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CONTENTS.

EDITORIAL.	Page
A Change in Subscription Price of THE INLAND ARCHITECT AND BUILDER Announced—The Coming Architectural Drawing Exhibit by the Salmagundi Club of New York—The Coming Convention of the Architectural Association of Missouri at Kansas City—Draughtsmen's Associations as Educational Institutions—A Competition in Iowa that Needs Regulating—The Litigation Between Two Gentlemen of Baltimore—Manual Training Convention at Toledo, Ohio.....	95
EUROPEAN SKETCHES. By Irving K. Pond. Part IX.—Venice.....	97
HOW TO ORGANIZE STATE ASSOCIATIONS	98
EFFLORESCENCE IN PRESSED BRICK WALLS.* By James C. Anderson, of Chicago.....	98
THE CONSTRUCTION OF A HEAVY FIRE-PROOF BUILDING ON A COMPRESSIBLE SOIL.† By W. L. B. Jenney, Architect.....	100
PROCEEDINGS OF THE CIVIL ENGINEERS' CONVENTION AT CLEVELAND.....	101
ASSOCIATION NOTES.....	102
OUR ILLUSTRATIONS.....	104
COMMUNICATIONS.....	104
MOSAICS.....	104
SYNOPSIS OF BUILDING NEWS.....	104

* Paper read before the Illinois State Architectural Association, December 3, 1885.

† Paper read before the Nineteenth Convention of the American Institute of Architects, October 21, 1885.

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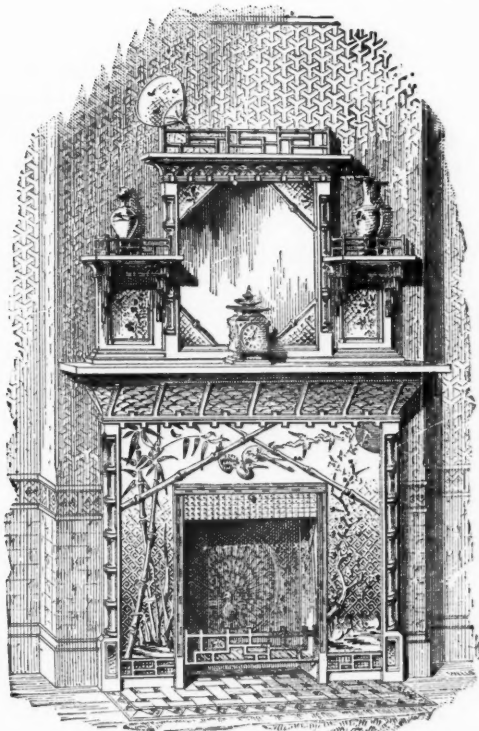
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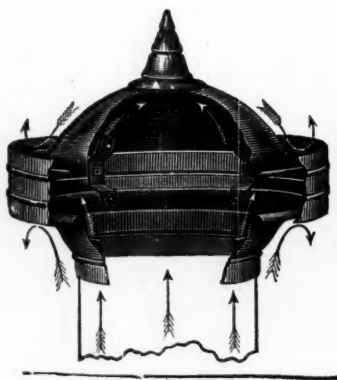
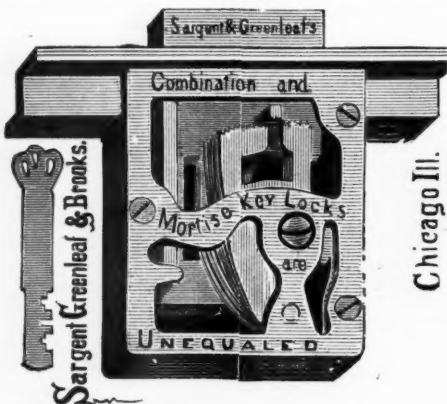
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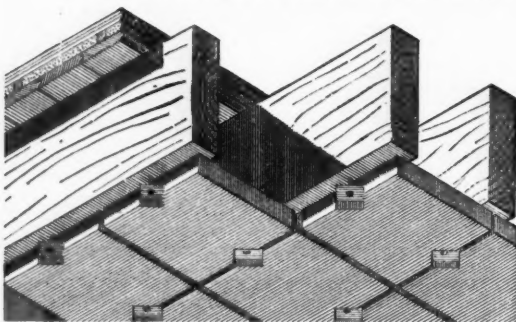
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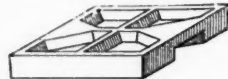
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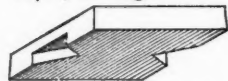
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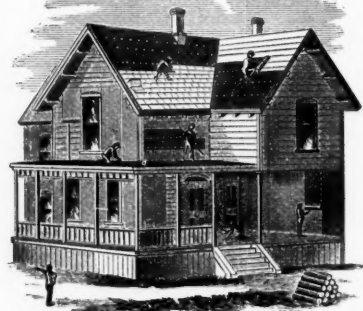
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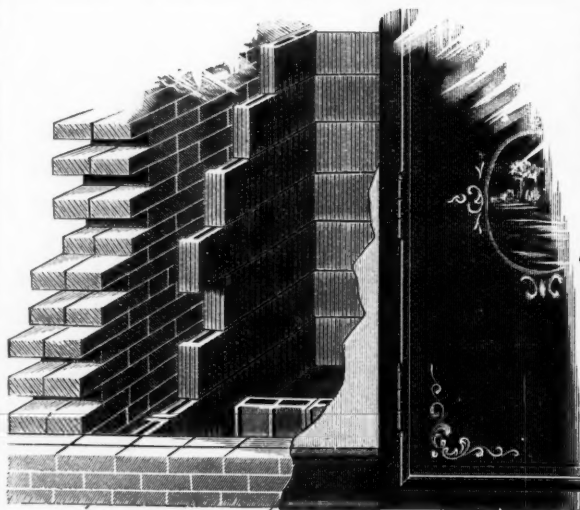
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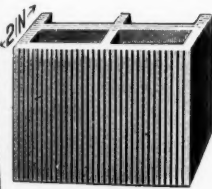
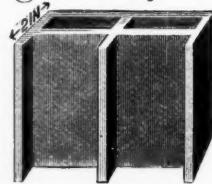
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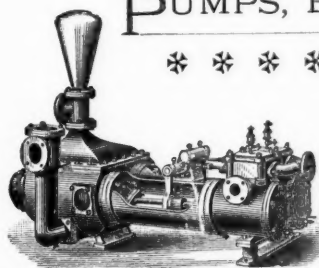
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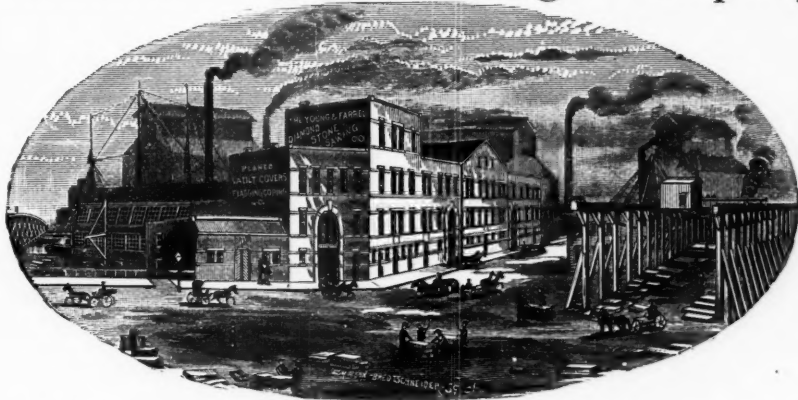
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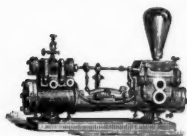
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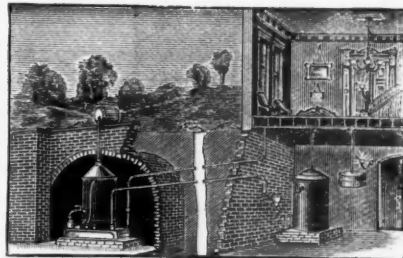
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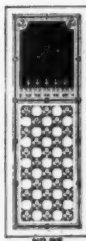
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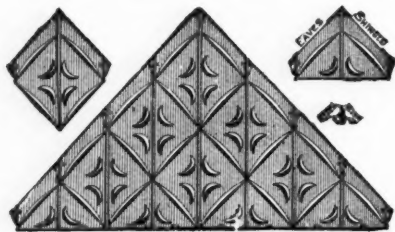
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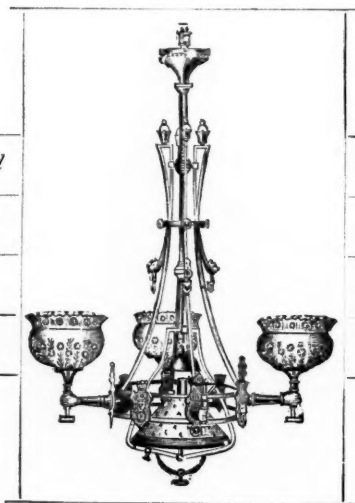
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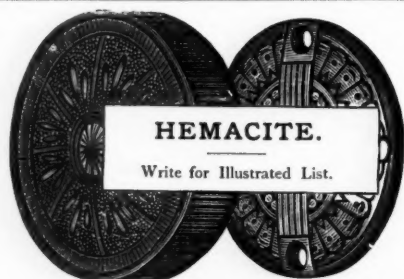
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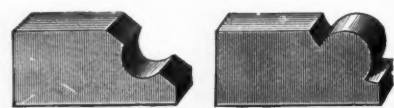
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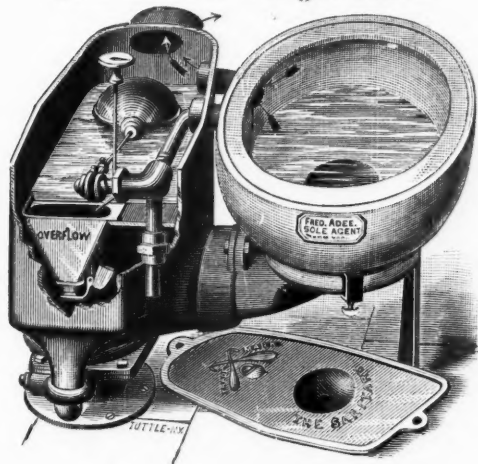


FIG. 1. STRAIGHT OUTLET.

With Painted or Enameled Reservoir.

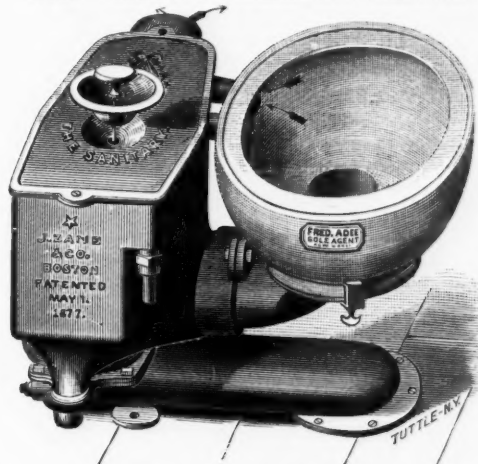


FIG. 2. WITH OFFSET.

