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IF, as was alleged, there really has been "a sort of tacit competition in the matter of the public building at Indianapolis between the Supervising Architect's office and the profession at large," we must record the fact that the contest seems to have been decided against the Government office and in favor of the general practitioner, who is to be allowed to compete in limited competition under the Tarsney Act for the designing of this Government building. It is not yet publicly announced who are the architects invited to submit designs, but it is already known who cannot have this chance, for the members of the jury have already been selected, and these men and their partners are, by the terms of the Act, excluded from such competitions. The jury this time, besides Mr. J. K. Taylor, Supervising Architect and member *ex officio* of all such juries, will consist of Mr. Henry Van Brunt, of Kansas City, Mr. D. H. Burnham, of Chicago, Mr. E. B. Green, of Buffalo, and Prof. H. L. Warren, of Boston. If Mr. Taylor is disappointed in finding that he is not to be allowed to design this building, he may take consolation in the knowledge that on his retirement to private practice his name will be found more than once included in lists of those architects invited to submit designs in similar competitions.

THERE is nothing more unmistakable than that there is no popular movement that possesses greater vitality than the general determination to make more of our landscape surroundings than formerly, whether in the way of natural parks and reservations, as in the Metropolitan Park System about Boston and the Rock Creek Park of Washington, or the more formal parks of New York and Chicago, or the pseudo-Italian garden of private ownership. In the promotion of this movement the illustrated newspapers and periodicals are doing excellent work in popularizing the actual achievement of the landscape worker. The admirable illustration of an Italian garden that accompanies Mrs. Wharton's tale in this month's *Scribner's* is an incitement to the private possessor of means, just as the illustrations of the Japanese tea-garden at South Orange, N. J., shown in last Sunday's New York *Tribune* should stimulate officials who have the charge of our public parks; and as these and similar pictures reach all parts of the country, the seed they carry will germinate in all kinds of unexpected places where there happens to be a receptive mind and natural conditions which invite the improving and restraining guidance of the educated hand. It is not possible that the movement should not become one of the most civilizing influences of our time. At present, perhaps more is being done in the northern parts of the country, where climatic conditions are not entirely propitious, but eventually the most attractive and famous results of the modern art of landscape architecture will be found in California and the isothermal belt that stretches across the country and includes within its northern limit Denver and St. Louis, while its southern limit dips down as low as El Paso before it begins to slant up again to Richmond.

IT is evident, too, that in this work woman not only can but will play an important part. Not only will she desire to have landscape embellishment carried out for her own personal gratification — paid for by her husband or by the municipality she adorns with her presence — but she will desire to do these things with her own hands or at least to control and direct them — be the actual and paid landscape-architect, in short. No sooner did the Massachusetts Institute of Technology and Harvard University announce the establishment of courses in landscape architecture than the authorities found themselves called on to decide whether they should open these courses to the several women who applied for admission. While we do not feel that the calling is one that is peculiarly adapted to woman, we do feel that woman has certain natural gifts which fit her to follow it in some of its branches with pleasure to herself and profit to her employer. Her keen perceptiveness of the beauties of a landscape-view properly set, her love for flowers and plants and the knack of nursing them to a vigorous and natural growth and her general abhorrence of a straight line are natural gifts that fit her to care properly for the surface of things, and if she has a reasonable degree of business instinct she can easily employ trained engineering skill to look after the things beneath the surface, foundations, levels, drains, hydraulic problems, and so on. Already there are several women landscape-architects practising with success, some, like Mrs. M'Crea, of Chicago, having in a manner accidentally succeeded to an established business, and others like Miss Beatrix Jones, of New York, who have elected their vocation and prepared themselves for the work by a thorough course of instruction.

AS if to enforce what we say above of the likelihood that the largest and most effective field for landscape work lies to the south of this latitude comes the announcement of the Agriculture Department of the State of Pennsylvania that it proposes to use all possible means to improve the landscape effects throughout the State, and inviting the coöperation of the various public bodies, forest-wardens, agricultural societies, corporations and private citizens. The most effective and helpful agents will probably be found to be the railroad corporations. The Pennsylvania Railroad Company was, we believe, first to discover that passenger traffic could be encouraged by not only advertising to the world the splendors of the natural scenery through which the road-bed ran, but by heightening the natural interests through beautifying the surroundings of the stations and doing something to remove or, at least, veil the scars in Nature's face, made by the inevitable fills and cuttings. In this way the leaven is spread all through the State and the back-country citizen, forced to loiter at the nearest railroad-station, insensibly derives pleasure and inspiration from the trim surroundings and well-kept flower-beds of the station-grounds and carries home a feeling of discontent with his own unkempt surroundings, which in very many cases is certain to result in his attempting to better them. In these matters example is better than precept, and the smaller and less-wealthy railroads are sure, sooner or later, to follow the example of the Pennsylvania Company, and so establish foci of instruction which cannot but have an inspiring effect on the rising generation.

THE naive criticisms of works of art voiced by the uneducated but practical observer while they are generally amusing often have a real value: the absence of the saddle-girths or the atrophy of the lolling tongue in a mouth that is obviously champing the bit has worried many a countryman as he gazed at some equestrian statue; a cartridge-box or scabbard slung at the wrong side has led many a G. A. R. veteran to cast jibes at the sculptor of some soldiers' monument, and no matter how beautiful the color and how great the painter's technical skill the man bred on the farm will first note that the teamster is driving his ox-team from the wrong side. In London there is a journal published in the interest of

the merchant-tailors, or however they may be styled in England, which each year gravely publishes its appreciations of the portraits exhibited at the Royal Academy, and points out how here a breast-pocket has been introduced or omitted, or three buttons painted in place of four, or the roll of the lapel, or the crease of the trousers is all wrong. The latest instance of practical criticism of this sort comes from the New York Granite Cutters' Union, which has been much perturbed because its assumed rights have been disregarded by the architects and contractors for the new City Prison. As the Union has been debarred from doing the stonework on this building, it is quite sure that the work is all wrong and so has watched the progress of the building with minutest care and has been prolific of formal written complaints forwarded to the mayor. Tired of watching the working and bedding of the stones, it has sought relaxation by observing the architectural and artistic embellishments of the structure, and has at last stopped at gaze before the municipal coat-of-arms carved in the tympanum over the main entrance, and has discovered that it, too, is all wrong. The non-union sculptor and stone-cutter have made hash of the city's seal and have placed the sailor on the side of the escutcheon where the Indian ought to stand, the alleged eagle is not known to American ornithology and, really, the bas-relief, not properly exhibiting the city arms, ought to be taken out and replaced by the proper thing, Union-cut. Doubtless the criticism, being made by practical men who have cut the municipal escutcheon over and over again, is well founded. At the same time, we have seen coats-of arms on buildings where it was impossible to determine whether the supporter on one side were soldier, sailor, Indian chief or Indian squaw, and perhaps the sculptor in this case may be able to prove that however imperfect may be his ethnical delineation he has not been guilty of a blunder. But the practical man is a very keen critic and artists often fail to satisfy him.

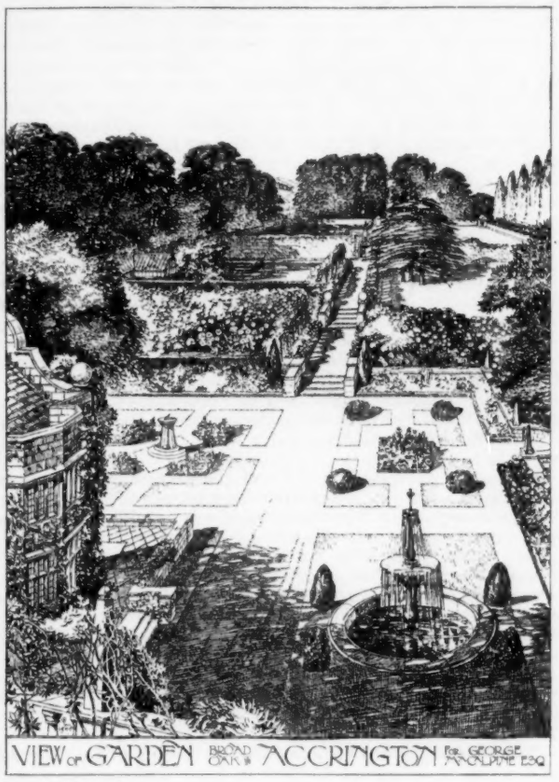
IT does not conduce to sweetness of temper when the victim of an accident finds that his insurance policy, which he supposed gave him protection, is found expressly to forbid him to indulge in that particular form of accident. Nor does it console a citizen whose building has been blown up, or down, or swept out of existence in some way, to know that he has uselessly paid fire-premiums for years. The desirability of having some means of insurance against damage to buildings other than that caused by fire is suggested by the loss we have suffered this week through the bursting at night of a thirty-inch water-main in front of our premises which flooded every cellar in the neighborhood. We would be the last to suggest that any one should undertake to insure buildings against structural weakness, as that would but encourage the careless and unskilful workmanship and design that are now fostered — though to a lessening degree each year — by the fire-insurance companies, but a more common inclusion in the fire policies of existing insurance companies of protection against loss by wind or water, or the formation of new corporations specifically insuring against losses of these kinds is distinctly desirable, and water-damage in one form or another is sufficiently common to make it evident that property-owners would gladly pay for protection and so afford to the insurance companies a reasonable income. The modern laws affecting the employer's liability for accidents happening to his workmen have caused contractors to secure protection in their turn from the accident insurance or guaranty companies, and we believe the business is profitable to the latter. We are uncertain, however, whether these or any other concerns are willing to insure against loss falling upon the fabric of a building in course of construction or upon neighboring structures, through some of the many half-justifiable forms of building accident, such, for instance, as that which happened last week in New York at Broadway and Walker Street, where a steel column, properly placed and secured, was dislodged by the shock of a falling derrick and fell upon and crushed the adjacent building five stories lower down. The owner of the injured building can recover from the contractor, but it seems as if some form of insurance could be devised to give a partial protection to contractors.

THE greater part of the ingenuity and capital spent in inventing and developing automatic fixtures has been wasted, and inventors and promoters have more often achieved loss than profit. The man who invented an automatic feeder that discharged into the manger at so many hours' interval a stated quantity of grain forget that a horse might sometimes be absent from his stall over two or three feeding-times and on his return would simple gorge himself into a colic. Automatic appliances are only useful, economical and safe when they are not allowed to work automatically, and this obvious truism has lately been impressed on the School Board of Brooklyn on being confronted by the Water Department's statement that the automatic flushing-apparatus in the school-buildings under their jurisdiction were wasting over seven hundred and fifty thousand gallons of water each day. The apparatus installed in the Brooklyn school-houses appears to be a very industrious and hard-working appliance, for, as it appears, they flush closets and urinals at stated intervals day and night and as frequently in vacation time, when schools are closed, as during term time, when the school-rooms are full to overflowing. The School Board is said to be appalled by the discovery of this inexcusable waste and talks of displacing the automatic flushing apparatus with some less wasteful appliance. But, as it is not the apparatus that is at fault, we trust that they will not convict themselves of further folly and waste more of the public funds by changing the system. All automatic flushing-apparatus is already adjustable or can easily be made so, and an automatic apparatus is one of the best that can be used in public schools. The real blunder has probably been in employing janitors who believed that an automatic apparatus was really meant to be left to automatic operation.

THE courts are seemingly inclined to give effect to the late decisions of the highest English and American courts that even peaceable picketing is not to be tolerated by the law. A cigar-maker in New York was fined in the police court last week for picketing, and in a similar case the equity division of the Massachusetts Superior Court issued an injunction which restrains the defendants from "wilfully and maliciously intimidating and preventing persons from remaining or entering the plaintiffs' employ, from interfering with the business of the customers of the plaintiffs if they continue to deal with the plaintiffs, from posting false, malicious and libellous signs, placards and notices of and concerning the plaintiffs and designed to prevent the public and all persons from doing business with them and their customers; and also from distributing handbills and cards, and from driving through the streets of Boston a wagon on which are false, malicious and libellous signs, and from standing at, near or surrounding the plaintiffs' places of business, and from patrolling in front of the same, as well as from intercepting persons from entering their places." While both these instances afford encouraging signs that there is still hope that the law can protect the peaceable citizen, the New York case is the most hope-inspiring of the two, since it comes from a quarter whence usually proceed signs that the interests of the peaceable citizen do not concern the office-holder charged with the execution of the enacted laws.

A FEW weeks ago an electrical engineer in New York committed suicide because a costly wiring system installed in a steamship proved defective and useless, one report alleging that his own blundering was the responsible cause and another stating that failure was due to malicious mischief on the part of a discharged subordinate. At any rate, the unfortunate suicide was evidently endowed with a conscience, and it is a pity that a man so endowed should deprive the world of his work, when there are so many conscienceless workers left to do their mischief. "Transformer defective" is the brief and rather cynical statement appended as the explanation in the case of several fatal accidents reported for the last quarter by the Electrical Bureau of the National Board of Fire-underwriters, and it strikes us that it is a pity that those who manufactured, installed or tested these defective transformers had not the tender conscience of the New York engineer. Perhaps they are so endowed and are now bearing the conscious burden of a blood-guiltiness that their greater care might have avoided. A man once convicted of carelessness ought no longer to be employed on electrical work, since the fatal effects of his blundering are less apt to be visited upon himself than upon innocent parties guilty of no improper use of the installed apparatus. Besides mere carelessness and sheer ignorance, it is not impossible that malice is a prolific cause of electrical fires, and fires now supposed to be due to merely accidental short-circuiting may in reality be due to incendiary purpose.

NOTES ON SOME EUROPEAN SYSTEMS OF FOREST ADMINISTRATION.[1] — V.



From *Building News.*

THE name of Professor E. Landolt is not only inseparably associated with the modern development of forestry in Switzerland but is distinguished among those of the first authorities on scientific forestry throughout the world.

Preliminary to a survey of the present status of Swiss laws on forestry and the method of their administration, it may be well to glance at the growth of conditions which have brought about the present practice. The facts are succinctly set forth in a report by Professor Landolt on the group "Forestry, Game and Fisheries," at the Schweizerische Landesaustellung, Zürich, 1883.

As the compass of these notes does not afford space for a translation *in extenso* of the Professor's admirable monograph, the chief points of it only will be here transcribed, with this general acknowledgment of indebtedness to his work.[2]

The use of the forests began as soon as men settled in or near them. There was no forestry in those early days, for nothing was sown or planted, nothing cared for, and men simply took what they needed from the seemingly inexhaustible stores of the forest.

