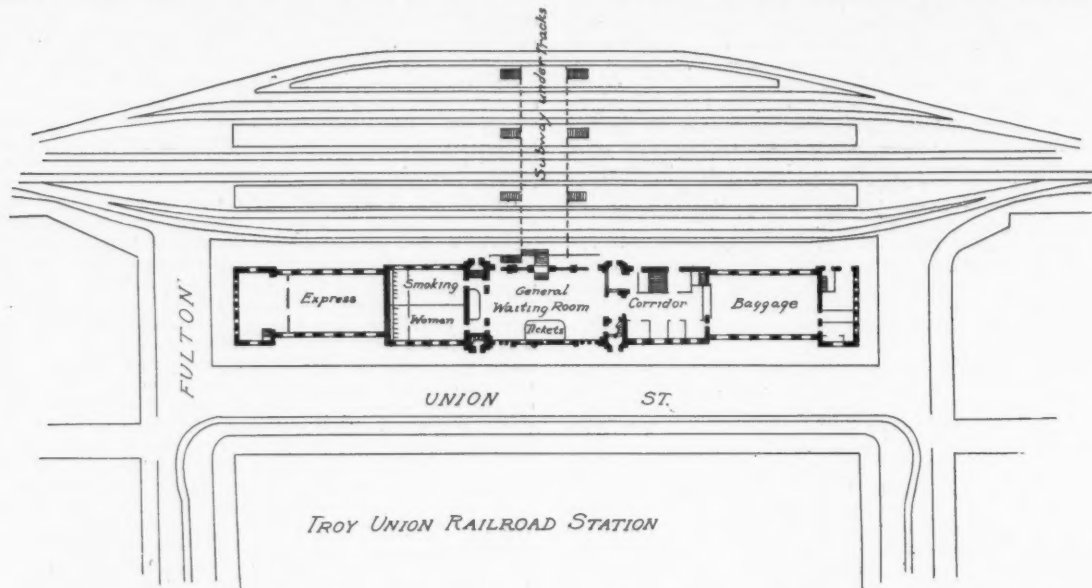
The interior finish of the waiting-room is of particular interest, in

view of the fact that in its treatment faience has been used more extensively than in any other similar room we know of, the color-scheme of the faience consisting of a green and buff.

The building of the subway presented several difficulties, because its level was considerably below that of the average Hudson River water-level, thus necessitating particular precautions in the method of waterproofing.

The walls are faced with opalite tile white faience trimmings, and the ceiling panels in plaster, the motif consisting of the Doric order,

regarded in the age that followed the Reformation, when they were allowed to fall into neglect or disuse, and the modern reverence, which almost rises to worship, as one thrills with the sense of their majestic beauty. Vast amounts of money have been spent in the nineteenth century in repairing cathedrals or in restoring them to their original appearance. In the history of cathedrals we can read, in monuments of stone, the changes which have passed over religion and civilization. The age in which they were built corresponds roughly to the period of the Crusades, when all Europe was moved by one common heroic purpose—to do some great work for God; when western Europe con-



in which the metopes were formed by flat opalescent glass discs, behind which were concealed the electric lights.

The station was built for the joint use of the New York Central & Hudson River Railroad, Delaware & Hudson, and Boston & Albany Railroad, the station being completed about June 1, 1903.

The base course is built of buff Bedford limestone. The superstructure is of red brick with terra-cotta trimmings. Roof of dull green tile.

PAVILION OF THE SAME.

WAITING-ROOM IN THE SAME.

BAY IN WAITING-ROOM OF THE SAME.

PALACES OF MACHINERY, ELECTRICITY AND EDUCATION: LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO.

PALACE OF THE LIBERAL ARTS: LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO. MESSRS. BARNETT, HAYNES & BARNETT, ARCHITECTS, ST. LOUIS, MO.

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FRONTIERSMEN: EQUESTRIAN GROUPS FOR THE LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO. MR. SOLON BORGLUM, SCULPTOR.

THE KAISER FRIEDRICH MUSEUM, POSEN, PRUSSIA.

This and the following plate are copied from *Blätter für Architektur*.

ENTRANCE HALL OF THE SAME.



ARREST OF CATHEDRAL DEVELOPMENT.—Perhaps the cathedrals speak to the modern mind with greater power, because they are exponents of that sentiment of solidarity, which has been slowly succeeding to the individualism of the eighteenth century. For this reason, their appeal fell powerless on an age like that of Dr. Johnson, by whom they were regarded as barbarous structures disfiguring the land. The contrast is most striking between the indifference with which they were

stituted a united Christendom capable of being inspired by a common impulse but that impulse necessarily a religious one. The results of the growing trade and commerce enriching the people, were manifest in efforts to enrich and beautify the houses of God throughout the land. This was the time when the parish churches also were recast into stone, whose picturesque towers in every town or village charm the traveller through rural England. But the cathedral building was suddenly arrested as if by some emphatic decree which the world was powerless to reverse. Great schemes were thwarted, projected structures contracted in their proportions. Siena was forced to be content with a fraction of what had been originally contemplated. The Cathedral of Milan, begun in the fourteenth century, proved to be a weary task, slowly accomplished with long interruptions. The Church of St. Petronio at Bologna, intended to rival the Duomo at Florence, was never finished. Cologne Cathedral, begun late in the age, when the motive for building was already weakened, was left incomplete at the beginning of the sixteenth century, and so remained till the end of the nineteenth century. St. Peter's at Rome was indeed completed, but at what an expense to the Roman Church—an act of defiance to the new world that was coming in, the assertion of the strength of the counter-Reformation. The age of cathedral-building was killed by the Renaissance, which also extinguished another ideal—the Crusades. The fact that so many cathedrals were left unfinished is one of their most impressive testimonies. They bear witness that no ideal is ever fully accomplished. They are impersonal creations, the collective work of peoples, of generations. No individual name is for the most part associated with them. Architects and artists are in most cases forgotten. A completed structure like Salisbury Cathedral does not speak to us like York or Canterbury or Westminster with their unfinished towers. What killed the cathedral was the rise of individualism, in poetry, in painting, in all the departments of the secular life. But the nineteenth century witnessed a powerful reaction, which overleaping the gulf of time went back to that lost world, entered anew with sympathy into its tasks, took up its incomplete work, restored these ancient fabrics which were falling into decay.—“A Massachusetts Churchman” in the *Boston Transcript*.