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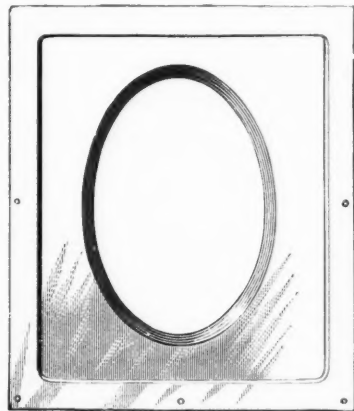
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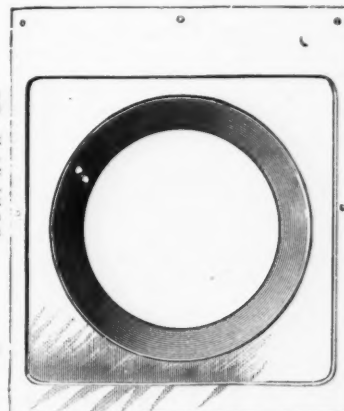
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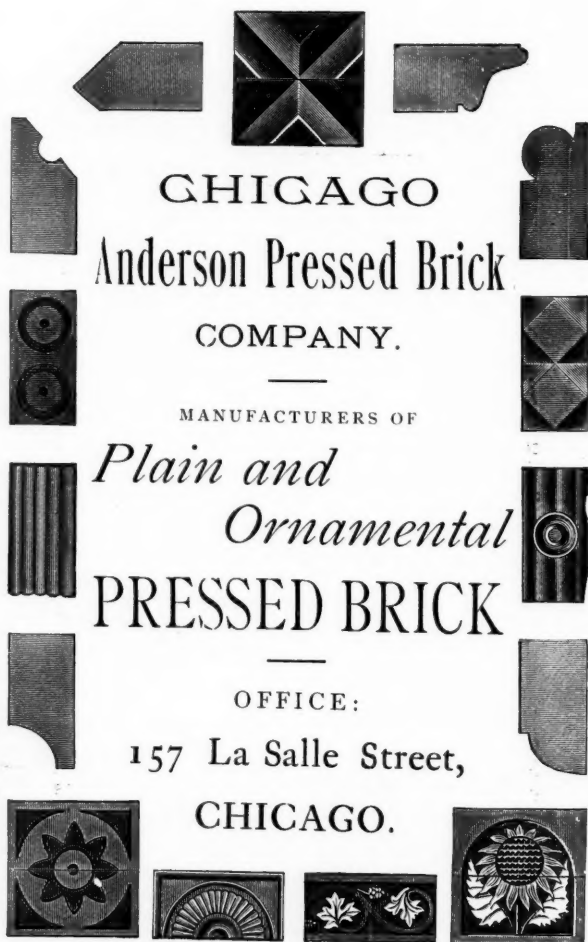
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THE INLAND ARCHITECT AND BUILDER.

Vol. VI.

No. 6

DECEMBER, 1885.

THE INLAND ARCHITECT AND BUILDER

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IT was not possible to obtain prints of the St. Louis convention photograph before going to press. It will be issued with the January number.

COMPETENT critics have pronounced THE INLAND ARCHITECT AND BUILDER "the handsomest journal of its class published in this country." The cost of maintaining the journal at this high standard, and of publishing our extra or "Intermediate News Number," is so great that we are compelled to announce that on February 1, 1886, we shall advance our subscription price from \$2 to \$3 a year, which will include both our regular monthly and our "Intermediate" number. Desiring to favor subscribers as much as possible, we make the following offer, namely: To all new subscribers sending us \$2 before February 1, 1886, we will send THE INLAND ARCHITECT AND BUILDER for one year, and to all present subscribers who send us \$2 before February 1, 1886, we will continue their subscriptions one year from date of expiration. Thus those who have subscribed any time since November, 1884, can, by sending \$2 before February 1, 1886, receive the journal for a year longer than is now due them.

MANY of the leading architects of Chicago, and other points in the West, are hard at work upon the drawings for the exhibit of architectural drawings, to be held in connection with the eighth annual exhibition of the Salmagundi Club, of the American Art Galleries in New York. Drawings will be received at the galleries from Thursday, December 31, to Saturday, January 2, inclusive. They must be sent at the expense and risk of contributors, and must either be in frames or mounted on stretchers, with proper borders or mats. All those from out of town should be sent before December 31, to Louis R. Menger, 35 Dey street, New York, who, for a nominal charge, will see that they are forwarded to the galleries at the proper time. He will also

provide frames and stretchers for drawings sent to him unmounted, at a reasonable price, and will return the drawings to the owner, mounted or unmounted, as may be desired. There is to be a room of foreign works, one of government and other public buildings, and drawings loaned by the principal publishing houses, also a loan exhibit of casts from the antique.

THE year 1885 has proved a very busy one in convention proceedings for the St. Louis architects. In March last they had their first state convention, in November occurred the convention of the Western Association, and this is scarcely over before they are again called together to arrange for their second state convention, which will be held at Kansas City on the second Tuesday in January next. There was a meeting of the St. Louis members at the Planter's House on Thursday, the 3d inst., to begin active preparations, at which some twenty architects were present. Mr. C. E. Illsley was elected chairman, and Mr. A. B. Swasey secretary. In accordance with motions unanimously adopted, the chair appointed the following committees: Messrs. Legg, Annan and Bulkley, to visit the various offices of St. Louis architects and secure their promise to attend the state convention in Kansas City; Messrs. Annan, Hellmers and Brady to secure reduced railway fares; Messrs. Peipers, Steinman and Swasey to solicit a suitable number of essays from St. Louis architects; and Messrs. Bulkley, Ramsey and Brady to arrange a plan for the incorporation of the St. Louis Institute of Architects as a branch of the Missouri State Association. The architects then adjourned to meet at the same time and place a week later.

FROM Kansas City we have word that the local architects have already had one or two preliminary meetings, and have their committees all appointed and at work preparing for the reception of the architects of the state. We are much gratified at the promptness and energy the Missouri architects are thus manifesting and which further sustains their good record made a year ago. We hold up their example for emulation to the architects of other states east and west. The lamented Vice-President Hendricks, in his speech at the opening of the St. Louis Exposition last October, said he should go home and tell the people of his state that if they ever got to doing as well as the people of Missouri he should be satisfied with their record. Will the architects of other western states show at the close of another year a record that will match that of Missouri? We hope so, but if they do, they must be up betimes and all the time.

DRAUGHTSMEN'S Associations are fast becoming a recognized and important element in the architectural economy of the West. Stimulated by the formation of that at Des Moines, the leading members of the guild in Chicago, formed under the name of The Chicago Architectural Sketch Club, and an association already enjoying considerable activity and with much promise has been started at Milwaukee. The aims of each are similar, the sociability of comradeship and the better and more thorough advance in the technique of the architectural profession, both as regards general design and that calling for a more distinctive artistic talent in the designing of furniture, stained glass, etc., all of which comes within the legitimate province of the sketch

clubs. The State Association of Illinois, at a recent meeting, took steps toward the formal recognition of that at Chicago, and this example should be followed by all state associations, and architects, as individuals, should do all in their power to encourage their growth. Until proper schools are established throughout the country for the teaching of architecture, a day we hope not far distant, upon the draughtsmen's clubs will rest the important work of education in a large degree. The rules are so formed that "anyone engaged in the practice of architecture or the kindred arts" is eligible to membership, and architects should be members, or at least frequent visitors at their meetings, for there are few, if any, who would fail to learn some practical lesson at a meeting of the draughtsmen.

THERE is a good chance for Iowa architects to try their hand at regulating a competition at Davenport, the Board of Supervisors of that place having "respectfully invited architects to present plans of court houses to the Board of Supervisors of Scott County, Iowa, at their rooms in Davenport on Thursday, January 7, 1886. Cost not to exceed one hundred and twenty-five thousand (\$125,000) dollars, the board reserving the right to reject any or all plans presented." As there are no architects in Iowa who do not belong to the Western Association (three in Davenport who do) and few in neighboring states, the chances of the Board of Supervisors viewing many "plans for court houses" are exceedingly small. We can say to this board, however, that they can secure a plan and a good one, and have it carried out in a manner thoroughly creditable to themselves in conformity with the duty they owe their constituents, by consulting some one architect, or, if they wish a competition, communicate with the president of the Architectural Association of Iowa, at Des Moines, who will give them full instructions in regard to the proper and only method they can employ with any probability of success.

IN our November issue we gave a brief account of the unfortunate litigation between Messrs. Robert Garrett, President of the Baltimore and Ohio railroad, and his neighbor, Henry Janes, the millionaire merchant of that city, by which the latter has sought to prevent Mr. Garrett's erection of a certain porch in front of his palatial residence, now building on Mt. Vernon Place; and we remarked upon the ambiguities and puerile contradictions which are so apt to characterize our building ordinances. The latest intelligence is that Mr. Janes has announced, that in case his suit fails to stop the erection of Mr. Garrett's porch, he will relieve himself of its obnoxious proximity by moving out of his own residence, which he will then donate to the colored orphans' association of Baltimore for use as an asylum for their dusky *protégés*. Here's a "how-d'ye-do," unquestionably, of a very pronounced type, and one that affects not only Messrs. Janes and Garrett, but all the other residents of this especially aristocratic section of Baltimore. It suggests remark upon the great desirability of so amending our legislation against nuisances as to protect public spirited citizens, who have erected costly homes, from wanton spoliation by the recklessness or malice of a neighboring owner. It is plainly a crying outrage if all the other residents in Mt. Vernon Square must have the value of their investments in that section, amounting to many hundreds of thousands of dollars, imperiled by a quarrel between neighbors Janes and Garrett, in which the neighbors have no part and which they are helpless to control. It is a well understood principle that no man has a right to use his property so as

unnecessarily to injure that of his neighbor, and in all cities there are laws which in this view prohibit the erection of slaughter houses, rendering establishments, and other unhealthful nuisances.

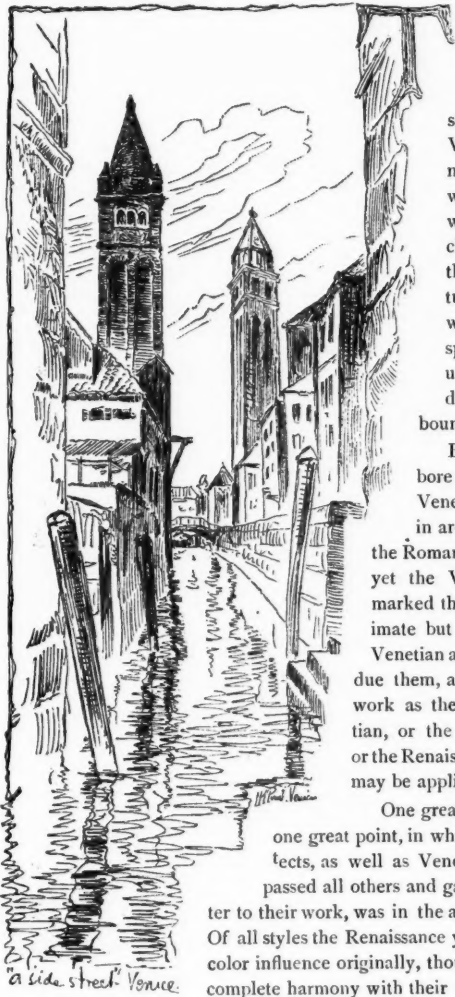
BUT the law fails to recognize the fact that there are many erections which cannot be strictly defined as injurious to health, which yet destroy the value of adjacent property just as completely. Such is the case above cited. If Mr. Janes establishes his colored orphan asylum next to Mr. Garrett, the result cannot fail to be a disastrous depreciation in all the property on Mt. Vernon Square. In St. Louis, recently, a livery stable proprietor drove a profitable trade for several years by purchasing lots in a choice residence section and advertising his purpose to build a stable there. In a number of cases he was bought off only by the payment of a large bonus from the adjacent property owners, whereupon Mr. Russell would immediately select another lot and repeat the transaction. For a while this fellow established a sort of reign of terror among property holders in the finer parts of the city and earned the title of "livery stable fiend," and he recently had an imitator in Chicago. Of course we cannot here outline the necessary enactment to protect the community from such outrages, but it will doubtless provide for a considerable enlargement of the definition of the term nuisance so as to cover injury to property as well as to health.

MANUAL training is in a fair way to not only become a higher class kindergarten system of education, but an element in all common school instruction. An educational convention was held at Toledo, Ohio, on the fourth and fifth instants, which developed many new phases in manual instruction, forming a starting point from which will radiate the many lines and methods to be pursued in the future. The industrial school, the manual training school as exemplified by those at New York, St. Louis, Chicago and other cities, and the different schools for children, conducted after the rules laid down by the distinguished Froebel, all seem to be gathered together, and from them will be evolved a system that will partake wholly of none but contain the best elements of all. The occasion of the convention was the opening of the new manual training school, an annex to the high school, the new building being devoted to drawing and shop work, the funds for which were contributed by W. H. Scott, of Toledo, a gentleman well known for his many philanthropic enterprises, the school being under the joint control of the board of education and the board of trustees of the university of which Mr. Scott is president. This is the first school erected in the United States, where manual training is secured free of charge, and has set an example that, in a country like this, where the education of the people is so general, cannot fail to find a constantly increasing popularity. The meeting was presided over by Ex-President Hayes, and was addressed by that gentleman, and also by Prof. C. M. Woodward, director of the manual training school of St. Louis, Dr. Felix Adler, principal of the workingmen's school of New York, Dr. H. H. Belfield, director of the Chicago manual training school, Mrs. Emma P. Ewing, dean of the school of domestic economy of the Iowa agricultural college, C. H. Ham and Col. Augustus Jacobson, of Chicago. The speeches were all interesting, each viewing a different phase of the subject, with rare bits of practical wisdom and of prophecy here and there, showing that manual training was not a hobby but a practical plan in the minds of the speakers. The convention was well attended, and the cause of manual training has been not only benefited but greatly advanced.