Strange that these conditions of a primitive civilization in the Alpenland survive in our time and land, in a nation which so prides itself upon its advancement.

Who thins the wood, reasoned the early Swiss, adds to his pasture, and who destroys an edge of the forest and prepares the ground to produce food, not only furthers his own good, but is a benefactor to his fellow-men. And so he went on cutting and uprooting until he had so far lessened the mass of the forest that he began to have a dread of wood-famine. This came about earlier in the thickly-peopled places, in the lowlands and on the hillside, than in the savage wilds of the mountains, whose stony slopes were, indeed, only fit for trees to grow: earlier where wood-consuming industries were in working than where simple tillage was followed, and first of all, naturally, in great places far from large forest areas. With scarcity of wood for building and fuel becoming actual, or at least in sight, the leaders and the people turned their attention to the forest.

The first ordinances were aimed rather at economy of material than increase of production, and sought to make easier the supply of the poorly-wooded parts from the heavily-timbered regions.

Limitation of such use of the by-products of the woodland as interfered with replanting razed areas, or endangered conservation, was the outcome of a much later experience. In this stage the forest began to be valued on account of its steady yield of timber, not, as formerly, solely for the chase and to be used without check; property rights in woodland were defined and trespass forbidden; the boundaries of forest-areas were established; and utilization was regularly controlled.

As it began to be understood that the forest was not alone a boon to man in its products, but a protection, as well, against the enemy and disasters of Nature's working, certain parts were set under special ward and reserved, without as yet, however, a definite scheme of culture. Then came the conviction that to merely protect the forests from overuse was not enough to secure a supply of timber equal to the demand, and to maintain their defensive status, but that steps must be taken for the renewal of regions in part or wholly denuded, and to protect the growth.

With this knowledge — that the forests needed not only guarding but rebuilding and cultivation as well — came the demand for capable forest-workers, and later for forest officials under the control of the legislative and executive authorities; and thus gradually developed an organized forest administration. This business of caring for the forests very soon brought comprehension of the fact that they performed other functions in Nature's housekeeping than the supply of necessary timber and the shelter of certain places from the avalanche and stone-chute, and taught the importance of the forests to agriculture in a way which won many friends to the cause, and made welcome the establishment of control over their use and of careful culture even in the most remote mountain-lands. The beginning of the fourteenth century saw the birth of that dread of wood-famine which has come down through the centuries to our own time. Consumption was limited, export forbidden entirely, or allowed only under a high tariff. The damaging use of by-products, grazing, etc., was checked.

The city of Zürich forbade her *Vorstern* to cut, raft and sell wood from the Sihlwald, not only from reasons of economy but to limit the authority of those officials.

Schwyz, in 1339, interdicted charcoal-burning in her forests, and Freiburg, in 1438, prohibited the cutting of wood in her environs. The statute-book of 1471 forbids cutting in the high forest-belt.

Bern issued in 1592 an edict for economy in wood-consumption and for the protection of the forest against overcutting.

Such like prohibitions and regulations were reissued from time to time as, in spite of them, the supply of material continued to diminish in forests near the centres of consumption.

Various schemes were devised to promote economy. The right of the *eigener Rauch*, the house-fire, was curtailed, fuel-sparing appliances were recommended, — the old *Thonofen* or *Kachelofen*, tile-stove, still in use to-day, is probably the most economical heating-stove ever invented; wood was taxed and the extension of wood-consuming industries discouraged.

Some of these ordinances were even inimical to certain cultures: Zürich prohibited in 1563 the planting of new vineyards, on the ground of their using up a good deal of wood, and this ordinance was reissued from time to time, carrying heavy penalties, up to the beginning of the eighteenth century, when it last took the form of forbidding the use of unsplit vine-stakes.

The embargo on export of wood was in force not only on the national and cantonal frontiers, but also from place to place in the interior, and continued partly in operation up to the dissolution of the Confederation in 1848. As transport difficulties, however, minimized the traffic in timber, these export regulations had, up to the opening of the eighteenth century, scarcely more than local bearing. The tendency to observe such restrictions, becoming general about that time, had grown into strength toward the middle of this century, when the control of the export traffic was pretty widely accepted as a necessary safeguard against over-use of the forests.

Damage to the forests from woodland-pasturing and resin-scraping was early recognized, but the injurious effect of excessive raking of litter was for a long time unnoticed.

Zürich forbade pasturage in the cutting-areas as early as 1376, and the Sihlwald was entirely closed to the herds in 1417.

Freiburg, in 1435, forbade sheep-grazing in the forest, and in 1489 the statute-book limited all forest-grazing to a period of three weeks, and prohibited the driving-out of goats without a goat-herd.

Appenzell decreed, in 1539, that the owner of goats was responsible for their depredations and, in 1708, the shooting of predatory goats was justified.

Canton Zürich prohibited the grazing of cattle on old or new cuttings.

Glarus, in 1620, prohibited goats browsing unguarded.

Canton Vaud regulated the resin trade in 1675, while in 1670 Zürich deliberated upon its entire suppression.

In 1711, Neuenberg prohibited injury to the forest from leaf-raking, but elsewhere there was no regulation of that matter until near the end of the eighteenth century.

Thus there was a great deal of special legislation throughout Switzerland designed to protect the forests from abuse of the pasturage, but all of these ordinances were far from being effectively enforced. The development of conditions of ownership in Switzerland was peculiar. The early extinction of the land-fiefs in greater part, the unusual amount of independence enjoyed by the communes in the ordering of their internal affairs, the unequal authority of the governing powers, the various character of settlements and the existence of large areas in the mountain-districts unsuited for cultivation and for private ownership, were factors in the building-up of property relations.

The absence of manorial estates and the jealousy with which the communes guarded their separate rights would account for the scarcity of State forests in Switzerland. The present State forests were nearly all bought up, taken from great estates, or confiscated from the monasteries. These State properties are mostly in regions

[1] Continued from No. 1271, page 38.

[2] "*Bericht über die Gruppen 27-28: Forstwirthschaft, Jagd und Fischerei.*" El. Landolt, Professor. Zürich, Verlag von Orell Füssli & Co. 1884.

where the important and ambitious towns of the olden time held broad sway, or where rich monasteries have been extinguished, the State in these latter cases always considering itself heir to the monasterial forests. They lie, therefore, in the old "Land Bern," in the Bernese Jura, in Schaffhausen and Thurgau.

The public forests of the Cantons Uri, Schwyz and Solothurn form a link between State and communal forests. The Government controls their use by the several communes in interest, apportioning the rights of each, and changing such apportionment when it sees fit to do so. This system has, of late, been given up in Solothurn, where the forests are now definitely apportioned among the communes, but it is still in working in the two other cantons.

Canton Lucerne once claimed sovereign ownership of all great forests, *Hochwaldungen*, within her borders, but in 1514 they were conveyed by statute to the communes for a yearly consideration of "12 mäss [about three hundred and sixty pounds] of good cheese." Where the inhabitants engaged in agriculture built their dwellings together, thus early creating villages and setting up communal entity, the communal forests flourished, for in these places wood and pasture were used in common; but, where, on the contrary, there were separate farms and no proper villages, each settler claiming ownership of the land about his farmstead, there was no community of interest, and the private forest resulted. The first condition is found in the plain and hill country, where lay large contiguous bodies of cultivable land, as in the Jura region, for example; the second is found in the foot-hills of the great ranges, where land fit for clearing must be sought here and there, and where the assembling of groups of families was not so possible. Early in the present century the original proprietary status was disadvantageously disturbed by the apportionment of many communal forests among the parties in interest.

The proper delimitation of forests followed the recognition of their value to agriculture and was, doubtless, brought about and much furthered as a result of increasing disputes over proprietary rights and their extension; but while we find in the history of the town-forests of Zürich, as early as 1491, discussion as to patrolling and remarking of bounds, and in the statute-book provision for the determination of public and private forest-lands in 1442, the marking out of many mountain forest-areas is not completed to-day.

The setting apart of reserve forests — *Bannwaldungen* — was determined on various grounds: protection of the frontiers, supply of especial needs and those of the larger communes, securing against over-use those forests convenient for export of timber, protection against avalanches, stonefall, torrents and the degradation of the mountain-pastures, etc. The reservation frequently held in force for a few years only. While the placing of forests in reserve originated mainly with local authorities for the conservation of important local interests, such power was, also, in all times exercised by the governments. The most ancient of these acts relate to the protection of boundaries. As early as the year 1339, Schwyz forbade cutting and clearing in the Wehri forests along the frontier and ordered the latter marked out. In 1424, Schwyz ordered the protection of the oaks.

Similar regulations are found throughout the fifteenth century, for the care of certain species and for the reserve of whole forests, and we find these repeated in later times. Forest reserve for protection against avalanches, landslips, etc., first appear in national legislation, however, in the beginning of the eighteenth century. Uri set apart "*Dorfbannwälder*" (village reserve-woods) and "*Mattenbannwälder*" (meadow reserve-woods) for the protection of the villages and meadows below them, also "magisterial reserves" to supply timber for the public buildings. Schwyz, in certain cases, prohibited injurious litter-raking. High penalties were set for infringements of the "reserve" laws. Each inhabitant was bound upon his oath to report transgressors. *Bannwarte* (reserve-guards) were placed to watch the interdicted forests. These were, very likely, the early forest-guardians. Their title has survived in that of "*Bannwart*," applied locally to foresters.

Under intelligent administration regularization of supply took the place of absolute reservation.

For the town of Zürich's forest, the Sihlwald, it was determined, in 1384, that cutting, begun on the under border, should proceed regularly upward year by year. In 1442, the cutting allowed was 20,000 "*Holz*"; in 1495 it was 12,000; in 1533 it reached 27,000, and 30,000 in 1547.

The exploitation of the other "town-woods" was also fixed on a basis to prevent overcutting and damage. After the "*Etat*," or output, of the Sihlwald had been gradually increased to 40,000 *Holz* annually, a commission of experts found, in 1581, that the forest was overcut and must rest for an indefinite period.

The municipal administration did not content itself with fixing the amount of cutting and superintending the use of the forest, but further looked out that the manner of lumbering should be suited to the conditions and favorable to proper care of the standing trees. Among fourteenth-century records we find "notices" and "resolutions," providing clear cuttings and thinnings (*Durchforstungen*) in regular rotation.

At the end of the sixteenth century the Sihlwald's yearly yield was set at about one thousand *Klafter* (the *Klafter* measuring 2 cubic metres).

At the end of the seventeenth century, during whose course the forest-product was systematically harvested, the forest was remeasured and the increase estimated. On the basis of this the annual cutting was regulated at about twelve hundred *Klafter* of prime and five or six hundred *Klafter* of inferior material, among which was included fagots or "*Wittfrauenholz*" (widow's-wood). This regulation is still in force, with some extension of culture dating from 1737, in essential features. Similar conditions, doubtless, existed in other forests which came under intelligent control, but, in the main, the development of a systematized forest-culture came but slowly.

State-forest regulations of the seventeenth century were limited almost without exception to the preservation and protection of the forests, and rulings of broader effect seem to have received little attention.

In the eighteenth century, however, the domain of forest science was greatly enriched and the development of forest laws advanced with long strides.

Zürich, Bern, Freiburg and Lucerne were to the fore in this advance. The Physical Society, of Zürich, and the Economic Society, of Bern, busied themselves with a study of forest conditions, and in search of means for their improvement, whose results form the basis of subsequent forest legislation. New and more stringent ordinances were promulgated by the several State governments as they succeeded to power, and the hands of the executive were strengthened. Careful inspections of the forests were instituted, foresters assigned and cultures established under their conduct, some experiments were made at introducing exotic species, forest surveys and mappings and reports were pushed forward, and a thrifty use of forest products was enforced.

The wars of the early part of the nineteenth century were not encouraging to forestry. Law-givers were otherwise engaged and the forest was neglected. The first third of the century was not, however, quite barren of good to the cause of forestry.

The settled Cantons revised their old laws and made new ones. Forest-grading was abolished, more guards appointed, surveys carried out and efforts to establish regular working-plans were made with success. The State and larger communal forests instituted cultures and thinnings, and generally brought the woodland into condition for better forestry. Even the mountain Cantons were beginning to think of correcting abuses. The Helvetic Government accepted the care and maintenance of the forests, but the times were unpropitious. The forests suffered considerable damage during the political disturbances.

Zürich published in 1807 a new forest system; and Solothurn set up a course of instruction in 1809 in forest management, survey, etc., with appointments to the post of under-forester for the six best men taking the course. Solothurn adopted a general forest system in this year, as well as the Canton Neuenberg under Prince Berthier.

Zug, in 1821, provided for scientific regeneration of degraded lands. There was much activity in forest matters in 1830, and the connection of floods with the denudation of the mountains becoming more generally accepted by the people, there awoke a general interest in forestry matters.

Increase in the number of guards and advance in the standard of their training were the chief results. New legislation effected a strengthening of the administrative department. As the forest-owners, their representatives and the people generally became enlightened upon forest science and forest values, forestry throughout the most of Switzerland made good progress.

The people, always jealous of their liberties, were become reconciled to the intervention of the State foresters, being convinced of their usefulness and the necessity for them. Certain Cantons of peculiarly democratic constitution made no steps forward, however, but rejected the laws for the national improvement of forestry, holding on to old systems and to the right of control of their own properties with great obstinacy.

The growing appreciation of the economic importance of the forests, in the maintenance of the soil on the steeper slopes, in their conservation of a permanent water-supply in the springs, brooks and rivers, and their effect on conditions of weather and climate, among other things, together with the rapidly-rising prices of wood, made the establishment of a systematic forestry in the recalcitrant mountain Cantons more and more desirable.

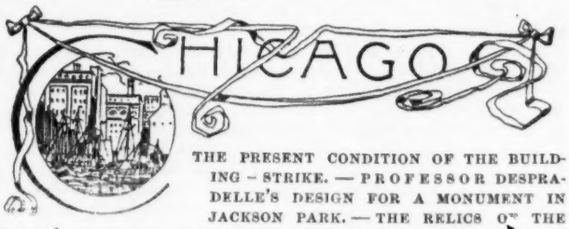
The Confederation finally took the matter in hand as one of national interest. The Swiss School of Forestry was founded in 1855. In 1858, an investigation into the mountain forests and torrents was carried through. The efforts of the *Forstverein* had already done good work on the redemption of torrential streams and the afforestation of their sources. The law of March 24, 1876, finally affirmed the right of the Confederation to a higher control of the forest police in the high mountains. This brought all the mountain Cantons under the forest regulations and officers, with the result that an improved condition has been reached which promises in the course of a few years to give the mountain forests of Switzerland a permanently productive status.