THE TRAGEDY OF THE CORNER-STONE.—There is nothing especially impressive in itself about the practice of putting coins under the foundation stone of a new building, especially if the denomination of the coins is modest. Yet this harmless practice is the shadow of an older tragic custom. The money stands, theoretically, for the ransom of the human being who by ancient superstition should have been buried in its place. Otherwise, it was held, the building would not stand firm and endure. There was a time when this particular kind of human sacrifice had a vogue extending to most parts of the world. Even in England skeletons have been found imbedded in the bases of castle walls, and there is a record of one German fortress at the building of which a child was bought from its mother with hard cash and walled into the donjon tower—the unnatural mother, according to the story, looking on the while. Effigies of human beings are still used in some parts of Europe as harmless substitutes, and in remoter and more ruthless places the old custom crops out from time to time in all its grim reality.—*N. Y. Times*.

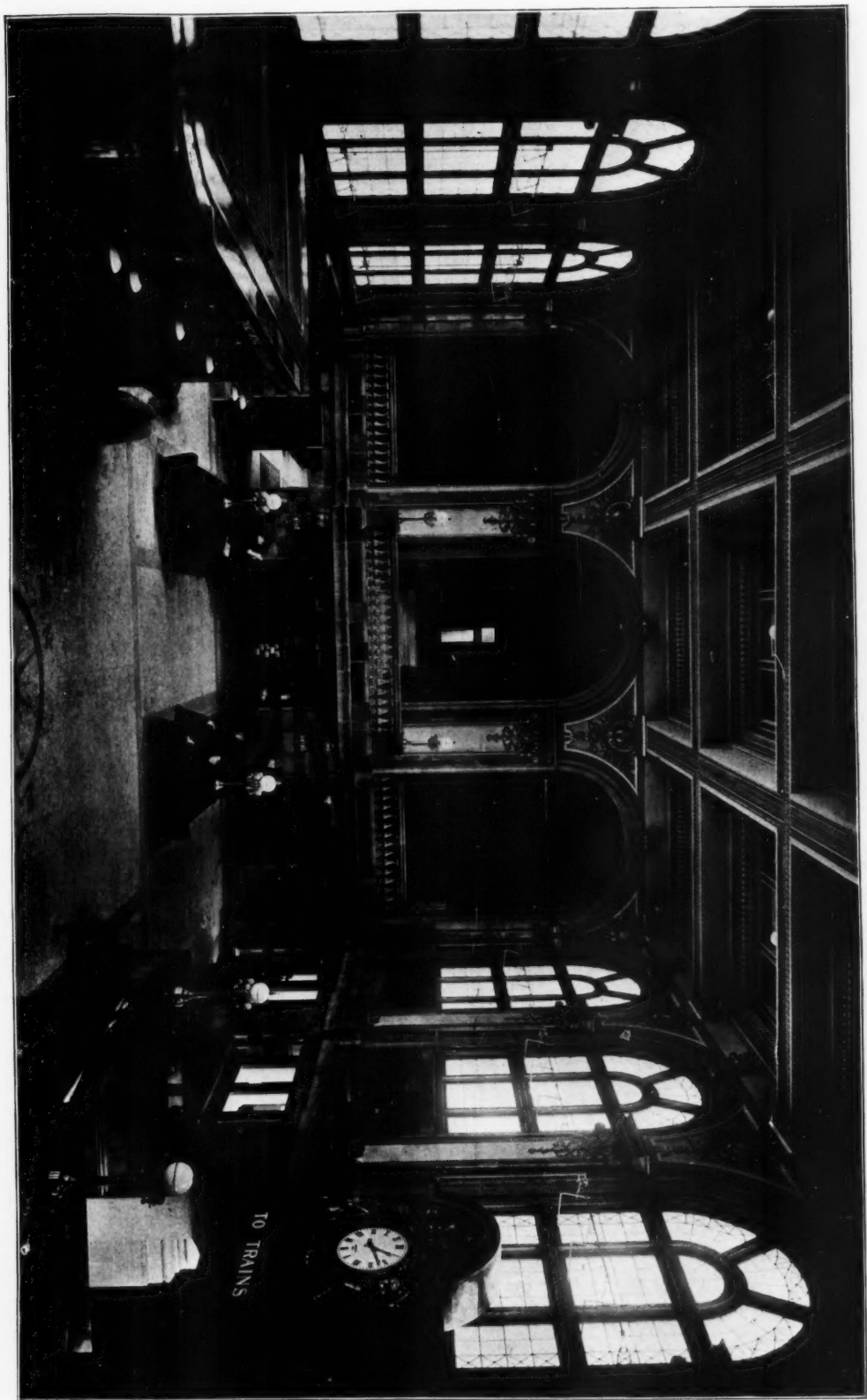
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*A Bay in the Waiting-room: Union Station, Troy, N. Y.
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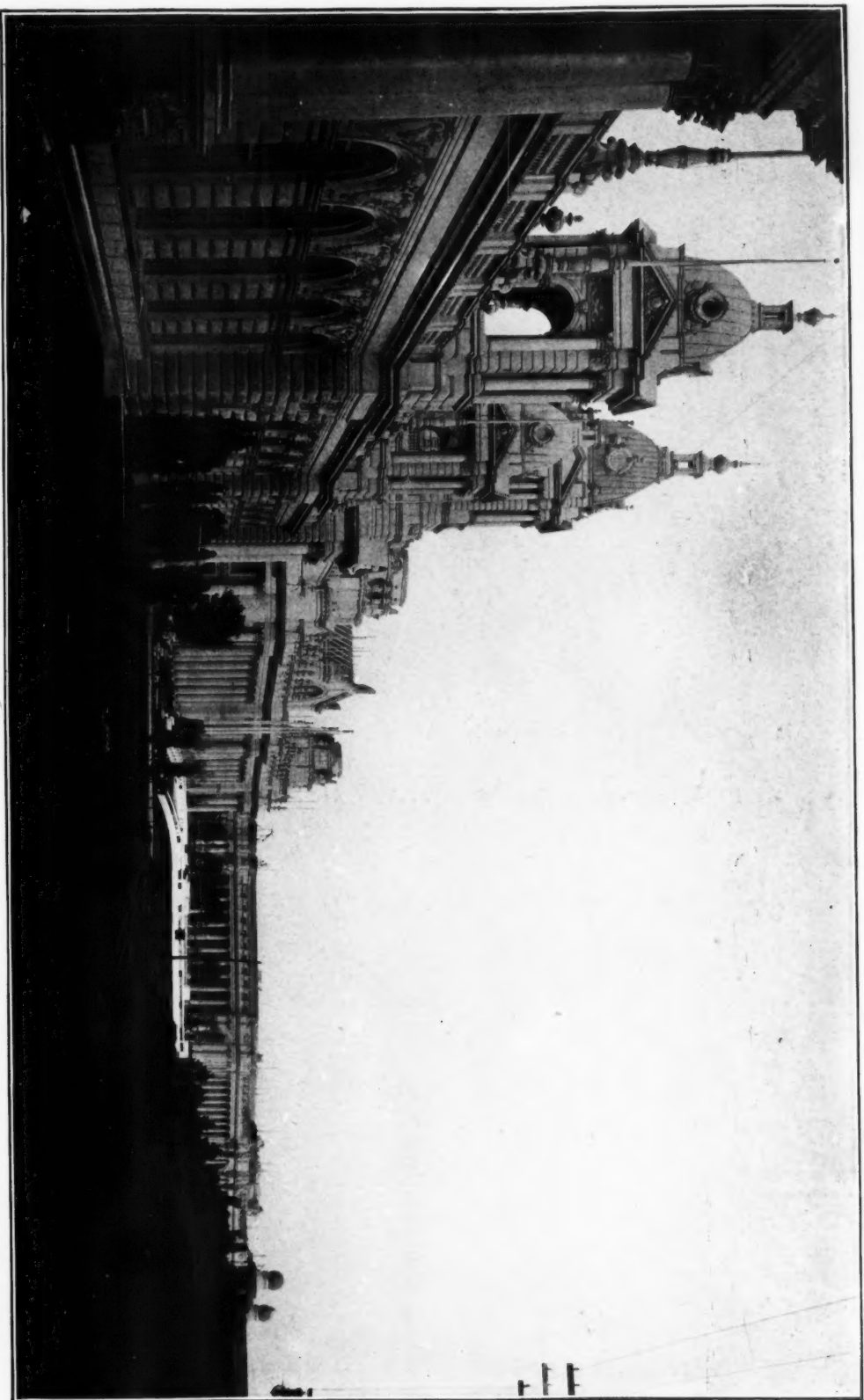
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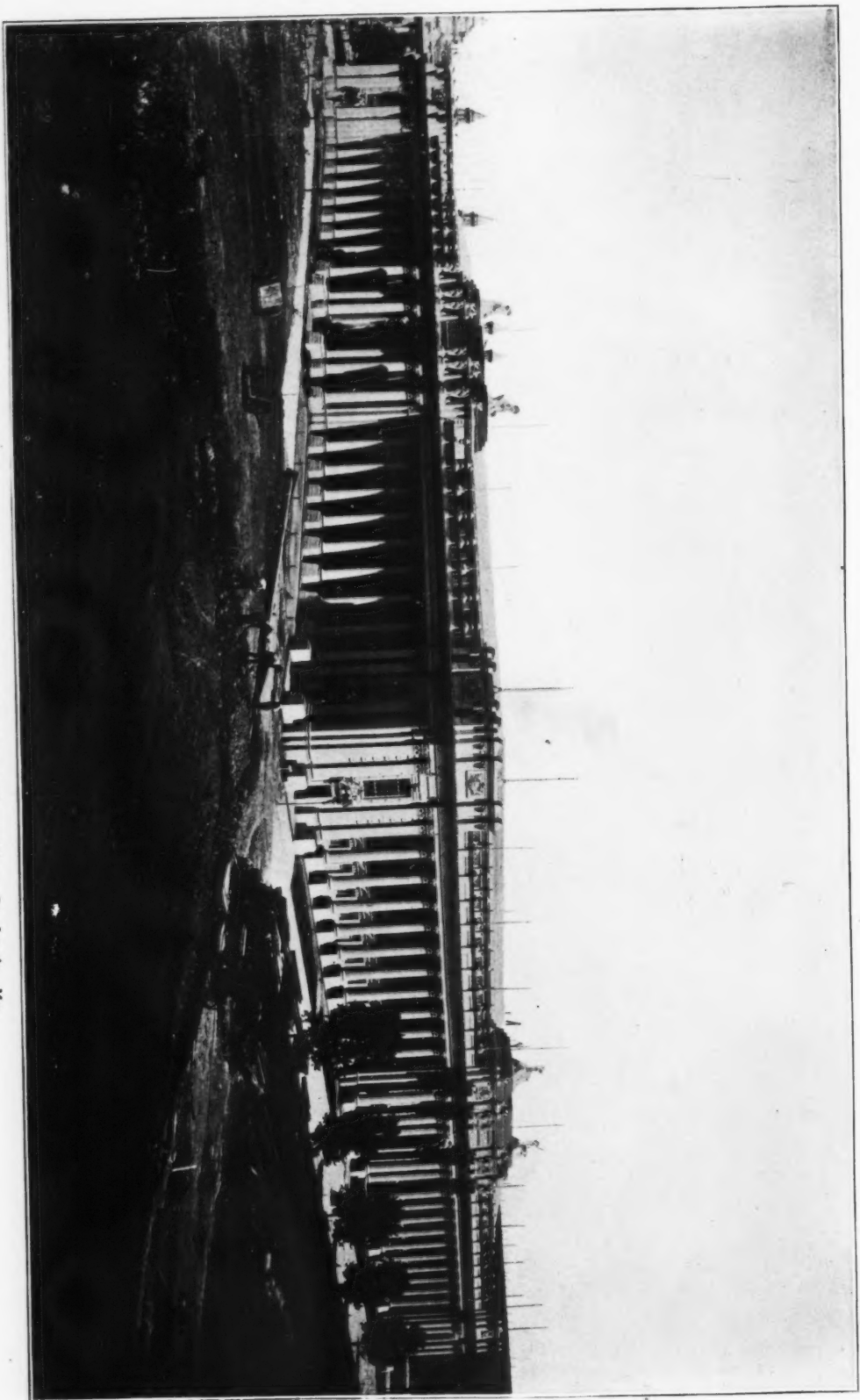
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*Frontiersmen: Groups in Front of the Palace of Varied Industries: Louisiana Purchase Exposition,
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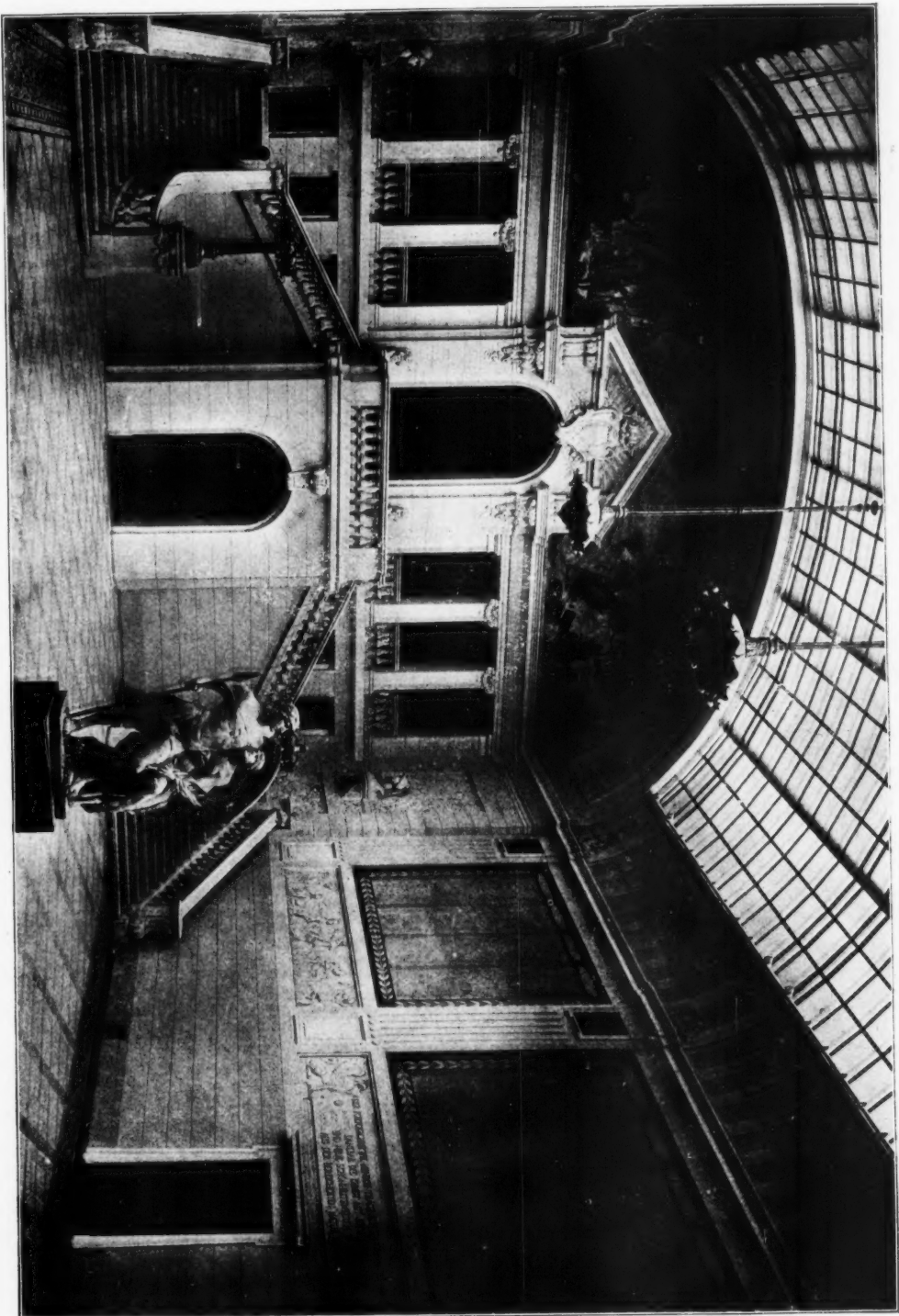