European Sketches.

BY IRVING K. FOND.

PART IX—VENICE.



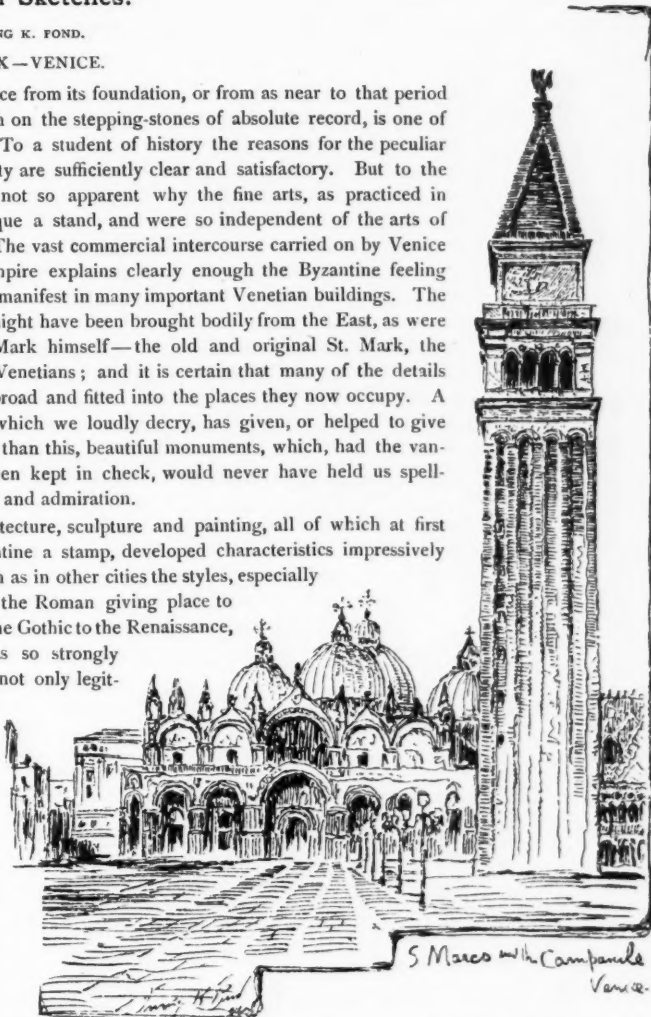
"A side street" Venice.

THE history of Venice from its foundation, or from as near to that period as we can approach on the stepping-stones of absolute record, is one of extreme interest. To a student of history the reasons for the peculiar situation of the city are sufficiently clear and satisfactory. But to the student of Art it is not so apparent why the fine arts, as practiced in Venice, took so unique a stand, and were so independent of the arts of neighboring cities. The vast commercial intercourse carried on by Venice with the Eastern Empire explains clearly enough the Byzantine feeling which made itself so manifest in many important Venetian buildings. The church of St. Mark might have been brought bodily from the East, as were the remains of St. Mark himself—the old and original St. Mark, the tutelary saint of the Venetians; and it is certain that many of the details were brought from abroad and fitted into the places they now occupy. A spirit of vandalism, which we loudly decry, has given, or helped to give us, in other instances than this, beautiful monuments, which, had the vandalic tendencies been kept in check, would never have held us spell-bound with wonderment and admiration.

But the arts of architecture, sculpture and painting, all of which at first bore so decidedly Byzantine a stamp, developed characteristics impressively Venetian; so that, though as in other cities the styles, especially in architecture, changed, the Roman giving place to the Romanesque and Gothic, the Gothic to the Renaissance, yet the Venetian stamp was so strongly marked that it were, perhaps, not only legitimate but best to give the Venetian artists all the honor due them, and speak of their work as the Romantic Venetian, or the Gothic Venetian, or the Renaissance Venetian, as may be applicable.

One great point, perhaps the one great point, in which Venetian architects, as well as Venetian painters, surpassed all others and gave special character to their work, was in the application of color. Of all styles the Renaissance yielded the least to color influence originally, though time and atmospheric action have brought all naturally perverse buildings of this style into complete harmony with their surroundings, and, in many cases, have left them so richly colored with deep purples and greens,

with spots here and there relieved in brighter tints, that it is not easy to say that this effect was not introduced in the original color scheme. Among the churches, St. Mark's stands preëminent in its color decorations, and of the palaces, the Doge's and the *Ca' d' Oro*, the latter of which enjoys the distinction of being (in spite, as some say, of its unsymmetrical massing) the richest and most attractive of Venetian palaces. Certainly the characteristics of the Venetian school of art manifest themselves to a high degree in this building—beautiful drawing, perfection of line, richness and glow of color, and as much of poetical rhythm and sentiment as can well be crystallized into stony forms. Architecture was much in advance of the other fine arts in Venice, for it was not until more than a century after the erection of the *Ca' d' Oro* that the Venetian painters reached the heights of their art, and made it, through the characteristic qualities which so manifest themselves in this building, the highest art the world has ever known.



S. Marco with Campanile Venice.



Santa Maria della Salute, Venice.

Vol. 63

Irving K. Fond.

The towers are marked features of Venetian architecture. The *campanile*, which rises nearly in front of St. Mark's, is a type of these towers, in all of which the main characteristics are observable, in whatever style they may be designed—an almost plain shaft to a considerable height, then a belfry, arcaded or otherwise ornamented, capped by a plain pyramidal roof. An opening between two great palaces on the Grand Canal reveals, down a "side street," two of these towers, one Romanesque, one Renaissance, both Venetian. A greater number of the fine palaces are on the Grand Canal, while the churches are back on the smaller water-ways, generally too much hemmed in to be architecturally effective. Two or three of the churches, however, are most effectively placed, notably *S. Giorgio Maggiore*, on an island opposite the palace of the Doges, and also

S. Maria della Salute, adjoining the House of Customs, on a point of land at the entrance to the Grand Canal. The domes and *campaniles* of this church stand out white from the dark background of the western sky in the early sunrise, when the highly colored and picturesque sails of the fishing boats flap and wave and flirt with the reflected images in the green water; and at eventide the green water is transformed into a sea of blood, and the sails are dusky, and indistinct, and in the shadows, as the domes and *campaniles* are darkly painted on the rosy sky. To thoroughly appreciate the why and wherefore of the bloom and glow of Venetian painting, and of Venetian facades, you have only to sail with the fishermen out into the morning sun, and to return slowly drifting, with the sun smiling full in your face just before he drops into the shallow water behind the floating city.

How to Organize a State Association of Architects.

READERS will observe in the proceedings of the St. Louis convention, published in full in the November issue of this journal, that a special committee was appointed to promote and direct the organization of state associations of architects in the West, wherever such do not already exist. This committee consists of Messrs. C. K. Ramsey, E. H. Taylor, I. Hodgson, H. P. McDonald, G. W. Rapp, D. M. Harteau, Sidney Smith, W. H. Cusack, T. Sully, S. J. Osgood, J. F. Haskell, S. A. Preston and Louise Bethune. In response to inquiries from several of these parties a few practical suggestions are presented as to the method of procedure which experience has already developed. It will be well to take for a text the formation of the Missouri State Association, which is the latest and is one of the most successful.

After some informal visiting of each other's offices, and several conferences, in order to learn the views of some of the leading St. Louis architects, and to get their support, notices were printed and mailed to every architect in the city, requesting his presence at a meeting to be held a week later, with a view to the formation of a state association of architects. This notice was followed by another printed on postal cards, and sent out the day before the meeting so that no one could forget it.

There was, besides, considerable additional visiting of different offices in person, to insure a good attendance at the first meeting. Of course the press was notified also.

The result was a gratifying success from the start. There was a fair attendance, a few of the leaders presented pointedly and briefly the advantages of the proposed movement, a lively interest was awakened, and a committee was appointed to issue a call for a convention of all the architects in the state, to meet in St. Louis about a month later. Other committees were appointed to secure a suitable hall in which to hold the convention, also to arrange for reduced hotel rates, and a finance committee to collect funds for the necessary expenses, which were very light, not exceeding thirty dollars.

A printed circular, announcing the proposed convention, and briefly urging the prompt cooperation of the profession, also referring to the successes already achieved in other states, was at once mailed to every known architect in the state. A printed strip was inclosed for reply with the following questions:

1. Will you attend the proposed convention?
2. Will you desire hotel accommodation, and if so, for how many?
3. If unable to attend will you nevertheless support the movement and join the association if formed?

The responses to this circular were so encouraging that all the preliminary arrangements for the convention were immediately pressed forward, there being several meetings of the St. Louis architects meanwhile, and a few days in advance of the meeting new circulars were mailed, as before, giving all details of the local arrangements made by the St. Louis architects, hotel rates, etc.

The result was a very gratifying attendance from every part of the state, Kansas City in particular sending a large delegation. After the appointment of temporary chairman and secretary, and of a committee on credentials, to examine as to the advisability of the candidates, all of whom had enrolled their names and addresses in a register on entering the room, the convention took a recess. Afterward the Committee on Credentials reported favorably on all who were found to be engaged in the regular practice as architects without being interested in contracts, and their report being unanimously adopted, the convention elected its permanent chairman and secretary. After a debate on various matters of interest they appointed a committee to draw up a form for Constitution and By-Laws, to report the next day. For the benefit of this committee the St. Louis architects had already procured the printed constitutions of the state associations of Illinois, Iowa and Minnesota, also that of the Western Association of Architects. This greatly facilitated their labors, and at the next session their report was adopted almost without alteration.

There was considerable debate on professional practice, the schedule of rates, lien laws, etc., after which the convention elected the officers of the new state association for its first year, the names having been first proposed by a committee on nominations, and adjourned, having selected Kansas City as the place for the next convention.

In this hasty *résumé* we necessarily leave out the many enjoyable and interesting features incidental to the convention, such as the excursions around the city of St. Louis, the many invitations and courtesies received from the city libraries, art museums and other institutions, the many very agreeable items of acquaintance formed and enjoyed, and the debates themselves, which were very practical and helpful, the aim being to set forth the *modus operandi* only.

As to the place of meeting, it is well to remark that for state conventions generally there is no necessity for a large hall. Where the attendance is not likely to exceed twenty-five to thirty-five, or even forty, a good parlor in a hotel will generally answer every purpose, while saving the rental of a hall. Indeed, a small room, well filled, is more cosy and inviting

and leads to more enthusiasm than is possible with double the number if seated in a hall several times too large.

A full report of the proceedings of the Missouri convention appeared in *THE INLAND ARCHITECT*, for April, 1885, and it was also published in pamphlet form, copies of which can doubtless still be had on application to Mr. T. B. Annan, architect, secretary of Missouri State Association of Architects, 906 Olive street, St. Louis, Mo., and of other associations by application to John W. Root, secretary Western Association, Montauk Block, Chicago; to H. S. Treherne, secretary of the Minnesota State Association, Minneapolis, Minn., or to Louis H. Sullivan, secretary of the Illinois Association, Borden Block, Chicago.

Efflorescence in Pressed Brick Walls.*

BY J. C. ANDERSON, OF CHICAGO.

THE question of the so-called saltpetre exudations, is no new question or subject—in fact the evil has existed since lime mortar first entered into the construction of buildings, yet it seems hardly credible that a question of so great importance not only in the esthetic beauty of architecture, but essentially vital to the solidity and durability of every structure where masonry is employed, should receive so little attention in the way of discovering the true cause and correcting the evil. You will recognize the difficulty and embarrassment with which I enter upon the discussion of a subject so intricate, involving complex problems to be solved and proofs to be adduced, without having the recorded investigation and proofs of others in the same field to draw from and rely upon. But, unfortunately, if such practical investigations have been earnestly pursued, I can find no published record of them, and have to rely solely upon the records upon the walls, with which to draw the substances of proof of my statements; and I am not unmindful of the fact which gives me no little embarrassment too, in discussing this subject before this association—that I have a personal interest in the matter that might be benefited by the statements made by me; still I do not see why the insect which performs nature's work of carrying the pollen from flower to flower should not be allowed to sip at the honey; yet I shall earnestly endeavor to present and demonstrate to you, in the most impartial manner, such matters and facts as I have been able to glean from my investigation of the subject purely in a scientific point of view.