Forest-guards, especially for the reserve-forests, were of early origin under the various titles of Bannwarte, Holzwarte, Vorster, etc.; "Vorstern" in the Sihlwald appear in the records of the year 1314. Higher authority over the forests and their use and for the punishment of trespassers was exercised by the councillors, stewards and functionaries. The Council of Zürich turned over these duties to a single one of their number in 1342. These were the first forest officers. But only toward the end of the eighteenth century were forest officers regularly appointed by the State. No especial knowledge was at first expected of them, only general intelligence in

wood-lore and some practical experience. These requirements were gradually broadened. In the absence of a home school before 1855, Swiss foresters studied in the neighboring German schools of forestry.

The strong national objection to increase of officialism has urged certain Cantons to try to get along without properly trained foresters, but this has failed and must be changed.

Switzerland, then, to quote Professor Landolt's closing paragraph more nearly in his own words, "has not yet everywhere a quite satisfactorily regulated forestry, and far less does she enjoy throughout a good condition of her forests, but she has laid the foundation for a better ordering of the forest status and for improvement in the culture and use of the forests." A. B. BIBB.



THE PRESENT CONDITION OF THE BUILDING - STRIKE. — PROFESSOR DESPRADELLE'S DESIGN FOR A MONUMENT IN JACKSON PARK. — THE RELICS OF THE WORLD'S FAIR STILL EXTANT. — THE DRAINAGE-CANAL.

AS usual, we begin this letter as we have every one written from Chicago for nearly nine months: "Matters connected with the labor trouble are still quite unsettled." Way back last October the contractors were avoiding new work, preparing to get ready for this tremendous strike, which began in its actual activity in February. The effect upon Chicago can easily be imagined, not only in building circles and real-estate interests, but in many other ways which bring activity and prosperity to a city. The twenty-eighth of June one of our leading papers opened its labor column with this paragraph: "The bricklayers and the contractors signed a peace pact yesterday that makes certain the collapse of the Building Trades' Council within a week, and the resumption of the building industry in Chicago on a basis which guarantees prosperity to the workmen and the investors." It further adds, "Notice of the withdrawal of the strong organization of the bricklayers and stonemasons was served upon the Executive Committee of the Building Trades' Council yesterday morning by President George P. Gubbins. It created consternation among the reckless leaders, who have kept 60,000 men in idleness and large numbers of families in want."

More than a month has now passed since the date of this publication, and still the strike lives and flourishes, though certainly it is a hopeful sign that such withdrawals have been made and bodes well for a settlement that will be more advantageous for both workman and contractor. The contractors are standing well together, and the outcome is not to be distinctly prophesied. Some fear that there will be no actual settlement, but that the laborers will gradually creep back to work and the question of the rights of the unions will be held unsettled in the background for a while, only to be brought up again with renewed vigor next spring, when, perhaps, the contractors are not so well able to fight them, but when at least the men have reinforced themselves by work all winter. One would suppose that the men's resources would be nearly exhausted after such a long time of enforced idleness. To be sure, many of them get small jobs, or perhaps settled work outside their own trade, but the man who is accustomed to earning three or four dollars a day is now only earning a dollar and a quarter or a dollar and a half, which, if he is a man with a family, is but a pittance. The outside unions have sent help, but large as these sums have been they are only a drop in the bucket when you consider how many people are eager for help. It is reported the man with savings has had, of course, to use them, and, in case of his owning a small house, has had to mortgage it to raise money, as the unions could not help any one still possessing property to fall back on. To say that architectural interests in Chicago are quiet but mildly expresses the situation. The pessimists, mostly the older men, declare it is that death which knows no awakening, or at least an awakening in the generation to which they belong. Even Chicago's indomitable spirit and desire for planning big things seems for the time to have disappeared, and there are but few castles in the air waiting to be materialized in brick and mortar on our streets.

Marshall Field has purchased the old Central Music Hall, and there is a scheme, doubtless to be realized in the near future, of covering the entire block of that State Street frontage with one large store. Mandel Brothers, who never dare to be much behind Marshall Field, have leased for ninety-nine years the old McClurg site on Wabash Avenue, which will give them an entire block's frontage on Madison Street, with extended frontage on Wabash and State Streets. They will erect a nine-story structure, the plans for which have been prepared by Holabird & Roche. The débris from the burned McClurg building is now being cleared away by non-union men.

It is rather amusing to see when Chicago is not in a position to dream dreams of greatness, actual greatness, "the biggest thing that was ever built," how outsiders take up the matter. Now it is Professor Desiré Despradelle, a teacher in the Massachusetts Institute of Technology, who sends us from Paris this summer a dream on paper of a memorial which we shall erect as a reminder of our glorious "White City," on the spot which it has made famous. It is said Professor Despradelle submitted his plans to the Architectural Department of the Paris *Salon* this year. The jury awarded him the first medal of honor, and the French Government purchased a set of the drawings for the National Gallery of the Luxembourg, where they will remain permanently on exhibition." The chief feature of the design is a tower 1,500 feet high. The paper from which the above quotation was made further adds: "Should the American people accept this gift of the best fruits of his genius from the great Frenchman, Chicago will have a new wonder of the world, beside which the labyrinth and pyramids of antiquity and even the Coliseum itself, will be made commonplace." What a pity we cannot accept it. It is suggested in the course of the article that it be placed on the site of the German Building at Jackson Park. It would seem a pity to destroy this really charming old German reminder when there are acres and acres of unoccupied ground fit for the site of a "Memorial." The German Building at the Fair, which it is to be remembered was of a considerably more substantial character than some of the other government buildings, still stands amidst its willow-grove, by the shores of the Lake, and it looks as if its first ten years would only bring an added grace to it. It is well kept up as a sort of restaurant or refectory and is a very charming feature in the park. Go there at the close of a lovely July day, when the low sun's rays are warming its brilliantly colored tile roof, and the park is quiet, with all the gay world gone to Paris to see this year's wonder, and all the commonplace world gone home to bed or to its supper, you will find this a truly charming bit of architecture, more appreciated now than it was in the midst of all the charms of seven years ago, and so pure in its old German feeling as to bring up all sorts of pleasing dreams of far-off Germany, the Germany of the Middle Ages, with singing friars, and golden-haired maidens peering from the windows of its graceful turrets.

There is really a good bit of interest left in Jackson Park even if you don't drive a golf-ball over the links, which are all bunkers in places, or a horse over its smooth roads. The Art Building, as every one knows, still stands there, now transformed into the Field Columbian Museum, and holds a goodly collection, anthropological, natural history, etc., for those who care for miles of such things. Nothing has been done to the building, not even a coat of white paint, it would seem, and in spite of its good lines the beauty is fast going. It is a pity it could not be kept up, if allowed to stand at all, for it might be a fine feature in the park for years to come. Under its projecting wing, beneath a canopy rests the old Viking ship, probably as part of the transportation exhibit which is inside. It seems a mistake that the old caravels could not be treated as well. They are now rotting in the lagoon, bearing the sign, "Danger — keep off," surrounded by the charred walls of what used to be the banks of the Court of Honor. Take a little launch from the boat-landing, in itself a very charming little composition built since the Fair, at the close of a summer day, at that hour when the garishness of sunlight has departed, and you will find much of beauty still in this once beautiful spot. The Art Building, seen through green vistas, is not without attractiveness, the German Building rises distinctly picturesque from its grove of willows, and you sweep past the "Wooded Islands," where still stand the little Japanese palaces, on the exterior as attractive as ever, but now only visited by the innumerable birds which haunt this really quiet corner of a busy city, and surrounded by roses, which in June make the spot an objective point for pilgrimages. Drifting quietly down through the lagoon you encircle the old caravels, three pitiful old crafts in picturesque decay, and catch a glimpse beyond them of distant Rabida, now used for a fresh-air hospital for Chicago's poor children. This building is well preserved, but hopelessly lessened in picturesque effect by having been painted a spruce-gum brown instead of its appropriate white. Beyond this loom up two atrocious figures, which seem to defy the "tooth of time," and which stood in the neighborhood of the Krupp-gun exhibition, while rising mysteriously out of the desert at your left, you puzzle your brain over a double flight of stairs which lead nowhere, forgetting the "intermural" and that there was a station here at the south end of the Court of Honor. These seem to have escaped the kindly hand of fire which spread over this part of the park, leaving desolation to be sure, but not undignified absurdity.

One of Chicago's great works, before mentioned in these letters, has this last month been officially accepted. We refer to that of the drainage-canal. We all know around this part of the country, or know we *have* known, how much it cost, how deep it is, how long it is, how many years it took to build it, but not till one has taken a journey down its length does one in any way appreciate the tremendous work. On board one of the little steamers bound for Lockport, thirty miles down the canal, where are situated the first controlling-works, the surprise begins as one sits and waits for the time of starting on the Chicago River and breathes-in no noxious odors, such as used to make one hurry across the bridge in former days. The water, which is unobjectionable in the river, grows more pure as it flows, till at Lockport it is a beautiful sheet when it takes its wild plunge over the dam into the channel of the sluggish Desplaines River, to flow onward into the Illinois and to be checked at Joliet again by controlling-works. These works are huge "bear-trap" dams, which by being raised can lessen the flow of water on the rivers below Lockport in case of spring freshets, or can control the current

up in the Chicago River. The need to do this was exemplified the other day, when one of the large Lake steamers got turned across stream, entirely obstructing the river. Her own weight and the current of the stream made it impossible for the little tugs to pull her back, and it was only in the course of twenty-four hours after the current had been stopped at Lockport that she was swung around. From a picturesque side this great engineering feat is not without its charm. First, one passes between low, gray banks fringed with the brightest of green vegetation, the canal stretching away and behind one as one looks out at the stern of the little steamer, with an occasional old cantilever derrick rising from the banks, simulating a wind-mill, and on a white, gray day one thinks nothing is so like Holland this side of it. Then one passes through the rock cuts and discovers on either side huge piles of excavated material in fantastic shapes, or great pyramidal forms, and it's the desolation of an Egyptian desert or Elihu Vedder's "Last Man." These huge piles of stone mean future building-material and rubble for the surrounding neighborhood and a vast amount of money for the owners.

At this period of enforced idleness, when few permits are being issued at the headquarters of the city building department, there has opportunely occurred a bad fire at No. 125 Dearborn Street in which several lives were lost, owing to the deplorable condition of the building and the lack of all accommodations in the way of fire-escapes. This is stirring up a considerable amount of talk, very properly, for the state of many of the down-town stores and factory buildings is certainly something which requires prompt attention.

THE USE OF ACETYLENE IN ISOLATED PLANTS.[1]

THE question of lighting isolated plants has, until lately, been one of the most difficult to deal with, on account of the inadaptability of the several sources of light for this purpose. It is conceded that lighting with oil or kerosene lamps is insufficient in brilliancy and obnoxious on account of the smell, and, therefore, in all cases where gas from a central station at a reasonable price was not to be had, the choice of lighting has generally been a system of arc-lights or incandescent-lights, or a mixture of both. A great many railway-stations require less than fifty lights. In order to provide for that number of lights the cost of an electric-light plant would be excessive, always taking into consideration that no direct connection with an existing system of electric-lighting can be made. Even when renting electric-light from a corporation or a private individual, the cost, as a rule, has been high enough to make it preferable to endure the inconveniences and semi-darkness of kerosene lamps instead.

In the last few years, however, a new light, which seems to be admirably adapted for the purpose of lighting isolated plants, has made its way slowly and steadily to the front. This new source of lighting is the much-slandered king of all illuminants, — namely, acetylene. The great ease with which this gas can be manufactured and the small cost at which it can be installed have emboldened many to place on the market apparatus which has been the means of delaying the ultimate success which this gas, in spite of all objections, is bound to gain for itself.

Given a piece of carbide, two tin cans and some water in which to throw the carbide, and you will have gas as pure as it is made with most of the modern apparatus.

The composition and properties of acetylene have been little understood, even by those who made it a business to build apparatus for its generation.

To the engineer who wishes to familiarize himself with the practical and salient points of this gas, its adaptability for certain service, its danger, etc., time is generally not given to take up a lengthy study in order to make himself acquainted with its chemical and physical properties. With this fact in view, some of the most important properties of acetylene will be mentioned. The greater part of the information to be given has been taken from the admirable lecture of Professor Lewes, the famous expert, whose lectures were published in full in the *Progressive Age*.

Acetylene-gas has been known since 1836, when Mr. Edmund Davy produced this gas and called it bicarbonate of hydrogen. He was the first to make public its splendid qualities as an artificial illuminant, and predicted that it would take the lead of all if it could be produced cheaply enough. As the carbide which he used for generating this gas was a combination of rather expensive materials, it is easily understood that from that time on little had been done or heard regarding acetylene as a lighting medium, and it is due to the invention of Mr. Wilson, who in 1892 found a commercially successful product in calcium carbide, that this gas could be produced at such a price as to enable it to enter in competition with other sources of lighting.

Calcium carbide is now made by fusing 100 parts of lime and 70 parts of coke in an electric-furnace. The material used for the manufacture of carbide must be of great purity; the lime should contain, on an average, 99 per cent of CaO, and the coke should not run over 5 per cent of ashes. The lime and the coke are crushed to nut size, then ground to powder in mills, and finally screened. The materials are then weighed and mixed; the latter process is continued for at least five minutes for the sake of uniformity. The mixture is then introduced into the electric-furnace and fused under the electric-arc. When cold and broken into pieces, carbide has the appearance of granite, and is equal to it in hardness. A temperature of 2,700° C. is required for its formation. As carbide absorbs moisture from the air very greedily, it must be protected, in transit as well as in storage, from the influence of the atmosphere. It is, therefore, shipped in air-tight packages, and, when kept above ground in a dry place, there is absolutely no danger connected with its storage.

Carbide, manufactured as above, is an almost pure product. For manufacturing purposes, one mechanical horse-power is required for a yearly output of 1.1 tons of carbide.