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Hinkeldey & Ahrens, Architects.*

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*The American Architect
April 2, 1904
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Entrance Hall: Kaiser Friedrich Museum, Posen, Prussia.
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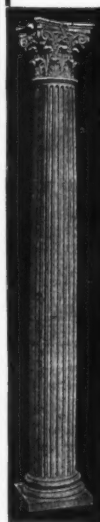
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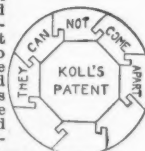
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MR. FRANK S. FORSTER, architect, has opened an office in Mt. Clemens, Mich., and would like catalogues from the leading manufacturers.

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BUILDING INTELLIGENCE.

(Reported for the American Architect and Building News.)

[Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.]

ADVANCE RUMORS.

Atlanta, Ga.—The erection of a \$10,000 edifice for the St. Luke's Church at Peachtree and Pine Sts. is reported under consideration.

Baton Rouge, La.—Plans have been drawn by Favrot & Livraux, of New Orleans, for an alumni memorial for the Louisiana State University. It will be two stories, 84' x 116', of brick and stone. Cost, \$35,000.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Boston, Mass.—The work of demolishing the old Monks Building at the corner of Congress St. and Congress Sq. is nearly completed. This work is being done by the firm of Thomas A. Elston & Co. The new Monks Building, to be erected by the Monks Building Trust, will be eleven stories, the plans being by Peabody & Stearns, and it will be one of the finest of its kind of the later modern buildings. The exterior design, while simple, is very attractive.

Campello, Mass.—George E. Keith Co. has let the contract for a shoe factory. It will be of wood, three stories and basement, 40' x 180'.

Chester, Pa.—Plans have been prepared by Adin B. Lacey and W. C. Hayes, Philadelphia, for a new Y. M. C. A. Building to be erected here, at a cost of about \$90,000.

Columbus, Miss.—It is reported that a bill has passed the house appropriating \$175,000 for improvements at the Industrial Institute and College here.

Delaware, O.—Plans prepared by Wilbur T. Mills, 233 N. High St., Columbus, for a \$75,000 school-building have been accepted, and contract for erecting same will probably be let early in April.

Greensboro, N. C.—The Building Committee of the Board of Trustees of the Greensboro Female College has accepted plans prepared by S. W. Foluk & Son, Pearson Building, New Castle, Pa., for the new building. Estimated cost, \$50,000.

Hamilton, O.—The building of a two-story brick school in the 4th Ward on Chestnut and 9th Sts., at a cost of \$25,000, is reported under consideration.

Hopkinsville, Ky.—The Board of Commissioners of the Western Ky. Asylum for the Insane is considering plans for erecting a \$75,000 building.

Jersey City, N. J.—John T. Rowland, Jr., has drawn plans for additions to five schools to be erected at a total cost of \$100,000.

Kearney, Neb.—George A. Berlinghof, Beatrice, Neb., will prepare plans for the State Normal School to be erected here. Cost not to exceed \$50,000.

Newport, R. I.—Plans for the proposed new high school have been completed. The building will be three stories high, facing on Broadway. The building is commodious and promises to meet the demands of the city for some years to come. Creighton Withers, architect.

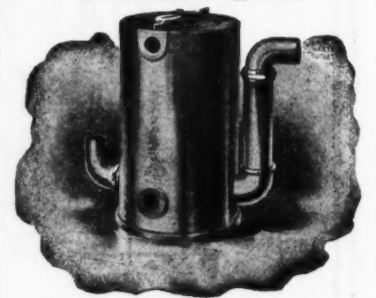
New York, N. Y.—The candy factory of Henry Heide on Vandam St. is to be enlarged by a nine-story addition, 100' x 107'. Delemos & Cordes, 130 Fulton St., architects. Estimated cost, \$250,000.

To Whitney Warren, No. 3 E. 33d St., has been awarded the contract for the architectural work to be done on the proposed new terminal of the New York Central Railroad, on the site of the present Grand Central Station, in 42d St. Mr. Warren will work in cooperation with Reed & Stem, No. 5 E. 42d St., but he will have personal and direct charge of the artistic features of the new building. In general the changes to be made indicate that in beauty of architecture and in accommodation the new station will probably be unrivalled among the great buildings not only of America but of Europe as well. It will be twenty stories high. All offices, waiting-rooms, lunch and baggage rooms will be removed from the ground floor, which will be devoted to the tracks and will be four feet below the street level.

The Royal and Queen Insurance Companies have purchased the North River Insurance Company's

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

building at 84 William St., and it is understood that there will be erected on the site in the near future an office-building in which both companies will have quarters.

Ottawa, Can.—A. O. Von Herbulis has been chosen as the architect of the Catholic University of Ottawa, and his plans for the magnificent administration building to take the place of the structure destroyed by fire last September have been chosen by the university authorities. The structure will be in the Classic style with Ionic columns, and with statues of the twelve apostles around the dome and many statues of men famous in Canadian history and in art adorning the top of the building. The entire building is to be built of stone, and will have a frontage of 340 feet with two wings each 150 feet deep.

Philadelphia, Pa.—John Stafford, owner of the St. James, expects to begin the erection this spring of a big apartment-house on the east side of 16th St., below Walnut, that will cost \$1,000,000. It will be twelve stories high, 140' x 180'. The plans for this building will be drawn by Mr. Trumbauer.

A fund of \$500,000 is to be raised, if possible, by the alumni of the Architectural Department of the University of Pennsylvania for the building of an architectural school.