It has been the subject of numerous newspaper articles both in this country and abroad, calling attention to the fact from time to time, that such evil existed, and advancing various vague theories as to the cause; but the whole subject, until recently, has been treated in a far off kind of way, no one seeming to care to undertake the genuine, practical, hard work requisite to probe the cause of the evil, and then try to devise an adequate remedy.

In this city until very recently little notice was taken of it, because the color of our common brick and limestone from which the great bulk of our buildings are constructed was like in color to these exudations, but the red pressed brick, which are now so largely used, furnish too good a chalk board for this mischievous imp who has been busy at work tracing out his old name, born on the other side of the ocean—*Saltpetre*. The substances of this wall coating, I find by various experiments and chemical analysis, to be essentially the sulphates of magnesia, soda and potash. I say essentially, because other salts are sometimes present as nitrates of the alkalis above named. But these do not concern us so much in this inquiry, as they are seldom met with, except in close proximity to the ocean, where the sea salt becomes a factor in their production. In this city I have never found the nitrates present, except in one or two cases in the walls of barns where a high condition of nitrification prevailed. These coatings do not come from the facing brick as has been generally supposed, and I desire to be distinctly understood, when I say that this is not only true of any one particular kind or make of pressed brick, but is true of several kinds of pressed brick commonly used in this market. The case, however, is different, when we come to consider the common brick from which the rear walls are constructed; but still they are by no means the main cause, for the main cause lies in the lime of the mortar, or more properly the magnesia present in the lime of the mortar used in laying up both the common and pressed brick. In order to arrive at a correct understanding of this matter, I will consider first the walls themselves—how they are constructed, and the nature of the materials that enter into the construction; and it may be proper to state here that although the evil is not confined by any means to the brick walls, it is my purpose, at present, to narrow the scope of inquiry, so as to embrace only that class of walls which most concern our city—that is, red pressed brick walls. These walls are constructed with an outer facing course of pressed brick and an inner wall of a number of courses of common brick.

The materials entering into the construction of these walls are mainly pressed brick, common brick and mortar. Of what are these materials compounded, and what do they have to do with the exudations? Let us see.

The bricks are made from common clays—nature's chips, once drifts and sediments upheaved by igneous action into mountains and again planed off—disintegrated and sent down from the mountain heights into the lowlands by chemical and aqueous agencies.

It will be necessary again to narrow the inquiry geographically to such clays as enter into the construction of our Chicago buildings.

These clays are of three classes—drift clays, alluvium clays and sedimentary clays. The common bricks of the rear wall are made from the first-named class of clays—there being an abundant supply of a calcareous pebble drift, underlying the city to a great depth, and in fact the only clays cheaply accessible for this grade of brick. About twenty per cent of the bulk of this clay deposit, is represented by small stones or pebbles of various kinds and sizes intimately commingled with the clay. These pebbles for the most part are made up of dolomite limestone—about twelve per cent calcareo magnesian and seven per cent granitic and feldspathic, and about

* Paper read before the Illinois State Architectural Association, at Chicago, December 3d, 1885.

three per cent of their bulk of iron pyrites (sulphite of iron). Besides these pebble impurities there is also a portion of finely divided magnesia and potash present in the clay, and a quantity of coal screenings is added to the mass, all of which go to make up the completed brick; which, after the burning process, enters into the rear walls and has an important bearing upon the subject which will be more fully explained hereafter.

The facing brick are of wider range and of quite a different character, being made from the alluvium and sedimentary clay deposits, few of which contain any of the efflorescing germs in such quantities as to be producible on the face of the brick under the severest tests. This is especially true of the third class of clays, which are the depositions of the fresh water sediments, and are therefore practically free from the alkaline earths. And now we come to the mortar of the walls, in which will be found the main germ or primary cause of the evil, and in this consideration, I need not enter into a discussion of any of the elements in this compound, for practically, so far as we are concerned, there is no part of the material except the lime itself, that contains more than a mere trace of the germ or more particularly that part of it which is not lime, but an impurity, *Magnesia*. Here is an analysis of the wall coating:

Insoluble matter (brick dust).....	2.14 per cent.
Lime (Ca O).....	1.68 "
Potash (K ₂ O).....	.08 "
Magnesia (Mg O).....	14.57 "
Sulphuric acid (S O ₃).....	32.42 "
Water.....	49.85 "
	100.74

It will be seen that these scrapings are nearly pure epsom salts or sulphate of soda. I will give analysis of Epsom Salts:

Magnesia (Mg O).....	16.26 per cent.
Sulphur (S O ₃).....	32.52 "
Water.....	51.22 "
	100.00

This sample for analysis I obtained by scraping from the walls of a prominent building in this city. It will be seen by the example, which is a fair specimen of all the others, that the sulphate of magnesia is the predominant substance. Now let us look at the composition of a number of the limes used in laying up these walls, which will appear by the following analysis:

No. 1.	
Carbonate of lime.....	54.84 per cent.
Carbonate of magnesia.....	43.94 "
Alumina.....	.59 "
Silica.....	.63 "
	100.00
No. 2.	
Carbonate of lime.....	56.00 per cent.
Carbonate of magnesia.....	42.92 "
Alumina.....	.75 "
Silica.....	.33 "
	100.00
No. 3.	
Oxide of lime.....	59.36 per cent.
Oxide of magnesia.....	34.87 "
	94.23
No. 4.	
Oxide of lime.....	91.84 per cent.
Oxide of magnesia.....	.49 "
	92.33

The first two examples are a complete analysis of the stone; the other two are for lime and magnesia, only from samples of burned lime.

It will be seen in allowing a full complement of sand in the mortar, that as much as twenty per cent of this germ is to be found in some of these limes, while others contain but a trace of magnesia. This answers the question which has repeatedly been asked—Why is it that two buildings built side by side of the same bricks (as it often happens) that one of them will show the exudations badly, while the other will be quite free from the exudations? Such differences cannot come from the front brick, for it is a well-known fact, that whatever of the alkalies exists in one part of a clay bed permeates the same strata in about the same proportions all the way through, and as I have before stated in substance but few of the surface alluviums, even at great distances apart, vary much in this regard. We have seen by the analysis of the wall coatings, that the substance was mainly sulphate of magnesia, but that other sulphates were present, as of soda and potash; and in the lime analysis we have traced the alkaline oxide of magnesia, and in the common brick the potash and soda which are also in the alkaline state so far as it would appear. But how does it happen that these substances actually appear as sulphates?

I have already in the discussion of common brick clays, described the presence of sulphite of iron and coal screenings. In the kiln firing, the sulphur is eliminated from the iron sulphite and converted into sulphuric acid, and is absorbed by the brick; and a like conversion takes place with the sulphur contained in the coal screenings.

Analysis of the common brick shows sulphuric acid as well as the soda and potash before referred to, as belonging to the clay impurities.

But as this is an important part in consideration of the subject, I will explain more in detail what actually takes place in producing these changes. The sulphur is eliminated from the iron sulphite and coal screenings, at a red heat in the kiln firing, in the form of sulphuric acid and sulphurous vapor. The sulphuric acid combines with the brick, and a part of the sulphurous acid, if left free, would ascend to the atmosphere above; but being confined within the brick, unites with such bodies found there as have the greatest affinity for the acid. These are the bodies present having the highest alkaline properties, being the potash of the coal screenings, residuum and calcio magnesian pebbles present in the brick, potash, lime and magnesia, each taking up its equivalent of the acids in its order and converting it to a salt. Now I will proceed to describe how these salts find their way to the face of the front walls of a building. In laying up the walls, the common bricks are first saturated

well with water, to prevent the too rapid absorption of the water from the mortar, thus causing it to set too quickly, and as most of these alkalies are insoluble in their first condition, all of them as sulphates (except the lime) are highly soluble in water, which takes them up in solution, and in the process of the drying out of the walls, are carried through the facing brick to the point of natural evaporation, which is the face side of the wall where it comes into contact with the drying water-absorbing influence of the atmosphere, and as water goes off distilled by Nature's laboratory, the residuum salts, which were in solution with it up to this point of evaporation, are left in crystal form upon the surface, where they remain until the walls are thoroughly dried, or until the walls are wet by a rain storm, or a change of weather brings a greater degree of moisture in contact with the surface of the walls than the brick contains when the crystal dissolves, and the solution will be absorbed back into the brick to appear again in dry weather. But I have traced to the surface only the germs of the common brick, and this, as I have before stated, is but a small part of the evil. I will now consider what action takes place with the mortar impurity. The magnesia of this compound is but sparingly soluble in the form of the oxide, but being in excess and entering into the construction of the rear walls so abundantly with a lavish use of mortar—even if no free acid is present—much of it is absorbed into the facing brick. If the two walls of facing and common brick are built up in close capillary contact with each other, it finds its way to the surface to receive its dose of acid, which it obtains in the process of time by the absorption of sulphur fumes—the gaseous product of combustion from the general atmosphere of the city, and the sulphuric acid in the rain water absorbed—and in a large way by a practice which I will presently explain.

A different color of mortar is commonly used in laying the pressed brick, but the same lime is usually employed, and the mortar of the common brick is grouted into the joints of the contiguous courses of the two kinds of brick, so that the mortar of both walls as well as the bricks themselves, are in conjunction with each other, and the osmotic action described as taking place between the bricks also takes place between the mortars.

In laying up the walls, more or less of the mortar adheres to and hardens on the face of the pressed brick, which is necessary to be cleaned off, and in doing this a highly objectionable method is universally employed—that is, washing the surface of the walls with a solution of common hydrochloric acid.

Now what comes of this practice? What does this material contain? In addition to the other objectionable qualities, by chemical analysis it will be seen that the common hydrochloric acid which is the kind used for this purpose, contains a large proportion of sulphuric acid. The action of the hydrochloric acid is to decompose the mortar on the surface of the brick, and it permeates as well the mortar joints of the pressed brick, rendering the lime of the mortar, which was before but a little soluble, *highly soluble*, under its influence and the sulphuric acid, the very thing needed to convert the oxide of magnesia, which I have already shown to be present at the surface of the brick and within the mortar joints, into the sulphate of magnesia, and thus complete the work of bleaching and blotching the walls.

Now, gentlemen, I will offer some suggestions for your consideration, which I deem important in the way of remedying the evil.

The first matter naturally suggested is to use pure lime *only* in the entire construction of the walls; but this is hardly practicable, for the same geological strata of dolomite limestone extends over a wide area, and it would entail considerable additional expense to go beyond these limits; and the same objection is met with in the clays of the common brick, and inasmuch as the main bulk of the mortar in the structure goes to make up the common brick wall, the best method which I am able to suggest is to provide a pure mortar for laying up the facing brick, and then isolate this part of the wall in the construction from the rear wall with a suitable impervious material, and thus cut off the osmotic action between the two walls. It is also suggested that as water saturation is one of the elements of crystallization, and in fact the vehicle that penetrates the walls, gathers up and conveys the poisons to the surface, that as little of it should be used as possible in the construction, and that every means should be provided to prevent the saturation of the walls by rain storms during the process of erection, and all safeguards provided in the construction of the buildings themselves, to prevent undue saturation.

It will be noticed that wherever the walls are most exposed to the direct wash of the rains, as about leaky spouts, etc., that there is a plentiful supply of the exudations. This is particularly noticeable about the top walls and chimney tops. Suitable impervious wall cappings with projecting drips should be provided for the chimney tops, wall tops and copings.

Another kind of coating should have a place here, noticeable upon some of the brick walls which has been the cause of no little complaint and annoyance—the discoloring stains of the stone courses, which appear on the surface of the brick wall below the stone. These stains are traceable to the disintegrated particles of the stone, which wash down over the face of the stone and are absorbed into the pores of the same, and do not belong to the agencies of the alkalies and acids under discussion, except in their primitive handiwork provided by Nature, in the disintegration of the rocks to earths and clays—for be it remembered they are Nature's re-agents to perform a large part of this work, and are the tools of the chemist, with which to dissolve the stones, and extract therefrom the hidden metal treasures within.

Even the best granite is subjected to rapid disintegration in this climate; and wherever stone facings are combined with red brick facings—unless good roof projections and copings are used, and the stones themselves made to project well over the face of the brick with grooved drips, a space for a considerable distance below the stone will be stained with the products of the disintegration, and it will become so thoroughly fixed within the pores as to resist every known method of cleaning.