Carbide is sold at present, in carload lots, at $68 per ton, with strong indications of a reduction in this price as soon as rival capital shall compete in this field.

The most objectionable impurity in carbide is magnesium, which, while melting, takes up nitrogen from the air and forms magnesium nitrate. Such carbide, when in contact with water, gives out a gas rich in ammonia, which, if not washed out of the gas, will clog up gas-pipes and burners and produce smoking.

Berthelot first made definitely known the true composition of acetylene as 92.3 carbon and 7.7 hydrogen, with a density of .92. If carbide is placed in contact with a small quantity of water it will not generate pure acetylene-gas, as the heat developed by its generation will allow the acetylene to polymerize, and the result will be a gas rich in benzine, naphthaline and other polymers, which lower the candle-power of the gas and cause it to vary with each instant, as the lighting, under such circumstances, is done with benzine-vapor instead of acetylene-gas.

Acetylene is colorless, and when pure and dry it has a special, not entirely disagreeable, smell, as it is neither acrid nor corrosive; when hot and moist, however, the odor changes, as it contains then the products of polymerization.

The temperature of inflammation of acetylene is about 400° C., and its temperature of combustion about 2,000° C. It, therefore, has nearly two and one-half times greater heat of combustion than illuminating-gas per cubic foot, but for equal amounts of light it gives out very much less heat than illuminating-gas. It needs twelve and one-half volumes of air for its complete combustion. The fear of acetylene as a poisonous gas was dispelled several years ago, as it has been conclusively shown by very extensive experiments that its toxic qualities are less than those of coal-gas. There has been a universal belief that this gas attacks metals, and especially copper, and forms with them explosible combinations; and even so learned a man as Professor Lewes mentioned in one of his lectures that, on account of this property, copper must not enter into the construction of an acetylene-gas generator, only to declare a few months later, after hearing of the Pintsch Gas Company's experiments, that his position with regard to the use of copper and brass in connection with acetylene-gas had been erroneous. In the summer of 1895 the Pintsch Gas Company made the following experiments, in order to throw light on this vexed question: They filled several steel tanks with acetylene at a pressure of 150 pounds per square inch, and placed in these tanks numerous articles made of nickel, brass and copper, and exposed these tanks on the roof of a building during nearly an entire year to the extreme heat of the summer and the severe cold of the winter. After opening these vessels it was found that none of the metals had been attacked by pure acetylene-gas, and that even in some tanks where unpurified gas had been stored only oxidation had taken place. In no case was it possible, by either pressure, or hammering or heating, or a combination of these methods, to produce explosion.

Bullier, the French scientist, suspended copper plates, freed from surface oxidation, in acetylene for a period of one year, at the end of which time the copper was found to be as bright as on the day it was put in. The valves of the acetylene apparatus in his laboratory, which were also made of copper, showed absolutely no sign of having been attacked by acetylene after two years' service. Since these experiments were made we have ourselves observed generators with copper parts and also brass pipes used in chandeliers, which, after more than two years' of service, have shown no signs of being in the slightest affected by the gas.

Acetylene-gas becomes liquid under about 700 pounds per square inch of pressure at ordinary temperature. At 37° C., which is the critical point for acetylene-gas, it requires a pressure of 1,000 pounds per square inch to liquefy it. When this temperature is passed no pressure will convert it into a liquid state.

Acetylene-gas, when heated to 1,432° Fahr., will dissociate, and, when not compressed to more than 30 pounds per square inch, the dissociation is confined to the point where the heat is applied, and thus no explosion occurs. When, however, it is subjected to a pressure of more than 30 pounds and heated to the dissociating point, a violent explosion follows, resulting in the destruction of the confining receiver. Acetylene-gas not compressed cannot be exploded by shock, heat or concussion. A pipe leading from a gasometer filled with acetylene-gas was heated to a white heat about five feet from the gasometer, and, while local dissociation of the gas at the heated point took place, no explosion could be produced. The shock of a bullet shot through a tank filled with 150 pounds compressed acetylene-gas also failed to produce an explosion. The crushing of a receiver, filled with acetylene-gas compressed to 150

[1] A portion of a paper by A. Lipschutz read before the Civil Engineers' Society of St. Paul, March 5, 1900, and published in the *Journal* of the Association of Engineering Societies.

pounds, under a ram weighing 600 pounds and falling 20 feet, produced neither explosion nor ignition.

Acetylene, like every other combustible gas, forms, with air, an explosive mixture, and a room or building containing an acetylene-gas generator must be well ventilated, in order to allow for a proper exit of gas leaking from the generator.

As already stated, acetylene has a great density, and a receiver, such as a gas-bell, for instance, open on top, will retain gas several days if the gas is not blown out by a current of air. Hence no repairs, requiring soldering or heat, should be attempted at an acetylene-gas generator until all traces of gas have been expelled from the apparatus.

Non-observance of the two rules just stated has been the cause of nearly all acetylene-gas explosions in practice.

As the carbide commercially manufactured is never chemically pure, it introduces impurities in the gas, of which the principal ones are ammonia, phosphuretted hydrogen and sulphuretted hydrogen. It is due to the two last-mentioned impurities that acetylene-gas has a disagreeable garlic-like smell, which disappears whenever these impurities are removed. With very few exceptions, chemical purification of acetylene-gas has thus far not been resorted to in this country, for which the following reasons might be briefly stated: —

The commercial carbide, as furnished to consumers in the United States, is of greater purity than the similar article in Europe. A second and probably more valid reason is that very few attempts have been made in this country to burn acetylene with mantles as in incandescent gas-lighting; in which case it has been found that the organic sulphur and phosphor compounds of the unpurified gas would break down the mantles, thus making a chemical purification of this gas compulsory. Besides washing the gas free of ammonia, which is now done in connection with nearly all modern generators, the elimination of other impurities might be accomplished by three different processes, — viz, (1) passing the gas through chromic acid, (2) the use of bleaching powders and (3) the application of acid copper salts.

A comparison of the different qualities of rays given out by the several light sources is stated as follows: —

Coal-gas gives out a weak light, with yellow rays; destroys colors, heats the air and has strong toxic qualities. It is weak in diffusive power.

Electric arc-light has pale, sickly, violet rays, but is very intense. It is, however, the least diffusive of all lights, and is therefore rapidly being supplanted by other and more diffusive lights.

Incandescent electric-light has reddish rays, mixed with yellow, and is fatiguing to the retina, but gives out little heat.

Incandescent gas-light is too often rich in greenish rays.

Acetylene gives pure white rays; does not change colors; is least fatiguing to the retina; has but slight toxic qualities, and, being the most diffusive of all lights known, approaches most nearly sunlight. It has eleven times greater illuminating power than coal-gas.

When carbide is placed in contact with water, gas is immediately generated.

The different ways in which these two substances may be brought together have given rise to an apparently countless number of generators, all of which, however, may be classified under three different methods of generating this gas, namely: —

1. Water drips or flows to the carbide.
2. Water rises to the carbide from below.
3. Carbide is dropped or thrown into a large body of water.

The generators of the first system are mostly used for small experimental and portable apparatus, such as headlights and bicycle-lamps. The high temperature of generation incident to bringing a comparatively large quantity of carbide together with a small quantity of water results in the product of a heated, and therefore impure, gas, for which reason such apparatus is unsuitable for any large installation. In another construction of this type of generator water flows through a pipe onto the carbide, which is stored in a receptacle, which in its turn is connected with a gasometer. When gas is generated the bell in the gasometer rises, and when in its highest position closes a valve in the water-pipe, thus stopping further generation of gas.

Still another form of generator has a closed carbide receptacle immersed in a tank of water, and a water-supply pipe leading from the carbide receptacle into the tank. Water pours in through this pipe and onto the carbide, until the pressure of the gas rises sufficiently to drive back or hold back the water in the supply-pipe.

This type of generator has, besides the above-mentioned defects, the disadvantage that, in the absence of an especially large gasometer, the generation of gas, after the water-supply is cut off, may raise the pressure in the pipes and generator to a dangerous degree.

In the generator mentioned, sticking of the water-valve or failure of the levers or other means for opening this valve may also result in a dangerous rise of pressure.

Generators of the second system are constructed on the following principle: In a tank filled with water is inserted a bell, free to move up and down on guides. The carbide receptacle is hung inside of the bell, and when the bell is in its lowest position water flows through holes or sieves in the bottom of the carbide receiver. Gas is instantly generated, and its pressure raises the bell, and with it the carbide receiver, thus lifting the carbide-supply away from the water and stopping further generation.

There are in use numerous modifications of this method, of which one may be mentioned in which the carbide remains stationary, while the water-surface is acted upon by the gas-pressure, alternately rising to and receding from the carbide, according to the demands of the machine.

This entire class of generators is open to the same objection as the class first considered. They also continue to generate gas when water is removed from the carbide.

The third class of generators operates by throwing or dropping a small charge of carbide into a closed tank filled with water. The gas thus generated bubbles through the water, and is led to a gasometer which is large enough to accommodate the amount of gas which the small charge produces.

The charge introduced in the generator falls on a grating, and, being surrounded by a large mass of water on all sides, generation takes place with but little rise in temperature. The gas, by rising in bubbles to the surface of the water, is washed, and contains only traces of ammonia.

With gas produced by this class of generators it is impossible to stop up pipes and burners, as the ammonia and other tar-forming ingredients have been washed out of the gas by its upward passage through the water. From such a generator, which has been in active use part of the day, evenings and nights for over two years, we have taken out pipes close to the generator, and also some near the burners, but all that could be found was some white spots like frost, due to lime being carried with the gas from the generator, and nearly all along the pipes the original scale of the iron was to be seen; and in the brass pipes of the chandeliers we could find no deposits or signs that the metal had been affected.

Such testimony has been corroborated by other disinterested parties in this country and Europe to such a degree as to make it advisable to consider for use in our plans only apparatus constructed on the third principle, — namely, that by which small charges of carbide are introduced by hand or automatically into a large body of water.

It is fully realized that a large amount of capital is invested in the manufacture of apparatus of the first and second systems, and the abandonment of these classes of generators will therefore be made unwillingly and slowly; but the future belongs, without doubt, solely to the generators of the third system.

As the charging and cleaning of generators are the only items of expense for labor connected with an acetylene-gas installation, it becomes of importance that, with automatic machines, such as are used in smaller installations, a rather large machine be used. For instance, in a plant requiring fifty lights for three hours daily the consumption of gas would be approximately 90 cubic feet per day, necessitating a generator capable of holding 18 pounds of carbide. As there is generally, in a passenger-station or freight-depot, a man to be found whose duties will permit him to spend an hour in charging and cleaning the machine, it will be seen at once that a generator holding, for instance, 54 pounds of carbide would require attention only about twice a week for a couple of hours, and such attention can be given without seriously interfering with the attendant's other duties.

The limit in size for an automatic machine is reached in a generator capable of holding a charge of 100 pounds of carbide. This would supply practically 150 lights for three hours. When an installation requires more than 200 lights it would appear best to use a machine charged by hand, and employ an attendant for the sole purpose of taking care of the plant.

This is by far the safest and most satisfactory way of generating, and there is no doubt that for all larger installations, and also for village and town plants, such a system, with a hand-fed generator in connection with a liberally proportioned gas-holder and a proper system of piping, will prove more economical and less liable to accidents than an installation with a number of automatic machines.

As before stated, there is at present in the market no generator which delivers a thoroughly dry gas, and it becomes therefore of the utmost importance, in piping for acetylene, to follow out the rule that all pipes must dip from the burner back to the generator, in order to free themselves from moisture and condensation, which otherwise will surely freeze up in the pipes and prevent the gas from reaching the burners.

It is self-evident that the generator-room must be kept moderately warm all the year round, in order to prevent the water in the generator from freezing. There is no danger from the proximity of a stove or heater. The charging and cleaning of the generator is to be done by daylight, and no artificial light must be permitted in the generator-room when the machine is open, as, for instance, in charging.

A burner consuming 1 foot of acetylene-gas per hour will yield from 45 to 50 candle-power, whereby it will be understood that the piping for acetylene can be of much smaller size than for coal-gas. It is, however, not advisable to use a smaller size than ⅜-inch pipe. Common burner-cocks, such as are used for ordinary illuminating-gas, answer very well.

With reference to burners, it must be stated that good burners are still very expensive. Cheap burners are an everlasting source of trouble, and necessitate constant renewals. The only burner which has been found to work satisfactorily with acetylene-gas is constructed on the following principle: The gas, before issuing from the burner, is divided into two tiny streams, so diverted as to form between them an angle of about 90°. These streams impinge on

each other, flatten out and form the flame, which is here not in direct contact with the burner, and thus an accumulation of carbon at the burner and a stopping up of the gas-hole is prevented.

All-lava burners are preferable to metallic burners with lava tips, although, if proper care is taken when applying the latter, good service can be had from them also. While we have burners under observation which, after two years' service, are still in good condition, it is not safe to figure the life of an average burner as more than one year. They should be tested before applying, for capacity as well as for efficiency, as it is not an uncommon occurrence to find in a gross of burners 10 per cent unfit for use.

Before concluding this part of the paper, given over to a description of the use of acetylene for station lighting, it may be of interest to have some details of a plant in practice.

The Great Northern Railway has at Hamline a freight transfer house, which consists of a warehouse about 800 feet in length, having loading platforms at each side for the entire length of the building. The offices are located at one end of the structure. There are altogether about 100 burners, of which 26 are in the office, while the rest of them are grouped in three rows; one row being in the centre of the freight-house, and the other two rows on the platforms. The generator is installed in a small building about 20 feet distant, which also serves as a dinner-room for the men. The office-lights burn all night, while the lights in the freight-house and platforms are needed for about four hours daily in the winter. The generator is a 100-pound carbide machine, and is charged every-other day. The cost per lamp-hour (22 candle-power) varies from .55 cent to .65 cent, according to the amount of gas used. This includes attendance, depreciation and renewals.

Formerly the lighting was done with kerosene lamps. Aside from the fact that it required the exclusive services of more than one man to fill, trim and clean 100 oil-lamps daily, the light furnished by these lamps was found to be insufficient to do the required work. The light furnished by the acetylene plant has reduced the cost per ton of freight handled, and no other system of lighting could be installed at that place which would rival it in economy.

We have now a number of passenger-stations and freight-depots equipped with acetylene plants in operation, and several others under construction, ranging from 20 to 60 lights each, and in no case has an acetylene plant been decided upon except where, by its smaller operating-cost, its independence of rented sources of light and its fine illuminating qualities, it has shown itself to be superior to other systems of lighting.