Pittsburgh, Pa.—Negotiations were recently concluded for the sale of the property of the Second Presbyterian Church at Penn Ave. and 7th St., to Herbert H. Du Puy for \$600,000 and the purchase by the Second Church congregation of the Hotel Boyer property, 7th St. and Duquesne Way, from Mr. Du Puy, for \$250,000. The sale of the church property means that a decided impetus will be given to building and realty buying in that section after the erection of a modern office or store building. It is expected that the Second Church congregation will occupy temporary quarters in a downtown theatre until it has fully matured plans for the erection of a modern church building on 7th St. It is understood the congregation will dispose of a portion of the hotel property immediately on the corner of Duquesne Way for the erection of a warehouse.

The committee in charge of the erection of the Carnegie \$5,000,000 technical schools has issued a call for plans. The competition is open to all reputable architects, and rewards are offered for the best plans—\$750, \$500 and \$250 respectively, for the first, second and third choices of the committee. In addition, five architects of eminence will be invited to submit plans, the compensation to be \$1,000 each, whether the plan be accepted or not.

Quincy, Ill.—A contract has been closed for the sale of five acres of land to the International Leather Co., who are to build a tannery to cost \$35,000 to \$40,000.

(Continued on page xli.)

[PUBLISHED MARCH 5]

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Richmond, Va.—The House has passed bills recently passed by the Senate, appropriating \$165,000 for improving the Virginia Polytechnic Institute.

Rochester, N. Y.—At a recent banquet of the alumni of the University of Rochester, at the Genesee Valley Club, President Rush Rhees of the institution announced that George Eastman had made an unconditional pledge to give \$60,000 toward the cost of the new science hall to be devoted to biology and physics. Dr. Rhees said that the total amount subscribed for the purpose was upwards of \$100,000, and he expected to be able to announce on commencement day that the entire amount of \$150,000 had been secured.

It is stated that Andrew Carnegie has raised his offer of \$17,500 to \$20,000 for the public library. The question with the public now is, will the city build a building costing \$20,000, or will \$5,000 more be raised? The old Main St. School-house lot has been selected for the site and the building will be one that will be a credit to the city.

Sacramento, Cal.—Doctors Fay, Atkinson and Parkinson have been appointed as a committee to formulate plans for the enlargement and equipment of a Receiving Hospital here.

Salem, Mass.—Two large lots of land at Castle Hill has been donated to St. Joseph's Educational Institute of Salem. The grantor is the pastor of St. Joseph's Church in Salem, and the grantee the Sisters of Notre Dame school in this city. Fr. Gadoury has given the land to them for the purpose of establishing a summer home and recreation grounds.

San Francisco, Cal.—Plans have been completed by Henry H. Meyers, 532 Market St., and Clarence R. Ward, Crocker Building, associate architects, for the Hahnemann Hospital, which is to be erected at California Ave. and Maple St. Cost, \$116,000.

Shawnee, Okla. Ter.—School bonds amounting to \$50,000 have been sold. It is stated that the erection of three schools will be begun at once.

South Hadley, Mass.—A conditional gift of \$50,000 has been made to Mt. Holyoke College by Andrew Carnegie, the understanding being that the friends of the institution raise a like amount before June 1. No stipulations are made regarding the use of

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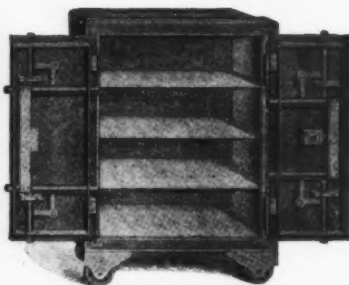
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

the money, but it is understood that a new library is contemplated.

St. Louis, Mo.—The eight-story commercial building at the corner of 12th and Olive Sts. has been leased for hotel purposes. Albert Swasey has planned a 2,000-room hotel for the Catlin tract to be erected within 400 feet of the main entrance to the Fair. Much of the property on Locust St., between 14th St. and Jefferson Ave., is available for immediate improvement and being in the hands of rich interests the old residences now there will make way for modern commercial buildings.

Theo. Hannibal, Jr., vice-president of the Alpio & Hemmelman Real Estate Co., has plans completed for a modern six-story and basement building to be erected on Locust St., near 15th St., to cost \$150,000.

Tarrytown, N. Y.—The women property-owners recently voted on a proposition to build a town library, and won by a majority of 37. There was considerable opposition to the library project, and had it not had the support of the women it would have been defeated.

Terre Haute, Ind.—A permit has been granted to build the Fairbanks memorial library on N. 7th St. The cost of the structure is given as \$50,000.

Waltham, Mass.—Plans have been prepared by Blakeslee & Andres, Boston, for a cottage residence to be erected here this spring for A. P. Teele.

Waterville, Me.—The erection of a \$40,000 dormitory at Colby College is contemplated.

West Liberty, Ia.—At a recent meeting of the contributors to the library site fund the town-hall was comfortably filled, and the Lewis property was decided to be the site for the Carnegie Library building.

COMPETITIONS.

THE competition for the Beaux-Arts Scholarship, open to all American draughtsmen under twenty-five years of age, will begin on Saturday, April 16th. For information, apply to the Secretary of the Committee on Education, 3 E. 33d St., New York. 1476

PROPOSALS.

STOREHOUSE.

[At San Francisco, Cal.]
Sealed proposals will be received here until April 14, 1904, for construction of frame subsistence storehouse at the infantry cantonment, Presidio of San Francisco, Cal. Information furnished on application to WM. S. PATTEN, A. Q. M. G., Chief Q. M. 1475

CHURCH.

[At Erie, Pa.]
Proposals will be received until April 11 by the Rev. B. J. Rayeroff for erecting a new edifice for St. Ann's Church. 1475

DEADHOUSE.

[At Fort Snelling, Minn.]
Office of Constructing Q. M., St. Paul, Minn.
Sealed proposals will be received at this office until April 13, 1904, for the construction of a deadhouse at Fort Snelling, Minn. R. M. SCHOFIELD, Constructing Quartermaster. 1475

PROPOSALS.