One other point I desire to refer to, that needs attention, which is the proper housing of the pressed brick. While I have been unable to find the nitrates, or other salts than *magnesia* salts present in any appreciable

quantity, yet it does happen that bricks when unloaded in the streets absorb the salt-producing animal matters of the roadway, and other objectionable matters, such as ashes, etc., which they may come in contact with.

Owing to illness I am unable to prepare and present at this time some exhibits and experiments which I intended to make to demonstrate more fully some of the important points under discussion, such as converting all the alkalies shown to be present in the walls, by an analysis, into their respective salts, and of tracing these salts from the common brick and mortar, through the facing brick, giving you an ocular demonstration of their appearance through the mortar joints appearing on the face of the brick, also to demonstrate the identity of the respective crystals with the wall scrapings under microscopic polarized light. I will state in this connection in the way of proofs, that the analysis which I presented and referred to, of the wall coating limes and bricks are confirmed by one of the best chemists in the city (Mr. Jackson). I wish to emphasize what I have here said, and what I have repeatedly said to some of you, and which is also embodied in a paper of public record of four years ago, which I have demonstrated over and over again, that these exudations do not come from the pressed facing brick, as has been erroneously supposed, and commonly alleged, but that they do come from the magnesia of the mortar and pebble impurities of the common brick—the evil being highly promoted by the customary practice of washing the walls with hydrochloric and sulphuric acid compounds used in cleaning walls.

The Construction of a Heavy, Fireproof Building on a Compressible Soil.*

BY W. L. B. JENNEY, ARCHITECT, CHICAGO, ILL.

THE completion of the Home Insurance building in Chicago, with an inequality of settlement of less than three fourths of an inch, is an example of the successful application of methods in use, with some variation in detail, and in consequence may be of interest to those having similar problems to solve.

FIG. 1.† The so-called "hard pan," seems to differ from the very wet clay below, only in being partially dried. The soft clay below when exposed for a few days to the air, assumes the character of the hard pan, which is really not very hard, but so called only by comparison. The top of this hard pan is used for the bottom of the masonry foundations, care being taken not to remove any of the hard pan.

The system of foundations adopted is what is known as that of independent piers, each basement pier and each interior column having its independent foundation. A heavy building on such a soil must necessarily settle, the problem being to reduce that settlement to a moderate amount, say from two to three inches, and to make the settlement practically uniform. To this end the weights on each separate foundation were carefully calculated, it being of the greatest importance that the load per square foot of footing course should be uniform over the entire building, otherwise the settlement would be unequal and would cause fractures, breaking of glass, deform the door openings, etc.

It is not easy to decide in advance as to the exact permanent load on the floors of the building. This, however, is of much importance in calculating the foundation of the interior columns which as a rule are made disproportionately large, and give trouble by not settling so much as the outside walls. In the Home Insurance building there was added to the weight of the material actually used in the construction of the building, a further weight of eighteen pounds per square foot for the average permanent load on the floors, the building being solely for office purposes. Borings were made in some twenty places over the site, and the thickness of the hard pan was found sufficiently uniform to allow of a uniform weight of two tons per square foot to be used as the permanent load on the foundations. The weight at the bottom of each pier being reduced to tons, dividing by two gave at once the number of square feet of surface of the concrete which formed the bottom course, care being taken to make the center of gravity of the weights above the center of the parallelogram, at bottom of the concrete.

FIG. 2.‡ (Foundation of one of the piers.) The alteration of rubble and dimension stone is for economy. Rubble can be laid directly on undressed dimension stone, while if large dimension stone are placed, the one directly upon the other, it is necessary to dress the surface in order to obtain an even bearing. The offsets on dimension stone can be made much greater than on rubble stone, and also the large stone serve as a bond to the pier,—so that at least each alternate course should be dimension stone, and in the instances where the weights are excessive, every course must be dimension. This must be done in order by many large offsets to obtain the necessary surface of concrete without disturbing the hard pan which is the best foundation this locality offers, every inch of whose thickness should be preserved.

As it was important in the Home Insurance building to obtain a large number of small offices provided with abundance of light, the piers between the windows were reduced to the minimum, and the following system of construction was adopted.

FIG. 3.† Iron was used as the skeleton of the entire building except the party walls, and every piece of iron was protected from fire by masonry, excepting only some columns so situated as not to be dangerous if left exposed. A square iron column was built into each of the piers in the street fronts. All columns and mullions were continuous from the bottom plate to the top of the building.

The girders carrying the I-beams of the floors rested on brackets on the iron columns. As the building must settle and as during the construction the weights are added differently from their final distribution, the first settlements must be uneven, therefore every care must be taken to make the

construction elastic, and the building may reach its final bearings without injury.

Stone lintels must have short bearings on the piers that there may be some movement without fracture. Every beam or girder that reaches a wall, pier or column must be securely anchored thereto; every piece of iron that crosses another must be bolted thereto. It is also necessary to so attach the girders and the beams at their bearings that any movement will be transported entirely across the building at once without any previous slipping, or taking up the slack.

FIG. 4.† As the bolts do not accurately fit the holes, a clamp was introduced to pull the beams close together, so that the least movement is felt at once over the whole beam.

In such heavy buildings the usual masonry, calculated to carry say five tons per square foot, would make the walls objectionably thick; therefore, selected, hard-burned brick were used, and laid in mortar to which 25 to 30 per cent of good cement is added at the time of using, every brick to be rubbed into place, filling and packing each joint solid. Such masonry can safely be calculated to carry from eight to ten tons per square foot, according to the hardness of the brick and the care taken in laying. Additional precautions were taken by building into the wall between stories, strong bands of iron linked together, and over all openings and at all angles. And whenever any part of a wall was kept down to be built up later, the best hoop-iron, 3 inch by 3-16 inch, was built in in long strips, three or four side by side, the object being to prevent injury to the masonry by movements that from the nature of the case must take place.

The building was started 2½ inches above grade. Careful levels, taken at different times, show a total settlement of 2¼ inches, and an extreme variation of only 11-16 inch.

The complete success in this instance, in a building 159 feet in height, from bottom of foundation to top of parapet, fireproof throughout, with all the halls and the bank rooms floored and wainscoted with marble, the entire basement floored with marble, all the staircases of iron and marble, all partitions of tile, the roof covered with tile—in fact a very heavy building—demonstrates the efficacy of these methods, if carefully applied.

As a comparison of method, I will cite the government building at Chicago, constructed on a continuous bed of concrete, three feet thick, covering the entire lot. No special anchoring was employed. Inequalities of settlement are continually taking place, causing a spreading of the building, the deformity of cut-stone external arches, bad cracks in the masonry, and all the evils incidental to continued and unequal settlement. The continuous concrete foundation has evidently broken up, and the worst conditions obtain.

SOME OTHER PARTICULARS OF THE HOME INSURANCE BUILDING.

In the fireproofing of the Home Insurance building there are some peculiarities that may be of interest.

The columns in the bank rooms, although of 2½ inch metal, are 15 inches in diameter. The ordinary fireproofing of light, porous terra-cotta, and Keen's cement surface, increased the diameter about 6 inches, making the columns about 21 inches in diameter, which seriously injured the appearance of the room. The fireproofing was stripped off, and another put on by furring the columns with ¼ inch round iron, placed vertically, about 2 inches apart, and then wrapping the columns with wire cloth of ½ inch mesh. On this was plastered Portland cement, finishing smooth and true with Keen's cement. This added but 1½ inches to the diameter of the columns, giving them a diameter that does not look objectionable.

It is true that this fireproofing is less efficient, but for a bank room in a strictly fireproof building, with floor and wainscot of marble, it was deemed amply sufficient, as they could not be reached by the heat of any external fire, and then there is not sufficient combustible material in the room to be in any degree dangerous.

After the building was plastered several straight cracks appeared in the ceiling. On cutting them out it was discovered that the joints between the voussours at these places had not been properly filled at the bottom. See Fig. 5.

FIG. 5.† During the entire fireproofing, and particularly in laying the floor arches, there should be a strict and constant supervision of every detail by a competent person. Grounds should be put on in such a way that the casings, base, chair-molding, etc., can be nailed on without any risk of disturbing the tile. The foundations of the tile partitions should be looked to. If they run across the arches there is little risk, but should they run with the arches, i. e., between the I-beams, some precaution should be taken, or there will be liability of a movement in the arch and some settlement in the partition. In the Home Insurance building, in such cases, T-iron was laid from I-beam to I-beam across the arches, each four feet under the partitions. The building in question being strictly fireproof, tile vaults were built on the floors wherever tenants desired them, the walls being six inches thick and the jambs of the doors twelve inches thick to form vestibules.

In a large modern office building there are many electric wires, telephones, telegraphs, lighting, call-bells, etc., that are often changing. In the Home Insurance building an invention of C. N. Fay, a kind of large picture molding with channels for several different wires was used, extending around all rooms and halls. The wires are taken up the elevator cylinder shaft to the respective stories and then distributed in the channels of this molding to the places required. The partitions are passed, through a lead pipe, from the molding in the hall to the moldings in the respective rooms.

THE annual report of the Supervising Architect of the United States for 1885 shows that there are now eighty new buildings under construction, ranging in cost from \$25,000 to \$2,000,000, calling for a total of \$8,511,400, the expenditure during the year being \$2,438,709. Mr. Bell, in his report, recommends the reorganization of the office upon a plan similar to that provided by the revised Stockslager bill.

*Paper read before the nineteenth annual convention of the American Institute of Architects at Nashville, Tenn., October 1, 1885.

†See illustration pages.

Proceedings of the Civil Engineers Convention, at Cleveland, O., December 3, 4 and 5, 1885.

APPROVED BY THE EXECUTIVE BOARD.

THE convention of delegates from engineering societies of the United States met at Cleveland, Ohio, pursuant to the call by circulars from the Civil Engineers' Club of Cleveland, on December 3, 4 and 5, 1885. The following are the proceedings of the convention.

FIRST SESSION, THURSDAY, DECEMBER 3, 1885.

The convention was called to order at 2:30 P.M. in the Board of Trade room, by Mr. John Eisenmann, who, as a delegate from the Civil Engineers' Club of Cleveland, addressed the convention, extending the welcome of the Cleveland Club and briefly stating the object and province of the convention.

On motion of Mr. E. L. Corthell, put by Mr. L. E. Cooley, Mr. Eisenmann was elected temporary chairman.

Mr. A. W. Buell, of Pittsburgh, was elected temporary secretary.

The chairman introduced Hon. Geo. W. Gardner, mayor of the city, who in a brief address, cordially extended the welcome of the city and best wishes for a harmonious and successful meeting.

Mr. Corthell moved that a committee of three on credentials be appointed by the chairman, to report at the next session. Carried.

Mr. Cooley moved that a committee of three on permanent organization and programme be appointed by the chairman, to report at the next session. Carried.

Mr. Corthell moved that a vote of thanks be tendered Mayor Gardner, for his cordial welcome and proffered freedom of the city. Carried.

Mr. Kurth moved that when this session adjourns, it shall be to meet at 7:30 P.M. in the Board of Trade room. Carried.

The chairman announced as Committee on Credentials L. E. Cooley, C. F. Loweth, J. D. Varney; as Committee on Permanent Organization and Programme, E. L. Corthell, Augustus Kurth, C. D. Marx.

On motion at 3:05 P.M., adjourned to meet at 7:30 P.M.

SECOND SESSION, DECEMBER 3, 1885.

Called to order in Board of Trade room by temporary chairman at 7:45 P.M.

The minutes of the previous meeting were read and approved.

On motion, Mr. Cooley read the following report of Committee on Credentials:

Your Committee on Credentials herewith submit the following report: The following is a list of the societies represented and names of the representative delegates who are entitled to vote in this conference.