ILLUSTRATIONS

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

FIRST-FLOOR PLAN OF TROY ORPHAN ASYLUM, TROY, N. Y. PROF. H. LANGFORD WARREN, ARCHITECT, BOSTON, MASS.

Views of this group were published in our issue for March 10, last.

NEW CHAPEL FOR THE TROY ORPHAN ASYLUM, TROY, N. Y. MESSRS. WARREN SMITH & BRISCOE, ARCHITECTS, BOSTON, MASS.

EAST ELEVATION AND CROSS-SECTION OF THE SAME.

DETAILS OF THE SAME.

[The following named illustrations may be found by reference to our advertising pages.]

THE ALEXANDER III BRIDGE, PARIS, FRANCE.

This plate is copied from *La Construction Moderne.*

THE NEW YORK "BOX-STOOP," — XVII: NO. 27 W. 81ST. ST., NEW YORK, N. Y.

[Additional Illustrations in the International Edition.]

A CORNER OF THE FORE-COURT: TROY ORPHAN ASYLUM, TROY, N. Y. PROF. H. LANGFORD WARREN, ARCHITECT, BOSTON, MASS.

[Gelatine Print.]

N. E. WING AND ENTRANCE TO INFANTS' PLAYGROUND: TROY ORPHAN ASYLUM, TROY, N. Y.

[Gelatine Print.]

DETAILS OF NEW CHAPEL FOR THE TROY ORPHAN ASYLUM, TROY, N. Y. MESSRS. WARREN SMITH & BRISCOE, ARCHITECTS, BOSTON, MASS.

STORE AND APARTMENT-HOUSE, AUE, SAXONY.

[Gelatine Print.]

AUE is a small mining and manufacturing town in the Saxon Erzgebirge, not far from Zwickau, and having a population of less than ten thousand. Yet it appears to share the general prosperity of most German cities of the present day, judging from the character of the building shown in our plate, which stands in the busiest quarter of the town. It was erected in 1897 from plans of Herr Albert Gessner, a Berlin architect, containing, besides several stores on the ground floor, one fine apartment each in the second and third stories and two smaller ones in the fourth story, besides some rooms in the attic. The main stairway is reached from the vaulted driveway leading to the courtyard. Over a base of dark-gray granite from Bavaria rises the façade in a fine yellow sandstone from Cotta, Saxony. Timber framework in the gable as well as the columns of the bay-windows in the top story are carved oak. The roof is covered with tiles of a reddish-brown color. The sculptured details were modelled by Herr Riegelmann, of Berlin.

The total cost of the building, which is a credit to the little town, including the low-pressure steam-heating plant, is but $30,000, this being equivalent to $9.81 per square foot of covered area, or 15 cents per cubic foot of enclosed space.

HOUSES OF REST FOR DISCHARGED SOLDIERS, BISLEY, ENG. MR. E. O. SACHS, ARCHITECT.

NOTES AND CLIPPINGS

Dante's Remains. — After many wanderings, the remains of Dante are preserved in a case in the National Central Library of Florence. Signor Chilovi, the head of this institution, has in mind to give the precious relic a fitting monumental place in the contemplated new library building, where a Dante gallery will be provided. A Deputy, Giuseppe Pescetti, looking to this end, commissioned the sculptor, Prof. Rinaldo Barbetti, to make a design for an urn, which was duly offered last month to Signor Chilovi. The librarian, however, felt under obligations to prefer a design made by the sculptor, Enrico Pazzi, in 1899, on occasion of turning over to the Library the bones which had been in his custody since 1865. This "splendida opera," Signor Chilovi trusts, may be duly executed by the authorities. — *N. Y. Evening Post.*

The Panorama of the Battle of Champigny. — The history of the panorama of "The Battle of Champigny" by Alphonse de Neuville and Edouard Detaille illustrates the vicissitudes of military painting. After a run in Paris, there came a time when the exhibition no longer paid, and the owners determined to cut up the canvas and sell the groups separately. Some of these fragments have been disposed of in this country. But there was one part of the composition in which the work of the two painters and the action of the figures were so intermingled and interdependent as to be inseparable. This remnant, probably the central scene of the panorama, was exhibited in several French towns, and was finally pawned at the Mont de Piété. It is now predicted that this scene will be bought by the city of Paris and hung in one of the large rooms in the City-hall. In the meanwhile it is being exhibited in "Old Paris." — *Boston Transcript.*

Classification of Fire-losses. — Destruction of dwellings, boarding-houses, etc., represents, according to the *Chronicle* tables, over 46 per cent of the number of buildings burned in the United States last year. The tables show that the fire-loss in this country since 1874 has been $2,738,784,212, and the insurance-losses $1,605,382,243. Last year the loss was more than one hundred and fifty-three million dollars, or twenty-two million dollars in excess of the loss reported in 1898. Since the record for the last six months shows a greater fire-loss than occurred during the first half of the previous year, the total waste this year is likely to exceed one hundred and seventy-five million dollars, which will mean a disastrous experience for many of the insurance companies. The tables give a review of last year's fire-waste, the principal classes of risks burned, losses in each State and Territory, summary of losses by causes, list of principal fires, and other interesting details.

How Sandwich Island Sandalwood was exhausted. — Speaking of the original J. J. Astor, a book-reviewer in the New York *Times* writes that he bought a ship, freighted her with an assorted cargo, and dispatched her upon a new voyage. On her way out she stopped at the Sandwich Islands to take in water and provisions, and at the same time took on board a large stock of firewood. When the ship arrived at Canton, a mandarin came on board and, noticing this wood, asked its price. The Captain told him to make a bid, thinking it about the value of ordinary cordwood. The mandarin bid $500 a ton. It was sandalwood. For seventeen years thereafter Mr. Astor's ships had the monopoly of the trade in that valuable substance, the secret of its source being guarded with the utmost care. No other firm in the United States or England possessed any knowledge of it till a shrewd Boston ship-owner detailed a vessel to follow one of Mr. Astor's ships, and observe the events of the voyage. The secret was thus discovered, and thereafter Boston enjoyed a share of the sandalwood trade, which was finally open to all comers, and the island-source of its supply soon exhausted.

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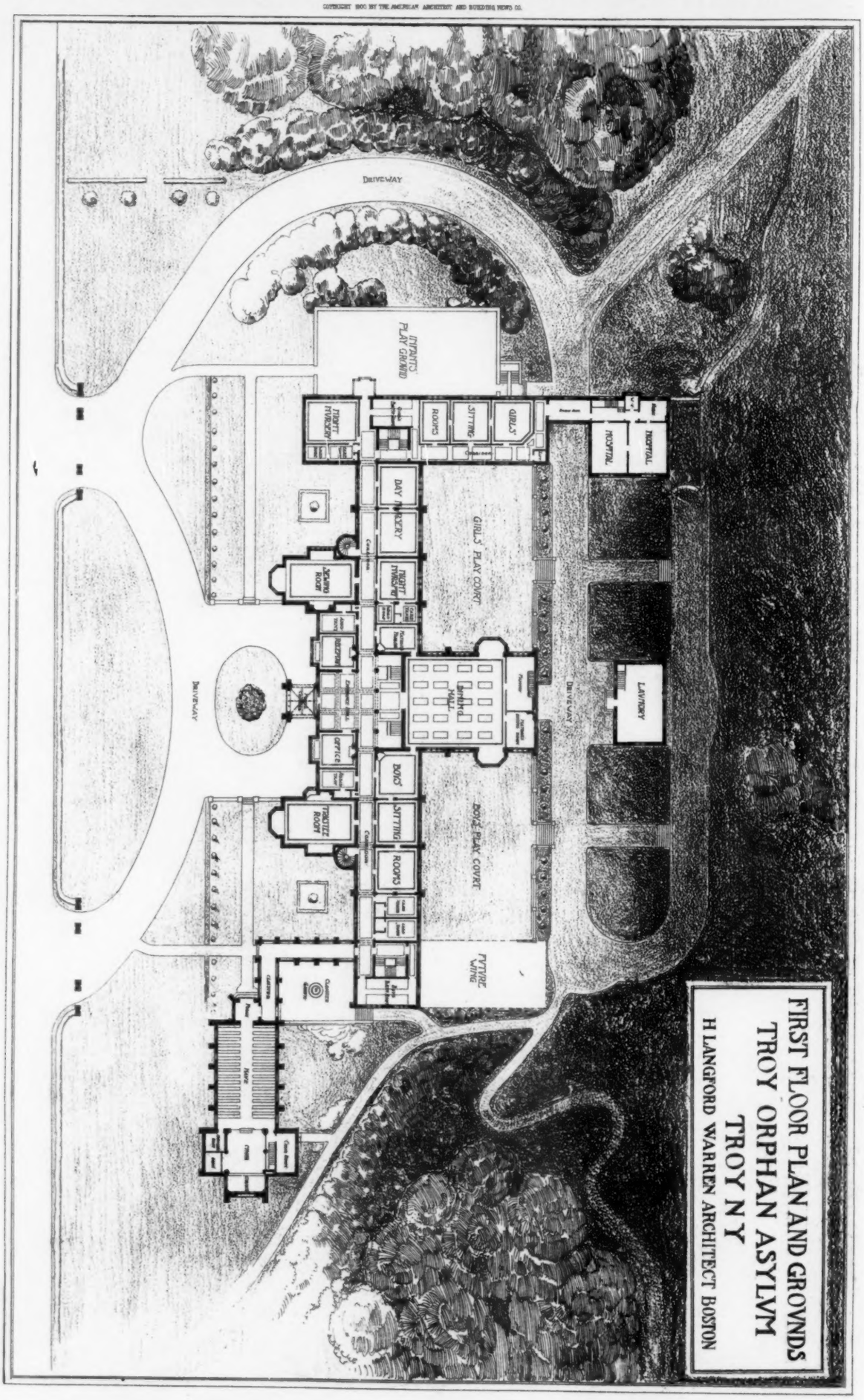

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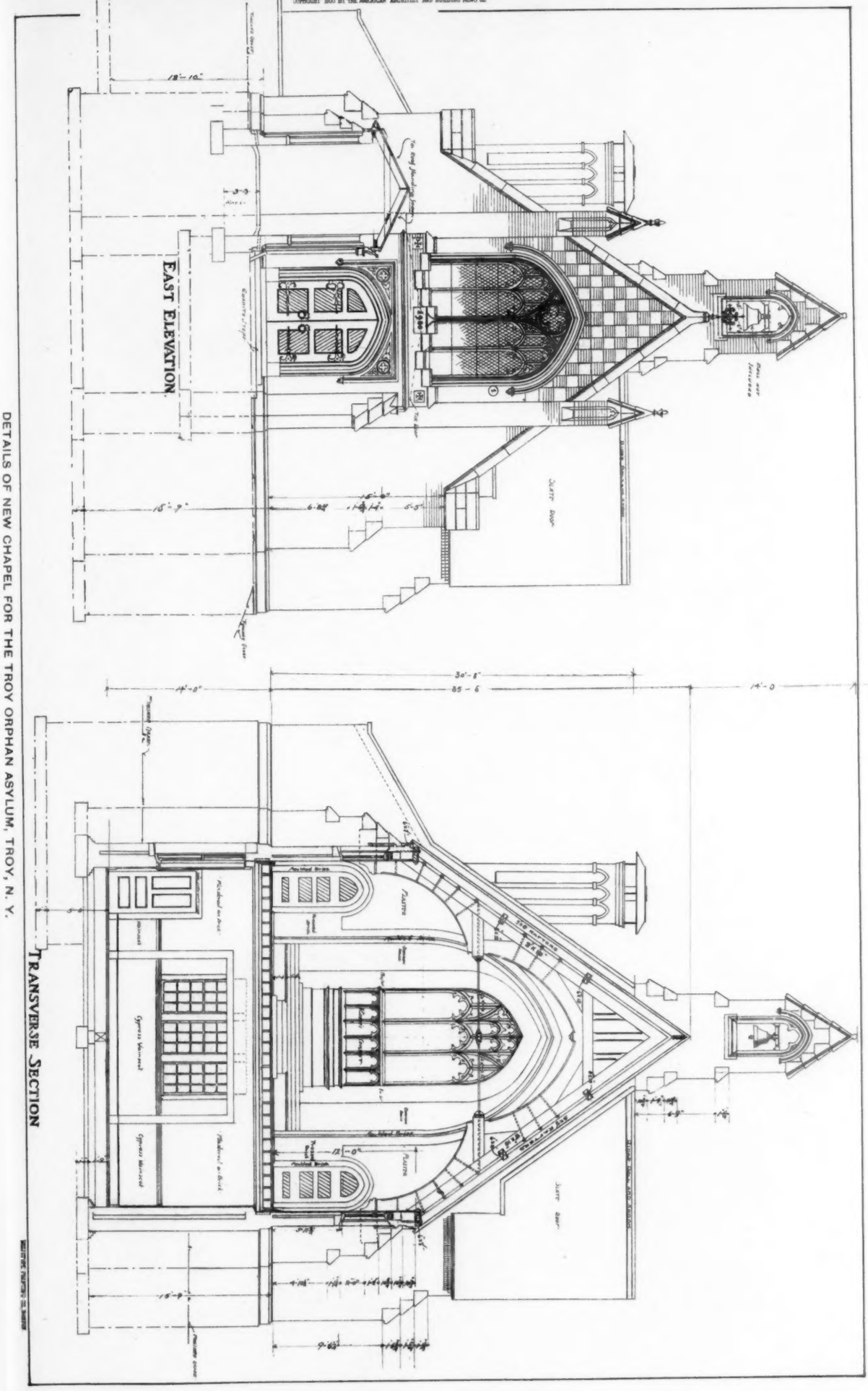