MASONRY, DRAIN-PIPE, ETC.

[At Columbia, O.]
Proposals will be received until April 9 by the Board of County Commissioners for masonry, drain-pipe, etc., on Red Bank Road, between B. & O. S. W. R. R. and Madisonville pike, Columbia Township. EUGENE L. LEWIS, County Auditor. 1475

CEMENT AND STONE.

[At Boston, Mass., and Portsmouth, N. H.]
U. S. Engineer Office, 25 Pemberton Sq., Boston, Mass. Sealed proposals for furnishing Portland cement, broken stone, sand for concrete, and sand or earth for fill, at forts in Boston Harbor, Mass., and Portsmouth Harbor, N. H., will be received here until April 11, 1904. Information furnished on application. W. S. STANTON, Lieut. Col. Engr. 1475

CONDUIT AND FITTINGS, SAND, SLATING FELT, ETC.

[At New York, N. Y.]
Proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until April 5, 1904, to furnish at the navy yard, New York, N. Y., a quantity of conduit and fittings, sand, slating felt, skylights, roofing slate, silver forks and spoons, rivets, white pine, sheet brass, steel plates and angles, steel billets, expanded metal, brass tubing, salt-water soap, metal lath, terracotta tile, and asphalt paving tile. Blank proposals will be furnished upon application to the Navy Pay Office, New York. H. T. B. HARRIS, Paymaster General, U. S. N. 1475

STORAGE BUILDING.

[At Bremerton, Wash.]
Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until April 9, 1904, for constructing a one-story steel building for steel storage at the navy yard, Puget Sound, Wash. MORDECAI T. ENDICOTT, Chief of Bureau. 1475

POST EXCHANGE AND GYMNASIUM BUILDING.

[At Haines Mission, Alaska.]
Constructing Quartermaster's Office, Haines, Alaska. Sealed proposals will be received here until April 12, 1904, for the construction, including plumbing, heating, gaspiping and gymnastic apparatus, of a post exchange and gymnasium building combined at New Army Post, Haines Mission, Alaska. CAPT. W. P. RICHARDSON, constructing Q. M., Haines, Alaska. 1475

BRIDGE, SUBSTRUCTURE, ETC.

[At Columbus, O.]
The Board of County Commissioners will receive proposals until April 12 for furnishing material and constructing substructure, superstructure and approaches of David Taylor Alum Creek bridge and David Taylor Big Walnut Creek bridge. L. E. JONES, County Auditor. 1475

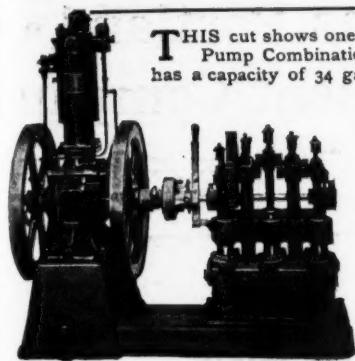
PORTLAND CEMENT.

[At Boston Neck, R. I.]
U. S. Engineer Office, Newport, R. I. Sealed proposals for furnishing and delivering Portland cement, broken stone and sand at Boston Neck, R. I., will be received here until April 19, 1904. Information furnished on application. J. H. WILLARD, Maj., Engrs. 1476

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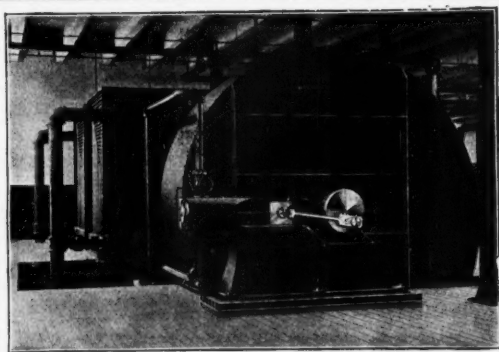
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PROPOSALS.

BRIDGE SUPERSTRUCTURE.

[At Chicago, Ill.]

Proposals will be received by S. D. Griffin, Clerk Board of Trustees, sanitary district of Chicago, until April 13 for furnishing material and constructing superstructure of Harrison St. bridge over Chicago River. 1476

LOCKHOUSES.

[At Charleston, W. Va.]

U. S. Engineer Office, Wheeling, W. Va. Sealed proposals for building two lockhouses at Lock No. 6, Kanawha River, about four miles below Charleston, W. Va., will be received here until April 18, 1904. GEORGE A. ZINN, Maj., Engrs. 1476

COURTHOUSE.

[At Clinton, N. C.]

Proposals will be received until April 20 for erecting a courthouse by the Board of County Commissioners. 1476

PROPOSALS.

OFFICERS' QUARTERS.

[At Plattsburg Barracks, N. Y.]

Office Constructing Q. M., Burlington, Vt. Sealed proposals will be received until April 25, 1904, for constructing, heating, plumbing, gaspiping and electric wiring of two double sets officers' quarters, constructing, gaspiping and electric wiring of one quartermaster's storehouse and construction of one quartermaster's workshop at Plattsburg Barracks, N. Y. Information furnished on application. CAPTAIN T. B. LAMOREUX, Q. M., Burlington, Vt. 1477

JAIL AND SHERIFF'S RESIDENCE.

[At Jamestown, N. D.]

Proposals will be received until May 16 by the Board of County Commissioners for erecting a jail and sheriff's residence, cell work in jail, boiler-house complete, except boilers, boiler and steam plant. ANDREW BLEWETT, County Auditor. 1477

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PROPOSALS.

LIGHT STATION.

[At Sapelo, Ga.]