Western Society of Engineers, Chicago, Ill.	120	L. E. COOLEY
Civil Engineers' Club of Cleveland.	140	JNO. EISENMANN
Civil Engineers' Society of St. Paul.	34	C. F. LOWETH
Tichneker Verband (N. Y., Phila. and Chicago).	346	AUGUSTUS KURTH
Civil Engineers' Club of the University of Illinois, Champaign, Ill.	100	W. D. PENCE
Michigan Engineering Society.	183	J. B. DAVIS
Engineers' Club of Philadelphia.	413	E. L. CORTHELL
Ohio Society of Engineers and Surveyors.	175	J. D. VARNEY
Cornell University Association of Civil Engineers.	70	C. D. MARX
Indiana Association of Country Surveyors and Engineers.	75	W. A. OSMER
Delegates are expected from the following societies:		
Engineers' Club of Minnesota.	38	E. T. ABBOTT
Southern Society of Civil Engineers.	75	M. C. KOLLOCK
Missouri Society of Surveyors and Civil Engineers.	100	T. J. LOWRY
Boston Society of Civil Engineers.	126	S. M. FELTON
Connecticut Association of Surveyors and Civil Engineers.	67	B. H. HULL
Committee on Credentials,		
L. E. COOLEY, Chairman.		

Report accepted.

On motion, Mr. Corthell read the following report of Committee on Permanent Organization and Programme:

Your committee appointed on nomination for permanent organization of the convention and on programme, report as follows:

For permanent chairman of convention, Mr. L. E. Cooley, of Chicago. For permanent secretary, Mr. William T. Blunt, of Cleveland, and the following order of business:

1. The appointment of a committee of three, by the permanent chairman, to draw up a report of the action of the convention, said report to be admitted by the delegates by their respective societies for approval.

2. The appointment of a committee of three by the permanent chairman, to perpetuate the work and further the object of the convention.

3. Adjournment of the convention, after the disposal of the above or any other public business that may be brought before it, to go into executive session, at its rooms in the Hollenden, to consider the object of the convention.

4. After adjournment of the executive session, the two permanent committees above mentioned to meet for preparation of the report to be submitted to the convention at its next regular session, Friday morning, December 4, 10 A.M., at the Hollenden.

5. At Friday morning session, after the transaction of public business, the convention to go into executive session, for the discussion of the reports of the committees.

6. The further order of the business to be decided by the convention, at its Friday morning session.

The committee recommend, that in general or executive session the time of the speakers be limited to ten (10) minutes.

7. They would further recommend that the adoption of report and resolution be by a yea and nay vote of accredited delegates.

E. L. CORTHELL, *Engineers' Club of Philadelphia.*

A. KURTH, *Techniker Verband (N. Y., Chicago and Phila.).*

CHAS. D. MARX, *Cornell University Association of Civil Engineers.*

Report accepted.

A motion to proceed to the election of permanent officers was made and withdrawn, and the chairman introduced Mr. J. F. Holloway, president of the Civil Engineers' Club of Cleveland, who, in behalf of the club, invited the delegates to a reception Friday evening, at 8 o'clock.

On motion, the invitation was accepted.

On motion, the convention proceeded to the election of permanent chairman.

The chairman appointed Mr. Osmer and Mr. Davis to act as tellers.

Total number of votes cast, 10. Mr. Cooley received 9. Mr. Davis received 1, and Mr. Cooley was declared elected permanent chairman.

Mr. Cooley took the chair and thanked the convention for the honor conferred upon him and the Western Society of Engineers.

On motion, the report of the Committee on Credentials was read and adopted.

On motion, the convention proceeded to the election of permanent secretary.

Total number of votes cast, 10. Mr. William T. Blunt, of Cleveland, received 10 and was declared elected.

On account of illness of the secretary, Mr. A. W. Buell was elected secretary pro tem.

On motion, the report of the Committee on Permanent Organization and Programme was read and considered by sections; each section being approved, the report as a whole was adopted.

On motion of Mr. Davis, visitors were invited to participate in executive session this evening.

On motion of Mr. Davis, members of the Cleveland Club were especially invited to be present at all business sessions.

The chairman appointed the following committees:

Committee to draw up reports: J. B. Davis, E. L. Corthell, C. D. Marx.

Committee to perpetuate the work and further the action of the convention: John Eisenmann, C. F. Loweth, Augustus Kurth.

On motion of Mr. Corthell, the convention at 8:30 adjourned to go into executive session at the Hollenden.

Executive sessions, 9-11:45.

Committee sessions, 11:50-2:30.

THIRD SESSION, DECEMBER 4, 1885.

Convention called at 11 A.M., at the Hollenden, Mr. Cooley in the chair.

On motion of Mr. Eisenmann, the reading of the minutes of last session was dispensed with, and they were approved.

Mr. Corthell moved, that when the session adjourns, it shall be to meet at 10 A.M. Saturday, for the final session. Carried.

On motion, the chairman appointed the following Committee on Resolutions: W. A. Osmer, Augustus Kurth, W. D. Pence.

On motion of Mr. Eisenmann, the convention adjourned to go into executive session.

Executive sessions, 11:30-1.

Executive sessions, 2-4:45.

Committee sessions, 4:50-6:30.

Reception, 8-11:30.

Committee sessions, 11:45-1.

Executive sessions, 9-10 A.M. December 5.

FOURTH SESSION, DECEMBER 5, 1885.

Convention called to order at 10:05 A.M. at the Hollenden, Mr. Cooley in the chair; all the delegates present.

On motion of Mr. Eisenmann, the reading of the minutes of the last meeting was dispensed with, and they were approved.

Mr. Eisenmann read a letter just received from the secretary of the Boston Society of Civil Engineers, announcing the appointment of S. M. Felton, Jr., as their delegate; also following telegram from H. S. Duval, president of Southern Society of Civil Engineers: "Will fail furnishing delegates. Accept our cordial indorsement."

Mr. Davis submitted the following report:

To the convention representing the Civil Engineering Societies of the United States by their delegates assembled at Cleveland, Ohio:

Gentlemen,—Your committee on the report of the action of the convention, said report to be submitted by the delegates to their respective societies, respectfully submit the following as their final report:

The foremost nations of the old world have organized systems of internal improvements. The United States at present has no such system. The marvelous development of this great country demands some adequate organization of such a system.

In the formation of such an organization advantage should be taken of the best features of the system of other nations.

The main reason for the success of such works in foreign countries is due to the fact that they are executed under a civil administration, although the governments themselves in other respects, are more essentially military than our own.

The distinguishing feature of these organizations is the employment of the best available talent, of men especially fitted by education, training and experience, to design and execute such works.

Under our present methods the government cannot possibly secure such trained skill. The reason is that no emoluments or reputation, commensurate with the service rendered, or equal to what can be obtained on other civil works, are attained on the public works of our government.

These facts deter men of experience from entering the service of the government, and also those who have gained experience therein, from remaining in its employ.

Recognizing that a comprehensive system of public work is necessary, we respectfully suggest that congress should be asked to establish a civil bureau of public works; the basis of organization of this bureau to be made the subject of study, and report by a board appointed by the president of the United States; said board to consist of seven members, three military engineers, three civil engineers, and one member of the legal profession.

Cleveland, Ohio, December 5, 1885.

J. B. DAVIS, *Pres. Michigan Engineering Society, Chairman.*

E. L. CORTHELL, *Delegate of Engineers' Club of Philadelphia.*

CHAS. D. MARX, *Delegate of the Cornell University Association of Civil Engineers.*

On motion the report was accepted and adopted, and the committee discharged.

Mr. Eisenmann submitted the following report:

CLEVELAND, December 5, 1885.

Mr. Chairman,—Your committee to perpetuation of the work and to further the objects of this convention, begs leave to submit the following report:

1. We recommend that each organization in the United States embracing civil engineering be requested to appoint a permanent committee on national public works, and also to empower and direct the chairman of that committee to be a full member of the civil engineering committee on national public works.

2. Said committee to perfect its organization and choose an executive board of five members. The president of the committee to be president of said board, its secretary shall not be a member thereof.

3. The executive board may select from each important city or section of the country one or more engineers as corresponding members of the committee.

4. Vacancies in the committee to be filled by the society whose seat is vacated.

5. Vacancies in the executive board to be filled by vote of the regular members of the committee, by letter ballot, upon nominations made by the executive board.

6. The duties of the executive board shall be the dissemination and presentation of the action of the meetings of the committee and other informal action, to the engineering profession to congress and the country at large.

7. We further recommend that for the present the delegates to this convention constitute a temporary committee and act as such until the doings of this convention are acted upon the organizations who have appointed delegates.

Whenever the societies take favorable action the chairman of the committee on public works of the respective societies shall become the successors of the present temporary incumbent and a member of the permanent committee and that after the first of April, 1886, the permanent organization shall go into effect.

JOHN EISENMANN,
Civil Engineers' Club of Cleveland.
CHAS. F. LOWETH,
Civil Engineers' Club of St. Paul.
AUGUSTUS KURTH,
Techniker Verband (N. Y. Phil. and Chicago).

On motion the report was accepted and adopted, and the committee discharged.

Mr. Ossmer submitted the following report:

Mr. Chairman,—Your Committee on Resolutions beg leave to submit the following:

Resolved, That the thanks of this convention are due to the Civil Engineers' Club of Cleveland, for the zeal and interest exhibited by them in this cause, and that we appreciate the uniform courtesy and kindness shown us during our deliberations.

Resolved, That we extend to them our sincere and hearty appreciation of the royal reception and banquet tendered to and accepted by us on this occasion.

Resolved, That we return our thanks to the mayor for his kindly reception and welcome, and to the Board of Trade for the use of their rooms.

W. A. OSSMER,
W. D. PENCE,
A. KURTH, } Committee.

At his request, Mr. Eisenmann was excused from voting.

On motion, the report was accepted and adopted, and the committee discharged.

The chairman announced that five minutes after the adjournment of the convention of delegates the temporary Civil Engineers' Committee on National Public Works would be called to order.

On motion, the minutes of this meeting were read and approved.

On motion of Mr. Davis, the convention at 10:30 A.M. adjourned *sine die*.

The following are the proceedings of the temporary Civil Engineers' Committee on National Public Works, Cleveland, Ohio, December 5, 1885:

The temporary Civil Engineers' Committee on National Public Works was called to order at 10:35 A.M., at the Hollenden, by Mr. Davis.

Mr. Corthell nominated for president Mr. L. E. Cooley.

Mr. Ossmer moved that Mr. Cooley be elected by acclamation.

Mr. Davis suggested that the committee pay Mr. Cooley the honor of a rising vote, which was done, and Mr. Cooley was declared elected.

On motion of Mr. Davis, Mr. Buell was requested to act as temporary secretary.

For members of the executive board of this committee Mr. Marx nominated Mr. Corthell. Elected.

Mr. Eisenmann nominated Mr. Davis. Elected.

Mr. Marx nominated Mr. Eisenmann. Elected.

Mr. Corthell nominated Mr. Kurth. Elected.

Mr. Davis moved that Mr. William H. Searles, of Cleveland, be made a corresponding member of the committee, and, on motion of Mr. Eisenmann, the president cast the vote of the committee for Mr. Searles.

Mr. Corthell moved the thanks of the committee to Mr. Wm. T. Blunt, who, as secretary of the committee of the Cleveland Club, performed such valuable service in bringing about this convention of engineering societies.

The president extended to Mr. Buell the thanks of the committee for his services in the convention and in this committee.

The president made a short address, and on motion the committee at 10:45 A.M. adjourned subject to the call of the president.

SESSION OF EXECUTIVE BOARD.

December 5, 1885.

The executive board of the Civil Engineers' Committee on National Public Works was called to order by the president at 10:50 A.M., all the members present.

On motion of Mr. Davis, Mr. Wm. T. Blunt was elected secretary of executive board.

On motion of Mr. Corthell, the delegate from the Civil Engineers' Club of Cleveland was directed to request of the club that all correspondence in relation to the calling of the convention be turned over to the executive board for its use.

Mr. Corthell stated that he would turn over to the executive board certain papers, and place in their custody certain testimonials, to be returned to him if the committee is not perpetuated within the next six months.

On motion of Mr. Eisenmann, the offer was accepted, with its conditions, and Mr. Corthell was made custodian of the said papers for the present.

On motion of Mr. Kurth, the president, the members or of any from Cleveland, through the secretary were requested to take charge, for the present, of the publication and circulation of information, as directed by the board.

On motion, the executive board adjourned subject to the call of the president, or of any three members.