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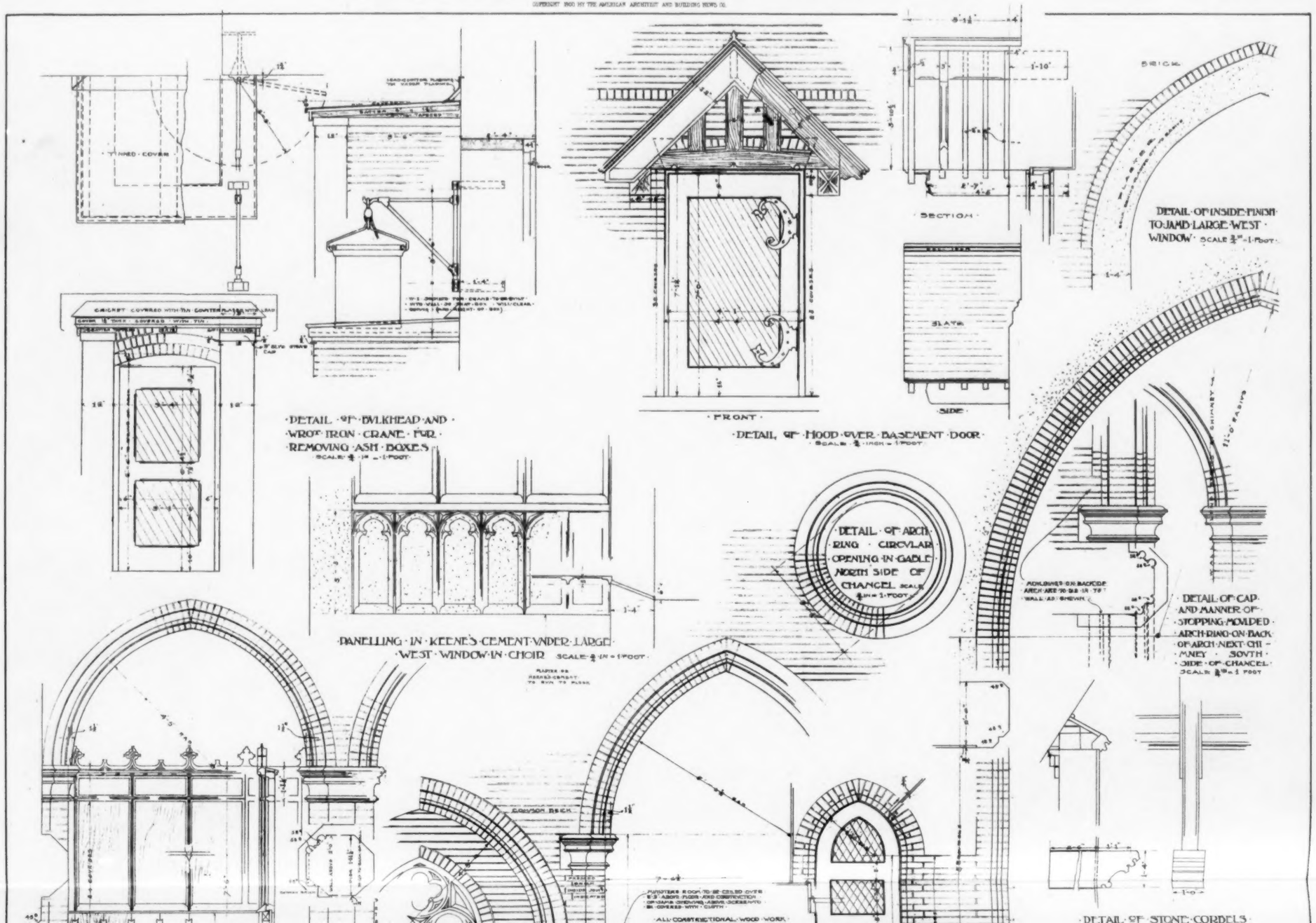

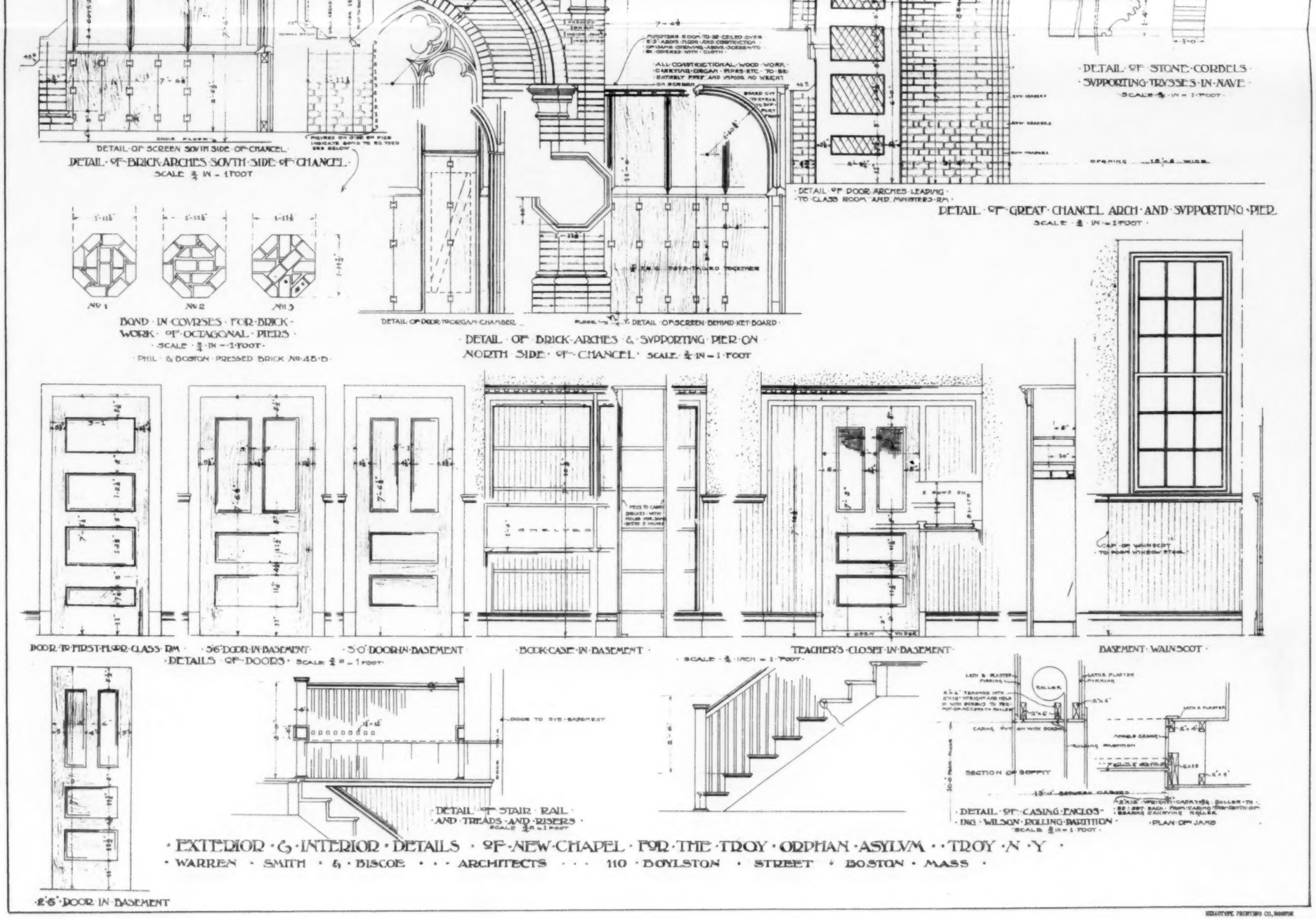

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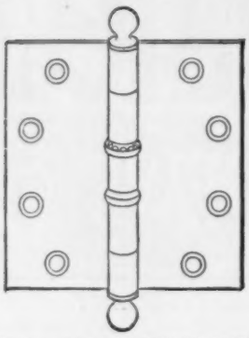

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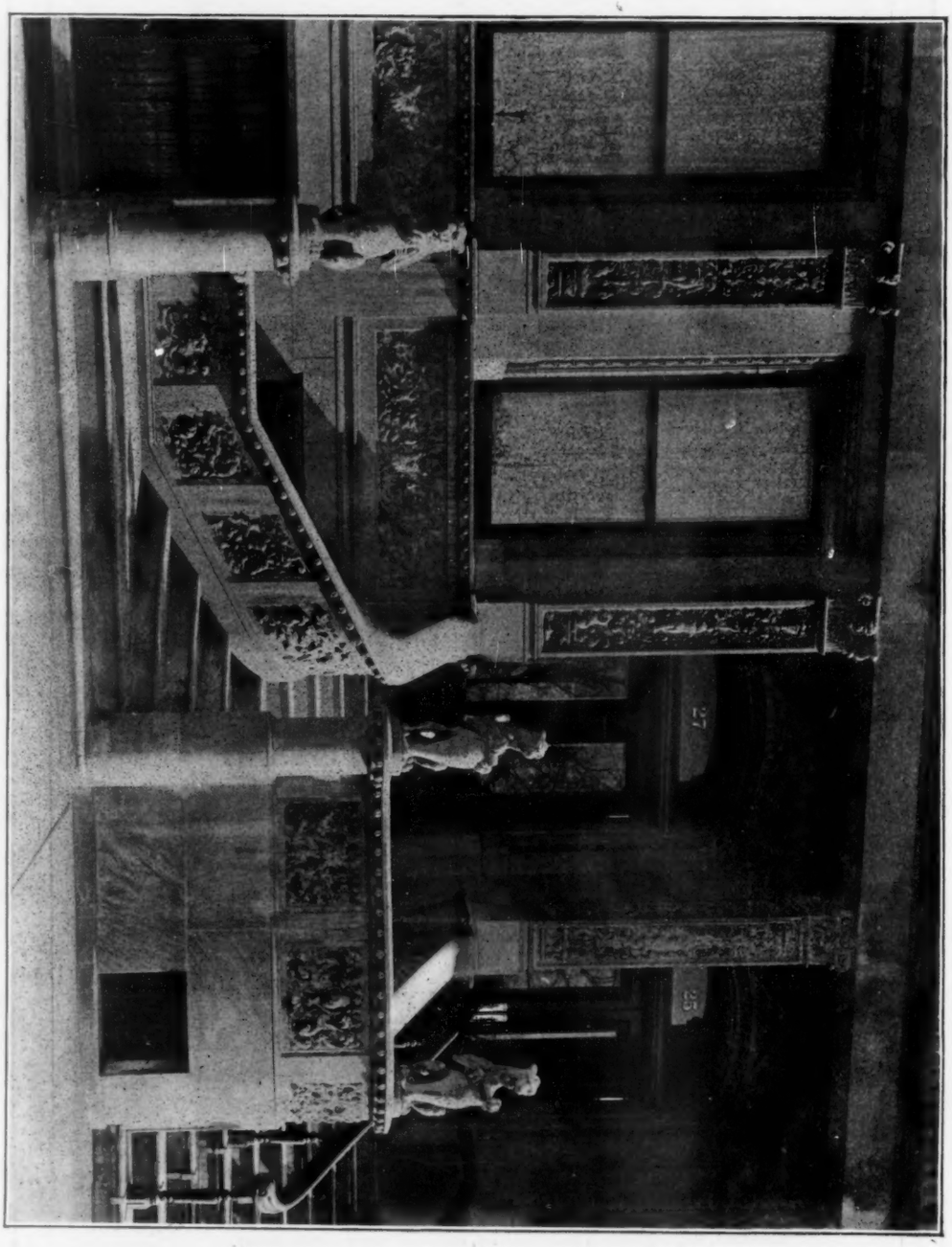

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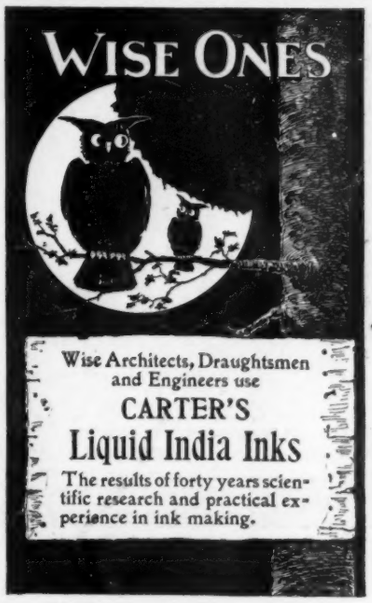

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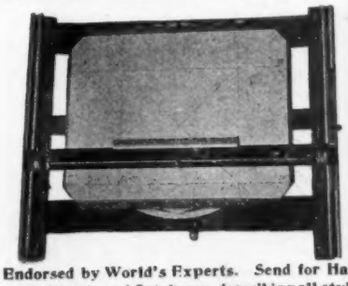

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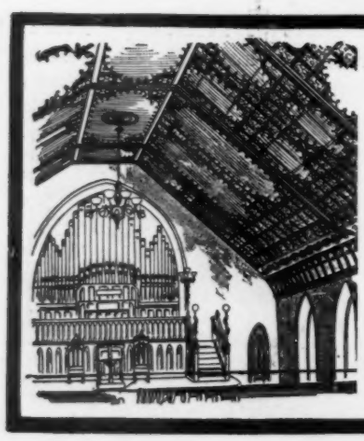

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R. P. SOUTHARD (Montreal, Can.), General Supt. Building Construction. Page ix.

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654,438. Snow-Guard for Roofs. — Emri W. Clark, Nashua, N. H.
654,450. Flooring. — Franz Gude, Ragnit, Ger.
654,532. Tile. — Frank Furness, Philadelphia, Pa.
654,562. Door-Stop. — John R. Bowler, Sr., Santa Ana, Cal.
654,579. Door-Bolt. — August Ericson, San Francisco, Cal.
654,599. Closet-Cistern. — William Bunting, Jr., New York, N. Y.
654,600. Waste-Valve-Operating Means. — William Bunting, Jr., New York, N. Y.

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.

Atlantic City, N. J. — It is reported that the plan to erect a mammoth hotel on the site of the old excursion-house, which was interrupted by the death of the late Allen B. Rorke, of Philadelphia, Pa., will be carried out. A new contract is said to have been signed. The plans for the hotel contemplate the largest and most magnificent hostelry on the Atlantic Coast.

Baltimore, Md. — J. Evans Sperry, *Herald* Building, has made plans for the new hospital building for the Maryland Medical College. It will be four stories high, 57′ x 60′, constructed of brick, stone and iron, have steam heat, electric lights and annunciators, hydraulic elevator, etc., and will cost about $30,000.

Battle Creek, Mich. — The Battle Creek Sanitarium contemplates the erection of a seven-story addition to its main building. W. G. Murphy, secretary.