Sealed proposals will be received at the office of the Lighthouse Engineer, Charleston, S. C., until April 20, 1904, for furnishing the materials and labor of all kinds necessary for the construction, erection and delivery of the buildings for the Sapelo Light Station, Ga., in accordance with specifications, copies of which, with blank proposals and other information, may be had upon application to CAPT. G. P. HOWELL, corps of engs., U. S. A., engr. 1476

ADDITION TO HOSPITAL.

[At Fort Washington Md.]

Office of Constructing Q. M., U. S. Army, Fort Washington, Md. Sealed proposals will be received at this office until April 25, 1904, for the construction of an addition and alterations to the hospital at Fort Washington, Md. Information regarding plans and specifications may be obtained at this office, at the office of the depot quartermaster, Baltimore, Md., and at the office of the depot quartermaster, Philadelphia, Pa. F. L. DENGLER, constructing Q. M., U. S. A. 1477

ALTERATIONS TO COLLEGE.

[At New York, N. Y.]

Proposals will be received until May 2 by Alrick H. Man, Chairman Executive Committee of the college at the department of education, for repairs and alterations to Normál College buildings. 1477

BOAT SHOP.

[At Bremerton, Wash.]

Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until April 23, 1904, for constructing a three-story brick building about 308 by 64 feet at the Puget Sound Navy Yard, Bremerton, Wash. MORDECAI T. ENDICOTT, Chief of Bureau. 1477

BUILDING.

[At Charleston, S. C.]

Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until April 23, 1904, for constructing a two-story brick and steel fireproof building with one-story wing and brick chimney at the navy yard, Charleston, S. C. Plans and specifications will be furnished by the commandant of the navy yard named upon deposit of \$15 as security for their return. MORDECAI T. ENDICOTT, Chief of Bureau. 1477

Treasury Department, Office of the Supervising Architect, Washington, D. C., March 26, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 17th day of May, 1904, and then opened, for the construction (except heating apparatus) of the U. S. Post-office at Anniston, Alabama, in accordance with the drawings and specification, copies of which may be had at this office, or the office of the Custodian at Anniston, Alabama, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1476

Treasury Department, Office of the Supervising Architect, Washington, D. C., March 24, 1904. Notice is hereby given that the time for opening the bids for the construction (except heating apparatus) of the U. S. Post-office and Court-house at Deadwood, South Dakota, has been extended from April 18, 1904, to 3 o'clock P. M., May 12, 1904. JAMES KNOX TAYLOR, Supervising Architect. 1476

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PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., March 21, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 26th day of April, 1904, and then opened, for the construction, including heating apparatus, electric conduits and wiring, of the U. S. Post-office at Logansport, Indiana, in accordance with the drawings and specification, copies of which may be had at this office, or the office of the Postmaster, Logansport, Indiana, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1475

PROPOSALS.

LABORATORY.

[At Lincoln, Neb.]
Bids will be received April 11 by J. S. Dales, Rm. 101 Central Building, State University, Lincoln, for erecting a physics laboratory building for said university upon its grounds in Lincoln; also for erecting a school and laboratory building upon the farm of the University, near Lincoln. 1475

SCHOOL.

[At Crescentville, O.]
Bids will be received April 26 by the Bd. Educ. for erecting a two-story brick school. 1476

PROPOSALS.

GYMNASIUM.

[At Haines, Alaska.]
Bids are wanted April 12 for constructing a post exchange and gymnasium building, including plumbing, heating, gaspiping and gymnastic apparatus, at new army post, Haines Mission. Address CAPT. W. P. RICHARDSON, Constructing Q. M. 1475

PAVING.

[At Pacific Grove, Cal.]
Bids will be received May 9 by E. B. Lewis, City Clk., for constructing 5,269 feet pavement. Estimated cost, \$20,646. 1476

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Recommended to its Members by
the Boston Society of Architects,
was

ADOPTED BY THE SOCIETY, FEBRUARY 1
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SECTION 1. No Member should enter into partnership, in any form or degree, with any builder, contractor, or manufacturer.

SECTION 2. A Member having any ownership in any building material, device or invention, proposed to be used on work for which he is architect, should inform his employer of the fact of such ownership.

SECTION 3. No Member should be a party to a building contract except as "owner."

SECTION 4. No Member should guarantee an estimate or contract by personal bond.

SECTION 5. It is unprofessional to offer drawings or other services "on approval" and without adequate pecuniary compensation.

SECTION 6. It is unprofessional to advertise in any other way than by a notice giving name, address, profession, and office hours, and special branch (if such) of practice.

SECTION 7. It is unprofessional to make alterations of a building designed by another architect, within ten years of its completion, without ascertaining that the owner refuses to employ the original designer, or, in event of the property having changed hands, without due notice to the said designer.

SECTION 8. It is unprofessional to attempt to supplant an architect after definite steps have been taken toward his employment.

SECTION 9. It is unprofessional for a Member to criticise in the public prints the professional conduct or work of another architect except over his own name or under the authority of a professional journal.

SECTION 10. It is unprofessional to furnish designs in competition for private work or for public work, unless for proper compensation, and unless a competent professional adviser is employed to draw up the "conditions" and assist in the award.

SECTION 11. No Member should submit drawings except as an original contributor in any duly instituted competition, or attempt to secure any work for which such a competition remains undecided.

SECTION 12. The American Institute of Architects' "schedule of charges" represents minimum rates for full, faithful and competent service. It is the duty of every architect to charge higher rates whenever the demand for his services will justify the increase, rather than to accept work to which he cannot give proper personal attention.

SECTION 13. No Member shall compete in amount of commission, or offer to work for less than another, in order to secure the work.

SECTION 14. It is unprofessional to enter into competition with or to consult with an architect who has been dishonorably expelled from the "Institute" or "Society."

SECTION 15. The assumption of the title of "Architect" should be held to mean that the bearer has the professional knowledge and natural ability needed for the proper invention, illustration and supervision of all building operations which he may undertake.

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