The following is the closing address of the president of the Civil Engineers' Committee on National Public Works:

Delegates to this Convention and Visitors:

GENTLEMEN,—This convention is about to terminate, but provision has been made for continuing its work. The question before us is one of grave importance to the state. Its wise solution involves an economic problem of momentous consequence in the future. Thus impressed, if we have failed in recommending wisely we must bespeak for our national committee the consideration and the coöperation of all who have the public weal at heart. A singular unanimity of opinion has prevailed, as of mature study, which could reach but one conclusion, and we, therefore, with the greater confidence, refer our action to our respective societies, and to all others not here represented, for their ratification and cordial support. We work not for today nor tomorrow, but for that best end which may choose its means. If thereby our great profession may rise higher in our mature development, then indeed have we today cast our bread upon the waters.

The chairman desires especially to thank the Cleveland Club for the committee whose efforts have brought about so successful a convention and for the hospitalities extended to us; and he would also thank our visitors who have so kindly favored us with their views.

Gentlemen, I thank you for the honor you have conferred on the delegate from the Western Society of Engineers as presiding officer of this the first organized effort of our engineering societies to accomplish a great national purpose.

Association Notes.

MEETINGS.

WESTERN ASSOCIATION OF ARCHITECTS.—Convention will be held November 17, 1886, at Chicago.

ILLINOIS STATE ASSOCIATION OF ARCHITECTS meets the first Thursday of every month, at 15 East Washington street, Chicago.

MISSOURI STATE ASSOCIATION OF ARCHITECTS meets at Kansas City on the second Tuesday in January, 1886.

KANSAS CITY SOCIETY OF ARCHITECTS meets Saturday afternoon of each week. Annual meeting second Saturday in April, 1886.

THE ARCHITECTURAL ASSOCIATION OF IOWA meets second Wednesday of January, 1886.

THE ARCHITECTURAL ASSOCIATION OF MINNESOTA meets every other Tuesday at Minneapolis and St. Paul alternately.

THE ARCHITECTURAL SKETCH CLUB, of Chicago, meets every alternate Monday; Builders & Traders' Exchange.

THE WESTERN SOCIETY OF ENGINEERS meets the first and third Tuesdays of each month at 4 o'clock P.M., at 15 East Washington street, Chicago.

THE MASTER PLUMBERS' SOCIETY, of Chicago, meets first and third Wednesdays of the month, 7:30 P.M., at 15 East Washington street.

ILLINOIS STATE ASSOCIATION OF ARCHITECTS.

The regular monthly meeting was held on Thursday, the 3d instant, President D. H. Burnham in the chair.

After the approval of the minutes of the previous meeting, as read by Secretary L. H. Sullivan, that officer read letters of acceptance of honorary membership, from C. E. Illsley, of St. Louis; A. Van Brunt, of Kansas City; I. Hodgson, of Minneapolis, and De Witt C. Cregier and Alexander Kirkland, of Chicago.

C. L. Stiles, secretary of the executive committee, reported as follows: Ordered, that the schedule of charges formulated by the American Institute and adopted by the Western Association, be adopted by the Illinois State Association, and ordered printed.

The president stated, in regard to the bill adopted by the Western Association, to be placed before state legislatures, that the executive committee had laid the matter aside for the present, as the Illinois Legislature did not meet for a year. The matter would, however, be taken up later.

The executive committee also reported the names of Dr. Oscar De Wolf, health commissioner; S. G. Artingstall, city engineer, and G. P. Brown, of the *Sanitary News*, as honorary members. The names were accepted by the association.

D. W. Burnham made the following motion:

Resolved, That the secretary be instructed to notify the new honorary members of their election and also that in conferring this honor they were expected and especially requested to be present at the monthly meetings of the association.

The motion was carried.

C. L. Stiles, secretary of executive committee, submitted the following, in the shape of a resolution made by Mr. Adler at the meeting of that committee:

Resolved, That it is the sense of this association, that when the supervision of a building is in charge of one of its architects, such architect shall be the sole judge of the extent and nature of the same, and that supervision by him is never to be construed to mean that continuous superintendence which may be secured by the employment of a clerk of the works.

The resolution was adopted as read.

In regard to the disposal of the reserve fund, the executive committee asked for further time.

No further business being presented, Mr. Cushman was introduced by the president, who stated that the gentleman was a director in the Chicago Anderson Pressed Brick Company, and would read the paper on the efflorescence of pressed brick walls prepared by Mr. J. C. Anderson, of that company, that gentleman being present, but too ill to bear the fatigue of reading.

The paper is given in full upon page 98 of this number.

At the close of the reading of this paper, the president said:

We have to thank you for a very clear and comprehensive paper, which is thoroughly appreciated by this association, and if at a future date you carry your investigations farther we would be pleased to hear you again on this interesting subject, or upon any other you might be inclined to speak upon.

These remarks were followed by a vote of thanks to Mr. Anderson, proposed by Mr. Adler.

A general discussion followed.

Mr. Jenney asked if Mr. Anderson had experimented in vinegar? who replied, that it was more liable to evaporation and would bring out the exudation almost instantaneously for that reason.

Mr. Anderson further stated, that in all brick firing there is always some ash that escapes and is left on the brick, and this has a great affinity for acids, being the strongest alkali. He advised washing with pure water and then with linseed oil.

Mr. Burnham said: You have little faith in silicate wash?

Mr. Anderson replied: No; walls should also be kept covered at all times with canvas, both at top and sides, during erection.

Mr. Druiding related an experience with a building in Munich, in which the main walls were first erected, and recesses left for bonding, and then the space between pressed brick and the wall filled with plaster of Paris.

Mr. Anderson, in reply to questions regarding the quantity of saits in pressed brick, said that it was liable to occur in clays formed by washings of the great rivers from the alkali plains of the West, but that the closest analysis could not discover any perceptible amount in the St. Louis pressed brick.

Further discussion developed the fact that the remedy was largely in the construction; that water should be kept from the brick, and mortar was like powder—it should be kept dry.

The president announced that James John, a prominent plaster contractor and member of the Builders and Traders' Exchange, was present and would show an asbestos cement.

Mr. Burnham explained: "When we were at St. Louis we met there a young architect named Hellmers, an exceedingly bright man, who had been on to Boston to investigate this material, and it was through his description of it that Mr. John was invited to exhibit it."

Mr. John said he had no personal interest, except to see a valuable material introduced, and showed several samples of the material in different forms: the raw asbestos, that in mortar form, the adhesive quality of the mortar, using a glass surface to illustrate; a piece of the mortar two weeks old, spread upon iron lath, which was only cracked by the iron giving way, etc.

Mr. John said that the manufacturers claimed that it would not freeze in setting at a temperature of zero. The mortar was composed of about three parts of sand and one of asbestos; or, asbestos, sand, silicate of soda, and potash, mixed. The cost was about equal to that of wire cloth or lath. It could be placed for about 60 cents per yard, including iron lath.

After some further discussion, in which the application of this mortar to pressed brick work was spoken of as the remedy looked for in the subject of Mr. Anderson's paper, the meeting adjourned.

Among the visitors already mentioned, was Architect L. D. Grosvenor, of Jackson, Michigan.

THE ARCHITECTURAL ASSOCIATION OF MINNESOTA.

The thirty-seventh regular monthly meeting of the association was held in the rooms of the Northwestern Permanent Exhibit in Minneapolis, Minn., on Tuesday, December 1st, 1885. Vice-President Millard called the meeting to order at 4:35 P. M.

The following members answered to their names at roll-call: Fellows Corser, Goodwin, Hayes, Millard, Stevens, Whitney, Wilson, Treherne, Hunt, Kelley, Junior Thompson, and Honorary Members Baldwin and Farnham.

The minutes of the last regular meeting and the special meeting of November 9th were read and approved.

The Treasurer reported the sum of \$34.35 in his hands and that several members were in arrears. The report was accepted.

The Committee on Membership reported favorably upon the names of Chas. E. Joy, of St. Paul, for fellow; J. B. Hawley, of St. Paul; W. H. Dearborn, of Hamline; Geo. W. V. Yule, of St. Paul; Samuel Rockwell, of St. Paul; W. A. Truesdell, of St. Paul, for associates; and Dr. Talbot Jones, of St. Paul, and L. W. Rundlett, of St. Paul, as honorary members.

The special committee to determine the meaning of the term "sketches" and to formulate a scheme of professional conduct and charges in the matter of competitions and the like, reported that they had had several meetings, and concluded that anything that shows the character of a building should be considered a "sketch," whether it be executed in pencil, ink or color. They further reported that the matter of professional conduct with reference to competitions had been left open, since the committee thought the matter would be more thoroughly and better discussed at the St. Louis convention.

Upon motion the report was accepted.

The special committee on plumbing, to whom was given the consideration of the matter of fresh air inlets in drain pipes, and the best means of ventilating these pipes, in view of the severity of our winters, reported that they were generally of the opinion that fresh air inlets are generally a good thing, but would advise that the size of the inlet pipe be reduced to two inches in place of four inches as required by the building ordinance of St. Paul. After a general discussion the report was accepted.

Mr. Wilson desired to know the sense of the meeting as to what policy the architect should pursue in protecting clients against liens filed for unpaid debts of contractors, and what vouchers could be reasonably required.

Mr. Treherne moved that the meeting go into committee of the whole to discuss the subject. Carried.

A recess was taken and the matter discussed by Messrs. Whitney, Corser, Millard, Wilson, Goodwin and Treherne, but no satisfactory determination was arrived at.

The meeting being again called to order the committee to make arrangements for a public meeting to discuss and revise the St. Paul building ordinance reported that they had held consultations with the building inspector, and that he had sent out or was about to send out to all the architects and the leading builders copies of the ordinance arranged for annotation, with the request that those receiving them should suggest possible changes and improvements. Later in the season the matter will be again taken up and publicly discussed.

The report was accepted.

The secretary read a communication from Fellow J. W. Stevens resigning his membership in the association.

Mr. Treherne moved that the communication be laid on the table. Mr. Goodwin moved to amend that the resignation be not accepted.

Mr. Stevens explained his position with some earnestness. He maintained that things had come to such a pass in the association that he had concluded it was time to cut adrift from it. Things were not as they should be, and as he did not wish to set himself up as a reformer and thus create enemies for himself and make himself a target for everybody to shoot at he thought he had better resign. He did not care to be considered the associate of certain architects, members of the association, who ignored the schedule of charges and the principles established by the asso-

ciation, and who were guilty of unprofessional conduct. He knew in one case of a party who had offered to take work at one-third of one per cent, but lest his statement might be thought to be a case of sour grapes, he would state that the work was given to him at full rates. He was of the opinion that nine-tenths of the work done in St. Paul was taken at half what it ought to bring.

He further brought up the practice of "running around after jobs," unprofessional conduct in competition, taking work for nothing for the sake of advertisement, and other practices followed by certain members of the association. Incidentally he mentioned the case of one architect, though not a member of the association, who freely stated that he did not care if he received nothing for the plans provided he had the letting of the contracts. He wanted the standard of conduct and charges maintained by some means, but doubted if the association would insist upon it since several committees had been appointed for various purposes and nothing had been heard of them further.

Mr. Goodwin was in favor of reform and wanted Mr. Stevens to stay and head it.

Mr. Treherne deprecated Mr. Stevens' determination to resign, and said that several of the prominent and active members were dissatisfied with the way things were going, and that he feared that if the resignation were accepted other members would follow the lead and the association would go to the wall. He was in favor of stringent measures and of expelling any members who were even suspected of unprofessional conduct. This would create some hardship perhaps but would raise the standing of the association and make its members very careful not to depart from the straight path of professional ethics.

Mr. Whitney said he knew of many instances such as had been hinted at, and advocated summary treatment of the guilty parties. Messrs. Corser, Goodwin and others present spoke in the same vein and deprecated Mr. Stevens' intention of resigning, and upon the question being called, a unanimous vote not to accept the resignation was taken.

Mr. Baldwin proposed the names of Frederick E. Hoover, architect, of Minneapolis, as fellow, and L. Jepson, architect, of Minneapolis, as fellow. The names were referred to the Committee on Membership.

In the balloting for members, Mr. Charles E. Joy received nine votes in the affirmative and none in the negative, and he was declared duly elected a fellow.

Mr. Goodwin moved that the secretary be instructed to cast the affirmative vote of the association for the candidates for associate and honorary membership reported upon favorably by the Committee on Membership. The motion was carried.

Mr. Corser read a paper upon "a proposed remedy for the awkward and conflicting ways of measuring building work and materials."

Mr. Goodwin moved a vote of thanks to Mr. Corser, and that his paper be published in the *Northwestern Architect*, which was carried and the meeting then adjourned.

CHICAGO ARCHITECTURAL SKETCH CLUB.