Camden, N. J. — The Pennsylvania Railroad Co. will shortly begin extensive operations between its ferryhouses on the Delaware River front. For the present it will build a new bulkhead north from Federal St. to Market St., a distance of about 300 feet. This is the preliminary work. It is the intention of the company to extend the bulkhead out to the new wharf-line. The plan also involves the changing of the present ferryhouses, and calls for the consolidation of these two buildings, the new ferryhouse to be located about midway between the present ones. The new station is to be equipped with all modern appliances for the quick movement of passengers and the prompt handling of freight.

Chicago, Ill. — Architect M. E. Bell, 84 Adams St., has prepared plans for a $20,000 8-room schoolbuilding to be erected at Downer's Grove.

H. H. Kohlsaat & Co. will erect a $100,000 three-story brick, stone and terra-cotta bakery, 172′ x 182′, at 1644 Wabash Ave., between 16th and 17th Sts. W. G. Williamson, architect, 85, 159 La Salle St.

Bradner Smith & Co., 119 Monroe St., will erect a seven-story and basement paper warehouse, 50′ x 100′, at 200-202 S. Desplaines St. It will be of mill-construction, with pressed brick front, composition roof and structural ironwork. They also contemplate the erection at Desplaines and Quincy Sts. of a seven or eight story warehouse, 100′ x 100′. The two buildings will cost $175,000. Huehl & Schmidt, architects.

Colorado Springs, Col. — A five-story brick and steel building, costing $250,000, will be built for the Pike's Peak Club on Pike's Peak Ave., by James F. Burns.

Davenport, Ia. — The Northern Building Co. was awarded the contract at $19,300 for erecting the chapel for the Home for Soldiers' Orphans.

Decatur, Ala. — The Southern and the Louisville & Nashville Railway companies have appropriated jointly $100,000 for the construction of a union depot at this place. J. R. Pill, assistant engineer

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654,301. Closet-Seat. — Edwin S. Barnes, New York, N. Y.
654,303-305. Combined Door Check and Closer. — Edward Cliff, Newark, N. J.
654,364. Cistern-Valve for Water-Closets. — Charles Smith, New York, N. Y.
654,365. Flooring-Clamp. — Arthur L. Stowell and Arthur H. Rounds, Gays Mills, Wis.
654,371. Window-Fastener. — William D. Watson, Chicago, Ill.
654,377. Water-Closet Valve. — Sylvester J. Asbell, Paterson, N. J.
654,384. Sash-Lock. — Anton Clifford, Winnetka, Ill.
654,395. Absorption Refrigerating Apparatus. — Nicolai H. Hiller, Carbondale, Pa., and Henry Torrance, Jr., Tenafly, N. J.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Southern Birmingham; R. Monfort, chief engineer Louisville & Nashville, Louisville, Ky.

Johnstown, Pa.—The congregation of the First Lutheran Church has decided to erect a new $60,000 church.

Kankakee, Ill.—George M. Moulton, 1811 Fisher Building, Chicago, has been awarded the contract for the erection of the amusement hall and gymnasium, to be built at the Insane Asylum, at $37,500.

Kansas City, Mo.—Geo. Mathewes, Lyceum Building, has prepared plans for a brick store to be built on 8th St., near Broadway; cost, $250,000.

Architects Shepard & Farrar are preparing plans for a four-story and basement brick and stone addition to the University Medical College at 913 E. 10th St., to be used for laboratory purposes; cost, $15,000.

Knoxville, Tenn.—Report states that the People's Telephone Co. has decided to erect a $30,000 telephone building.

Laurel, Miss.—The stockholders of the People's Bank have awarded the contract for the erection of their new $15,000 pressed brick and stone bank building to O. P. Pool, of Meridian.

Lockhaven, Pa.—Wilson Kistler has donated to the Hospital Association a plot of land, 280′ x 641′, for a site on which to erect a new hospital building.

Loomis, N. Y.—Frank Cotter, of Liberty, was awarded contract for the erection of the administration building for the Loomis sanitarium. The structure will cost about $70,000.

Louisville, Ky.—Funds are being raised for the erection of a wing to the Norton Memorial Infirmary, to cost about $50,000. William A. Robinson, chairman.

Luverne, Minn.—The Luverne Hotel Co. has been incorporated, with a capital of $25,000, to erect a three-story brick or stone hotel. Incorporators: S. B. Nelson, F. C. Mahoney, and others, all of this place.

Lynchburg, Va.—The Lynchburg National Bank has decided to erect a four-story pressed brick, sandstone and terra-cotta bank and office building, on the site of its present structure; cost, about $30,000.

Marshall, Mo.—The Board of Managers of the Colony for Feeble Minded has accepted the plans submitted by Miss Mary L. Hale, architect, Columbia, for the three cottages and temporary administration building to be built here, for which $30,000 was appropriated by the last legislature.

Marshalltown, Ia.—Contract for the erection of the new buildings to be built at the Marshalltown Soldiers' Home was awarded to John F. Atkinson, at $24,000. Henry F. Liebbe, architect, Des Moines.

Mineola, L. I., N. Y.—The plans of Wm. B. Tubly & Bro., of New York City, have been accepted for a jail to be erected in the rear of new court-house.

Missoula, Mont.—It is reported that the Northern Pacific R. R. Co. will erect a depot here. C. Russell, Div. Supt.

Natchez, Miss.—Spier & Rohns, Chamber of Commerce Building, Detroit, Mich., are reported to be preparing plans for remodelling the church of the First Presbyterian Society, at a cost of $20,000.

New Albany, Ind.—The Sisters of Mercy will build a three-story addition to their hospital.

New Castle, Pa.—Architect W. G. Eckles has let the contract for the new fireproof 7th Ward school-building to G. A. Love; cost, $30,000.

New Ulm, Minn.—H. C. Gerlach, of Mankato, is preparing plans for two brick additions for the St. Alexander Hospital; cost, about $40,000.

New York, N. Y.—The proposed new building at the Navy Yard to cost $70,000 will be erected by the government employés. It will be a fireproof structure, 60′ x 300′, and three stories high.

Contract was awarded by the Board of Education for work in public schools as follows: For erecting new school No. 184, on 116th and 117th Sts., between 5th and Lenox Aves., to Harry McNally, at $297,500.

John T. Williams, Jr., 27 William St., is preparing plans for a twelve-story fireproof store and loft building to be erected at 114-118 Liberty St., by John T. Williams.

A. M. Napier, 25 W. 26th St., is preparing plans for a large brick and stone factory to be erected on 12th and 13th Sts., by John Jacob Astor, 23 W. 23d St.

George A. Heisler, 217 W. 125th St., will build an eight-story brick and stone steel frame store and loft building, 37′ 6″ front on E. 17th St., No. 5, extending through to 18th St., from plans by Edwin Wilbur, 217 W. 125th St.

Norwood, O.—The congregation of St. Elizabeth Church has decided to erect a $50,000 edifice on Mills Ave. Rev. Francis Varellmanis, pastor.

Norfolk, Va.—The Sewall's Point Railway Co. has purchased a $65,000 site in this city on Atlantic St., between Plume St. and City-hall Ave., on which it will erect a new station.

Oakland, Cal.—Report states that A. E. Barrett, of San Francisco, has received the contract for the public library for $47,000.

W. J. Cuthbertson, Flood Building, San Francisco, is stated to have prepared plans for a city-hall to cost $300,000.

Ottawa Beach, Mich.—Reports state that the Pere Marquette R. R. Co. has complete plans for a $50,000 hotel.

Peoria, Ill.—Plans are being prepared by Reeves & Baillie, Y. M. C. A. Building, for the $25,000 three-story brick addition to be built to the Home of the Good Shepherd.

Philadelphia, Pa.—Plans are being drawn by Frank R. Watson, 1208 Chestnut St., for the three-story stone and brick addition to be built to the Old Ladies' Home at Wissinoming.

The plans prepared by Architect Herman Miller for the new bank building to be erected on the southeast corner of Broad and South Sts., for the Southwestern National Bank, have been approved and accepted. The bank will be a two-story structure, designed in the Greek style. It will be built of Long Meadow stone, Pompeiian brick, terra-cotta trimmings and cornice, with polished granite columns in the main portal. The president's room, cashier's room, burglar-proof vaults and banking department will be on the first floor. The second floor, rear, will be used as a directors' room.

In a competition for the new parochial school for St. Elizabeth Catholic Church the committee has selected the plans of Henry D. Dagit. It is to be built at the northeast corner of 23d St. and Montgomery Ave. The structure will be three and two stories high, with a frontage along 23d St. of 180 feet, and 65 feet deep. It will be constructed of Port Deposit stone and trimmed with Indiana limestone. The building will contain 21 class-rooms, have all improvements, and will be partly fireproof. The cost is estimated at $60,000. In the basement will be a large assembly hall, 130 feet long and 55 feet wide. The main entrance will be upon Montgomery Ave.

C. O'Neill, Jr., 1305 Alter St., has received the contract for erecting a school in the 31st Ward, at $74,919.

Pittsburgh, Pa.—J. A. Miller has completed drawings for a $10,000 three-story brick apartment building, to be erected at Brushton Ave. and Tioga St., East End, for F. Bruckman.

E. M. Butz & Co., Park Building, have completed plans for 2 three-story brick and stone apartment-houses, each 50′ x 120′, to be erected at Euclid Ave. and Hays St., and Euclid Ave. and Black St., for Dr. J. R. Morrow; cost, $50,000.

The People's Savings Bank will erect a twelve story fireproof building on 4th Ave. and Wood St.

It is reported that a $100,000 annex is to be erected to the West Pennsylvania Hospital.

Poughkeepsie, N. Y.—The plans of W. J. Beardsley have been accepted for a $17,000 addition to the high school.

Pullman, Ill.—Executors of the will of Geo. M. Pullman have turned over to the Board of Directors of the Pullman Free School of Manual Training $1,200,000, the amount decreed for the establishment and endowment of such institution.

Red Bank, N. J.—The Board of Education have accepted plans for a $50,000 three-story brick and stone high school to be erected on Branch Ave.

Reading, Pa.—Plans have been prepared for a $12,000 school, to be built at Elm and Madison Aves. Mr. Roland, secy.

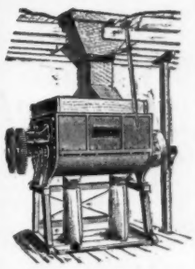
Wm. A. Fink has prepared plans for a four-story stone hotel on 18th St. for a sanitarium; owner, W. A. Wheatman; cost, $22,000.

St. Peter's Catholic Society, at S. 5th St., is stated to have accepted the plans of Wm. Walsh, of Philadelphia, for remodelling the church, at a cost of $37,700.

Richmond, Va.—Contracts will be let about August 15 for the construction of Charlotte Williams Hospital. Estimated cost, $100,000. Architect, Percy Griffin, 7 Hanover St., New York City. Owners, J. L. Williams, Dr. Geo. Ben. Johnson and others.

Salina, Kan.—The trustees of the Kansas Wesleyan University will erect a new dormitory for girls, to cost about $10,000.

THE BROUGHTON MIXER



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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Saratoga, N. Y.—The Saratoga Y. M. C. A. has purchased the Levenson Hotel on Broadway, which they will remodel, converting it into an association building. About $50,000 will be expended.

Savannah, Ga.—The Masonic Temple Association has purchased a site on the corner of Bull and Charlton Sts., on which they will erect a new temple.

Scranton, Pa.—John A. Duckworth, 44 Coal Exchange, has prepared plans for a $150,000 brick and stone structure to be known as the Mt. St. Mary's Academy, and built at Green Ridge, for the Sisters of the Immaculate Heart; cost, $150,000.

Streator, Ill.—The contract for erecting the U. S. Post-office building has been awarded to M. Yeager & Son, of Danville, for $23,288.

Taylor, Tex.—The city contemplates erecting a city-hall. Oscar Frink, city clerk.

Trenton, N. J.—A new court-house and jail will be built for Mercer County.

Wayne, Pa.—David K. Boyd, Harrison Building, Philadelphia, has completed plans for a ten-room brick school.

Waltham, Mass.—It is proposed to erect a $30,000 school on Chestnut St.

Walton, N. Y.—It is reported that the Ottawa & New York Railway Co. will erect a new $40,000 brick and stone depot at this place. Henry W. Gays, president and general manager, Ottawa, Ont.

Washington, D. C.—The contract for building an eight-room school on 15th St. has been awarded to D. F. Mockabee for $28,731.

Whitinsville, Mass.—Cutting & Carlton, of Worcester, have prepared plans for a $13,000 business block to be erected by J. H. Johnston.

Winona, Minn.—Nimmons & Fellows, 1733 Marquette Building, Chicago, Ill., have completed plans for a $12,000 residence for S. L. Prentiss to be built here.

APARTMENT-HOUSES.

Chicago, Ill.—*Sixty-second St. and Kimbark Ave.*, three-st'y st. & bk. flats, 35′ x 80′, comp. roof, steam; $25,000; o., Archie Hood; a., Huehl & Schmidt, 59 Metropolitan Block.

Kansas City, Mo.—*Broadway, Nos.* 1208-10, four-st'y & base. bk. flats, 46′ x 93′; $45,000; o., Mrs. Fannie Cravens; a., S. R. Frink; day work.

EDUCATIONAL.

Brooklyn, N. Y.—*Eighteenth Ave. and Ocean Parkway*, three-st'y bk. school; $120,000; o., Board of Education; a., C. B. J. Snyder, 59th St. & Park Ave., New York City.

New York, N. Y.—*E. Eighty-second St., Nos.* 318-320, five-st'y bk. & st. nursery & kindergarten, 42′ x

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(*Educational Continued.*)

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FACTORIES.

Franklin, Pa.—One-st'y bk., st. & steel factory, 150′ x 420′, comp. roof, hot air; $75,000; o., General Manifold Co.; a., Nimmons & Fellows, Chicago, Ill.

Jersey City, N. J.—*Seventeenth and Cole Sts.*, three-st'y bk. factory, 66′ x 200′, with L, 65′ x 68′; o., Central Lard Co., 522 W. 34th St., New York City; a., Structural Engineering Co., 39 Cortlandt St., New York City.

HOUSES.

Boston, Mass.—*Bay State Road, Nos.* 171-181, Ward 11, 6 three-st'y bk. & st. dwells., 22′ x 57′, flat roofs, furnaces; $100,000; o., Geo. Wheatland, 27 State St.; b., A. Macardo.

Chambers St., No. 107, Ward 8, bk. dwell., 40′ x 50′, flat roof, stoves; $6,000; o., Mass. Gen'l Hospital; a., F. A. Nercross.

Cooper St., Nos. 23 25, Ward 6, four-st'y bk. dwell. & stores, 27′ x 28′, flat roof, stoves; $7,500; o. & b., Barnett Bennett, 13 Noyes Pl.; a., C. A. Halstrom.

Bay State Road, No. 141, Ward 11, three-st'y bk. & st. dwell., 24′ x 70′, flat roof, furnace; $30 000; o., Mrs. Chas. Dwight; b., Connery & Wentworth; a., Fehmer & Page.

Elmo St., cor. Erie St., Ward 20, 4 three-st'y bk. dwells., 20′ x 39′, flat roofs, stoves; $20,000; o., a. & b., Geo. M. Fernald, Hyde Park.

Blue Hill Ave., cor. Seaver St., Ward 21, 3 three-st'y fr. dwells., 25′ x 55′, flat roofs, stoves; $15,000; o. & b., Geo. W. Johnston, 430 Blue Hill Ave.

Seaver St., nr. Blue Hill Ave., Ward 21, 5 three-st'y fr. dwells., 25′ x 55′, flat roofs, stoves; $25,000; o. & b., Geo. W. Johnston.

Cummings Road, No. 36, 2½-st'y fr. dwell., 38′ x 39′, pitch roof, furnace: $10,000; o. & b., Edward L. Rogers, Brighton District.

Moore St., nr. Cowper St., Ward 1, three-st'y fr. dwell., 22′ x 53′, flat roof, stoves; $3,000; o., John C. Westlake, 98 Cowper St., E. B.; b., H. Appleby.

Glenway St., Nos. 43-45, Ward 20, 2 three-st'y fr. dwells., 23′ x 40′, flat roofs, stoves; $10,000; o., Martha J. Kearney, 435 Washington St., Dorchester: b., John S. Kearney.

Washington St., cor. Grove St., Ward 23, 2½-st'y fr. dwell., 24′ x 40′ x 41′, pitch roof, stoves; $3,500; o., Philipene Vogel; a., J. Luippold, 89 Mozart St.

Park St., cor. Wellesley Park, Ward 20, 2½-st'y fr. dwell., 27′ x 52′, pitch roof, furnace; $5,000; o., Willis L. Hidden; a., Jas. F. Haddock, 635 Washington St., Dorchester.

Cleveland, O.—*Oliver and E. Chestnut Sts.*, two-st'y bk. & fr. dwell., 29′ x 60′, slate roof, steam; $5,000; o., J. F. McHenry; a., Hodges & Hodges, New England Building.

Indianapolis, Ind.—*N. Pennsylvania St.*, two-st'y fr. dwell., 35′ x 36′, shingle roof, steam; $6,000; o., Chas. Latham; a., D. A. Bohlen & Son.

Omaha, Neb.—*Twenty-fifth and Farnham Sts.*, two-st'y bk. & st. dwell., 48′ x 62′, tin roof, hot water; $8,000; o., Dr. Rosewater; a., W. T. Misener, Ravage Block.

COMPETITIONS.

CHURCH. [At Mohrsville, Pa.]
Rev. Marvin A. Stettler, 1358 Mineral Spring Road, Reading, Pa., desires plans for a one-story and basement brownstone church, having slate roof. 1285

ARMORY. [At Key West, Fla.]
Plans and specifications are wanted **September 6** for a 60 x 80-foot brick armory, to cost not over $15,000. Address all communications to GEO. W. REYNOLDS, county clerk. 1286

SCHOOL. [At Key West, Fla.]
George W. Reynolds, county clerk, will receive plans, specifications and bids **until September 6** for a brick school to cost not over $26,000. 1286

LIBRARY. [At San Antonio, Tex.]
Designs for Carnegie Library will be received at the office of W. W. Johnson, city clerk, **until September 17.** For prospectus giving full information, conditions, etc., address E. G. TRUEHEART, city engineer. 1287

ASSEMBLY HALL. [At Peoria, Ill.]
Plans and specifications will be received by the Central Ry. Co. **until August 21** for an assembly hall, cost not to exceed $45,000. WALTER BARKER, pres. 1285

HIGH SCHOOL. [At Buffalo, N. Y.]
Competitive designs will be received **until September 26** for West Side High School. R. G. PARSONS, Secy. Bd. Pub. Wks. 1286

CLUB-HOUSE. [At Shreveport, La.]
Plans will be received **until August 15th** by the Shreveport Athletic Association for a club-house. R. G. PLEASANT, pres. 1285

PROPOSALS.

CHURCH. [At Wheaton, Ill.]
The Building Committee of the Gary M. E. Church

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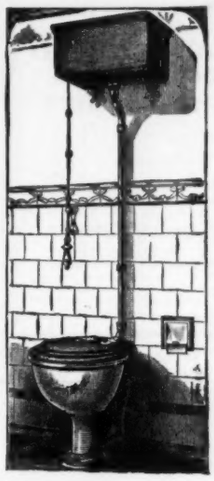

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PROPOSALS.

will receive proposals **until August 24** for the erection of a stone and brick church. Plans may be seen at Wheaton or at the offices of Architects Brown, Burton & Davis, 910 Neave Building, Cincinnati, O. E. H. GARY, Wheaton, Ill. 1286

Sealed proposals will be received at the office of the Light-house Engineer, Tompkinsville, N. Y., until 12 o'clock M., August 18th, 1900, and then opened, for furnishing the material and labor of all kinds necessary for dredging the basin at the U. S. Light-house Depot, Tompkinsville, New York. Information furnished on application to D. P. HEAP, Lieut. Colonel, Corps of Engineers, U. S. A. 1286

Treasury Department, Office Supervising Architect, Washington, D. C., August 6th, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 27th day of August, 1900, and then opened, for the construction (except heating apparatus, etc.) of the outbuildings for the U. S. Bureau of Engraving and Printing at Washington, D. C., in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Superintendent at the Bureau, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1286

BATH-HOUSE. [At Boston, Mass.]
Bids are wanted **September 4** for erecting a public bath. ISIDORE WACHSMAN, Clk. Bd. Contract and Supply. 1286

OFFICERS' QUARTERS. [At West Point, N. Y.]
Sealed proposals, in triplicate, will be received **here until 12 M., September 1, 1900,** for construction of three double sets officers' quarters as per plans in this office. U. S. reserves right to accept or reject any or all proposals or any part thereof. Forms and specifications furnished upon application. Address Q. M., U. S. A. 1286

CHURCH. [At Chicago, Ill.]
The Building Committee of St. Paul's M. E. Church, corner of Ashland Ave. and Harrison St. will receive **bids until August 22** for the erection of a stone and brick church. Plans may be seen at the church or at the office of Architects Brown, Burton & Davis, 910 Neave Building, Cincinnati, O. REV. M. B. WILLIAMS, 314 S. Marshfield Ave., pastor. 1286

CITY-HALL. [At South Bend, Ind.]
Bids are wanted **August 22** for a fireproof city-hall to cost $75,000. Address JAS. OLIVER. 1285

SCHOOL-HOUSE. [At Manuel, O.]
Sealed proposals will be received **until August 20** for building a brick school-house according to the plans and specifications on file. L. C. JAESSING, clerk. 1285

HOSPITAL BUILDINGS. [At Athens, O.]
Sealed proposals will be received by the Trustees of the Athens State Hospital **until August 16** for the construction and erection of two buildings, viz, an infirmary and an amusement building, in accordance with certain plans, specifications and schedules furnished for each by E. O. Fallis, architect, Toledo, O. JOHN N. HAYMAN, president. 1285

PROPOSALS.

IRONWORK, ETC. [At Urbana, O.]
It is stated that bids will be received by the County Auditor **until August 20** for the ironwork and plumbing at the County Infirmary. RICHARDS, McCARTY & BULFORD, archts., 75 The Ruggery, Columbus. 1285

CHURCH. [At Pittsburgh, Pa.]
Architects E. J. Carlisle & Co., 700 Lewis Block, are now ready for bids on the brick and stone church to be erected for the Baptist congregation of Rankin borough; cost about $10,000. 1285

SCHOOL-HOUSE. [At Seattle, Wash.]
The Board of Directors of District No. 1 will receive sealed proposals **until September 7** for the construction of a senior grammar school. LYMAN BANKS, secretary. 1286

ADMINISTRATION BUILDING. [At Fort Washington, Md.]
Sealed proposals, in triplicate, will be received **until August 21st** for erection and completion of an administration building and guard-house at Fort Washington, Md., at the office of Constructing Quartermaster, 419 N. Washington St., Alexandria, Va. ABE S. BICKHAM, major and quartermaster, U. S. Vols. 1286

ALTERATIONS, ETC. [At Buffalo, N. Y.]
Bids are wanted **August 22** for alterations and repairs to the Convention Hall. R. G. PARSONS, Secy. Bd. Pub. Wks. 1285

HEATING, ETC. [At Cincinnati, O.]
Bids are wanted **August 27** for ventilating and heating apparatus for a school to be erected at Kilgour and Ellen Sts. JACOB E. CORMANY, Chmn. Com. on Bldgs. Bd. Educ. 1285

COLLEGE BUILDING. [At Ames, Ia.]
Bids are wanted **August 15** for an engineering hall at Iowa State College. E. W. STANTON, Secy. Bd. Trus. 1285

TEXTILE SCHOOL. [At Agricultural College, Miss.]
Bids are wanted **until August 13** for a dormitory and textile school for the Mississippi Agricultural College. R. C. KINGS, secretary. 1285

JAIL. [At Bennettsville, S. C.]
Sealed proposals will be received **until August 18,** for erecting a jail. D. J. EASTERLING, county supervisor. 1285

COURT-HOUSE. [At Marietta, O.]
Sealed bids will be received **until August 21** for the erection of the new court-house for Washington County, according to plans prepared by S. Hannaford & Sons, Hulbert Block, Cincinnati, O. The structure will be about 100′ x 125′, three stories and basement high, of steel construction, and will cost approximately $100,000. W. A. PATTERSON, county auditor. 1285

Treasury Department, Office of the Supervising Architect, Washington, D. C., July 30th, 1900. Sealed proposals will be received at this office until 2 o'clock

PROPOSALS.

P. M. on the 20th day of August, 1900, and then opened, for the extension of the mezzanine floor at the U. S. Post-office and Sub-treasury, Boston, Massachusetts, in accordance with the drawings and specification, copies of which may be had at this office or the office of the Custodian, Boston, Mass., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1285

Treasury Department, Office Supervising Architect, Washington, D. C., July 28th, 1900 Sealed proposals will be received at this office until 2 o'clock P. M. on the 20th day of Aug., 1900, and then opened, for repair and enlargement electric wiring and lighting system, in the U. S. Post-office and Sub-treasury building, Boston, Mass., in accordance with the drawing and specification, copies of which may be had at the discretion of the Supervising Architect on application at this office, or at the office of the Custodian at Boston, Mass. JAMES KNOX TAYLOR, Supervising Architect. 1285

Treasury Department, Office Supervising Architect, Washington, D. C., July 30th, 1900. Sealed proposals will be received at this office until 2 o'clock P. M., on the 20th day of August, 1900, and then opened, for the renewal of the roof-covering, flashings, etc., on the U. S. Post-office and Sub-treasury building, Boston, Massachusetts, in accordance with the specification, copies of which may be had at this office or the office of the Custodian, Boston, Mass., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1285

Treasury Department, Office Supervising Architect, Washington, D. C., July 30th, 1900. Sealed proposals will be received at this office until 2 o'clock P. M., on the 20th day of August, 1900, and then opened, for repairs to heating apparatus of the U. S. Post-office and Sub-treasury building at Boston, Massachusetts, in accordance with specification, copies of which may be had at this office or at the office of the Custodian at Boston, Mass., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1285

Treasury Department, Office Supervising Architect, Washington, D. C., July 31, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 30th day of August, 1900, and then opened, for extension and modification of steam heating and ventilating apparatus for the U. S. Court-house and Post-office building at Topeka, Kansas, in accordance with drawings and specification, which will be furnished at the discretion of the Supervising Architect on application at this office, or at the office of the Superintendent at Topeka, Kansas. JAMES KNOX TAYLOR, Supervising Architect. 1285

Treasury Department, Office Supervising Architect, Washington, D. C., July 25, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 22d day of August, 1900, and then opened, for the construction of an isolation ward and mortuary at the U. S. Marine Hospital, Cleveland, Ohio, in accordance with drawings and specification, copies of which may be had at the discretion of the Supervising Architect, by applying to this office or to the Custodian of the building. JAMES KNOX TAYLOR, Supervising Architect. 1285

Treasury Department, Office Supervising Architect, Washington, D. C., July 28, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 10th day of September, 1900, and then opened, for the construction (except heating apparatus, electric wiring and conduits) of the U. S. Post-office at Stockton, California, in accordance with the drawings and specification, copies of which may be had at this office or the office of the Postmaster at Stockton, California, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1285

LIGHTING FIXTURES. [At Buffalo, N. Y.]
Bids are wanted **August 20** for lighting fixtures for the new Federal building. OTTO G. SIMONSON, Supt. Construction of Pub. Bldgs., Treas. Dept., Washington, D. C. 1285

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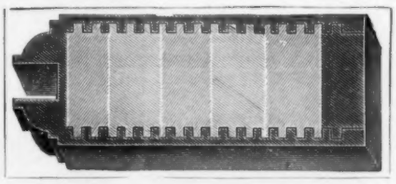
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SECTION 1. No Member should enter into partnership, in any form or degree, with any builder, contractor, or manufacturer.

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."

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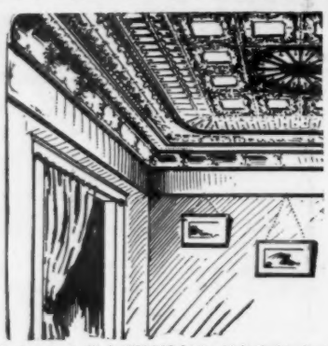
SECTION 16. A Member should so conduct his practice as to forward the cause of professional education and render all possible help to juniors, draughtsmen and students.



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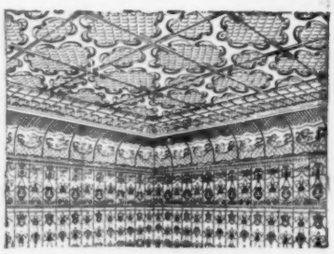

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