The club at its regular meeting, November 9, enjoyed an evening devoted to an interesting talk by Mr. Harry Lawrie, on the study and application of moldings and cornices in relation to styles of architecture and their position on the building. He commenced by sketching in profile the early Greek moldings, and pointed out their extreme delicacy and subtlety of curve and profile, and from thence to the Roman profiles, which were illustrated by blackboard sketches, their detailed parts being explained in relation to their height above the eye, and their utilitarian purposes. In commenting upon the moldings used during the Romanesque period Mr. Lawrie showed how the gradual transition from that to the early English period of Gothic architecture was traced. During this latter period, he said, the beauty of the groupings of rounds, hollows and fillets was illustrated, showed to what perfection the play of light and shade was brought, showing how moldings and combinations of moldings could be used in modern architecture to the best possible advantage, taking into consideration the clear atmosphere of this country, and their proper disposition in relation to the height above or depth below the eye. In conclusion comparative illustrations were given of profiles from examples of ancient architecture of different styles in which refinement of line and harmony in composition were predominant, as against those of later periods in which grossness of profile and bad proportion were conspicuous.

In the discussion which followed, interesting and instructive remarks were made by George Beaumont and J. H. Carpenter and other members.

The meeting of November 23 was called to order by President J. H. Carpenter, and upon request the roll of membership was read by the secretary. The roll showed a membership of 43.

The first business was the consideration of the action of the Western Association of Architects at the recent convention. Remarks were made by several members with a view of placing the convention's action, in not allowing the mantel competition to become a part of the convention's proceedings, in the proper light.

After the appointment of M. H. Church and T. O. Frankel as committee to audit the treasurer's accounts the club proceeded to the election of officers.

On motion the club resolved itself into a nominating committee, and Harry Lawrie and Irving K. Pond were appointed tellers of election.

The result of the election was: President, Harry Lawrie; first vice-president, George Beaumont; second vice-president, J. H. Carpenter; secretary, W. G. Williamson; treasurer, C. A. Kessell. In forming the executive committee Irving K. Pond and M. H. Church were elected, and upon motion R. C. McLean was added to this committee, Mr. McLean thanking the club for the honor and assuring the members that as an officer and the representative of the club's official journal, *THE INLAND ARCHITECT AND BUILDER*, he would continue to do everything possible to further the interests of the club.

Upon motion by Mr. McLean a vote of thanks was passed to the retiring president, Mr. Carpenter, for his work in the organization and conducting of the club.

Mr. Lawrie in a few pleasant remarks accepted the office of president and then called upon the newly elected officers to take their places.

Remarks were made by members complimentary to Mr. Carpenter and THE INLAND ARCHITECT for the work of organizing the club, followed by remarks from the different officers.

A vote of thanks was passed which included the *Sanitary Engineer* of New York, the *Sanitary News* of Chicago, the *Building Budget* of Chicago.

The report on the mantel competition, as announced by the committee appointed by the president at the late convention, was read as follows:

The mantel competition for prizes offered by the St. Louis Hydraulic Pressed Brick Company resulted as follows: Wood and brick mantels—First prize, \$30, Harry Lawrie, Chicago; second, \$20, Theodore O. Frankel, Chicago; and third prize, \$10, John Van Brundt, Kansas City. Brick mantels—First prize, \$50, Emile Gremmer, St. Louis; second, \$30, Charles Sheppard, Des Moines, Iowa; third, \$20, C. A. Kessell, Chicago. The committee on wood and brick mantels was composed of J. F. Alexander, of La Fayette, Ind., chairman, and Messrs. Josselyn, Sullivan, Wood and Annan, and the committee on brick mantels of C. K. Ramsey, of St. Louis, chairman, and Messrs. Wearey, Root, Haskell and Sidney Smith. John Vees, of St. Louis, received honorable mention for a wood and brick mantel.

After remarks by President Lawrie upon the present condition and future work of the club the meeting adjourned.

At the meeting of the club, December 7, the executive committee reported a programme for the year, which included papers to be read upon six practical subjects, six papers on art subjects, and eight competitions. The entire syllabus for the year being still incomplete, will be printed in another issue. The subject for Monday night, the 20th instant, is Foundations, by Harry Lawrie.

The report of the secretary, W. G. Williamson, was read and accepted. The subject for an hour's sketching was a window. The sketches were made on blocks and some very practical as well as unique ideas were developed.

MILWAUKEE ARCHITECTURAL CLUB.

On Saturday evening, November 14, a number of draughtsmen met and organized the Milwaukee Architectural Club, with Alfred Claus as president pro tem., and Chas. Barkhausen as secretary pro tem. Two committees, of three each, were appointed for general arrangements and by-laws. The chairman of the latter deputed Mr. Dwight E. Greene to communicate with THE INLAND ARCHITECT AND BUILDER for information about the Chicago Architectural Sketch Club. The most important questions discussed during the session were the advisability of a charter and charter members, and the distinction to be made between architects and draughtsmen. We congratulate the Milwaukee Architectural Club upon the success of its first meeting, and assure its members of our hearty coöperation in the good work they have started.

Our Illustrations.

The Doro palace, or, as it is best known, the Ca' d' Oro, Venice, sketched by Irving K. Pond.

Diagrams illustrating foundations in a compressible soil. By W. L. B. Jenney, Architect.

Gate lodge. Third prize design in the Chicago Architectural Sketch Club competition by R. B. Williamson, Chicago.

Residence for Mrs. Oatman. Wheelock & Clay, Architects, Chicago. Residence for W. I. Beman, Hyde Park, Ill.; by W. J. Dodd, Architect, Chicago.

Residence for G. E. Wood, J. C. Cochrane, Architect, Chicago. Competitive design for a Grant Memorial, Chicago; W. B. L. Jenney, Architect.

Residence for Mrs. A. J. Mereness, Lake View; Addison & Fiedler, Architects, Chicago. Cost, \$4,500.

Communications.

VALPARAISO, Ind., November 6, 1885.

J. C. Cochrane, Architect, Chicago:

DEAR SIR,—As our new court house is completed to the entire satisfaction of our Board of Commissioners, I desire, on behalf of the board and our citizens generally, to express to you the high esteem in which you are held by us and the people of our county as an architect of the highest ability and a gentleman of undoubted honor and integrity. Your plans and specifications have been carefully and correctly drawn, and complete in every detail; the interests of the county have been closely guarded by you from the commencement of the enterprise to its successful completion, and we have not had the slightest reason to regret your selection as architect, upon your own terms.

In conclusion I desire to say that in your specialty—court house architecture—we believe you are unequaled anywhere.

L. P. SCOTT,

Chairman Porter County Board of Commissioners.

[We print the above as a voluntary expression of approval of an architect's services it also serving as forcible proof of the wisdom of employing an architect, giving him the regular commission for his services, and leaving the work entirely in his hands. We congratulate Architect Cochrane, as well as the citizens of Porter county, upon the erection of their court house at their beautiful county seat. When Seph Wolfe, of that county, ten years ago looked at the iron fence surrounding the square, and said: "I'd like to have that fence around my little patch" (a farm of 3,500 acres), if he had seen this court house he might have wished for that, too, instead of the handsome residence he built about that time.—EDITORS INLAND ARCHITECT AND BUILDER.]

Mosaics.

THE "New Departure Specification" is worth examining. Send 25 cents for a specimen copy.

MESSRS. ALFRED CLAUS and Chas. Barkhausen, the president and secretary of the Milwaukee Architectural Club, visited Chicago last week in the interests of the club.

THE fireproofing of the Northwestern Insurance Company's building at Milwaukee, of which S. S. Beman is architect, is being placed by the Haydenville Mining and Manufacturing Co. of Chicago.

THE Merritt asbestine plaster, of which an exhibit was made before the last assembly of the Illinois State Association of Architects, shows many qualities of value besides that of being a superior plaster. Its ingredients are fireproof, and it has the tenacity and solidity of cement. It is made by Morris & Ireland, Boston, Mass.

NOTICE has been received that the partnership heretofore existing between H. S. Keely and S. H. Smith, under the name and style of The Woodworker Co., of Indianapolis, Ind., is this day dissolved, Mr. Keely retiring. The business will be continued by S. H. Smith, who assumes all the indebtedness of The Woodworker Co., and to whom all outstanding accounts are to be paid.

THE brownstone quarries of H. Hartley, located near Washburn, Wis., have been worked to a depth of 21 feet, and the excellence of the material seems to be very uniform. About 48,000 cubic feet have been taken out, and some splendid specimens of the stone may be seen in the Collom Block on Fourth street, in the Corn Exchange, Minnesota Hospital College, and many other buildings in Minneapolis. The rich brown color of the stone is a favorite with architects and is in good demand.

THE Western Mineral Wool Co., of Cleveland, Ohio, is manufacturing, under patents of the United States Mineral Wool Company, a mineral wool of superior quality. This product is valuable for insulation of heat, protection against frost, prevention of spread of fire, freedom from rats, mice and insects, deadening of sound. It is used extensively for filling up the hollow walls in buildings. It keeps the temperature uniform, saves largely in the expense of heating; renders the walls and floors exempt from the conducting of sound, and is destructive to the presence of vermin and insects. Being completely non-combustible it is very valuable for fireproofing. As a non-conducting covering for steam pipes, boilers, drums, hot air and blast pipes, and all heated surfaces, and as a protection against frost for water pipes, mineral wool is very useful.

AMONG the fast trains for which the great Pennsylvania Railroad has become famous, that which makes the day trip between Pittsburgh and Chicago deserves a word of commendation. The trains from Boston, New York, Philadelphia, Baltimore and Washington all arrive at Pittsburgh before the departure of this train—which is known as No. 9—so that it thus makes all the eastern connections. It leaves Pittsburgh at 7:30 A.M., and arrives in Chicago at 9 P.M., making the run of 468 miles in 13½ hours, and this fast record is maintained, though stops are made at all the principal points along the route. This is the fastest day train between Pittsburgh and Chicago, and hence those who are "posted" always seek to secure passage by this train. The popularity of the Pennsylvania is due not alone to its safe and rapid transit and superior equipment, but in no small degree to the courtesy and ability of the officers who manage its various departments. Mr. J. R. Wood at Philadelphia, and Mr. E. A. Ford at Pittsburgh, are the general passenger agents of the road.

THE Chicago Tribune, a leading as well as one of the most conservative newspapers in the country, says in a recent issue: "The November issue of THE INLAND ARCHITECT AND BUILDER, the official organ of the Western Association of Architects, contains ninety-two pages, and is probably the most handsome as well as the largest number of an architectural journal ever issued in the United States. Beside an illustrated article upon Rome, by Irving K. Pond, it contains numerous illustrations, notably that of the new Studebaker building, under construction on Michigan avenue. The special feature of this edition is the verbatim official report of the recent convention of the Western Association of Architects at St. Louis. THE INLAND ARCHITECT, as the journal of western architects, is doing a large and important work, and in its present handsome form is attractive likewise. It has recently added a semi-monthly news edition, which contains the latest and more important association and building news." The scope of the Tribune is indicated by the fact that we have heard of this flattering comment from Philadelphia and New York.

Synopsis of Building News.

THE BUILDING SITUATION.

Architects, iron makers and railroad builders have excellent means for ascertaining the most probable future course of trade. Very few persons are apprehensive of any depression during the winter or spring. The general current of opinion is in favor of greater activity. No matter what course trade may take the hind sight philosopher will be able to furnish abundant reason for the observed results. Improved conditions are always preceded by certain silently operating causes. One of the most important of these causes is the accumulation of capital; another is the discounted probability as to the future silver and banking policies of the government. Another is the accumulation of purchasing capacity among the masses. The occasion for extreme economy does not exist today as it existed a year ago. The cheapness of building and railroad material, the cheapness and abundance of money, the outflow of population to newer sections, the anxiety of capital to be employed, all points to the increased activity in many directions, such as house and manufacturing plant building and railroad building. The extension of small shops westward and southward is a very significant movement. The development of valuable coal mines throughout the extreme Northwest is another. The multiplication of railroad facilities will stimulate the dispersion of population. All these facts are pointing to broader building and manufacturing operations next year. The iron and steel mills, and bridge works are receiving orders daily. The Bessemer iron makers at home are well sold up, and the English Bessemer importers now are busy. The iron trade has gained an advance and will keep it. The lumber manufacturers and dealers

have filled their yards and timber men are preparing for a heavy winter cut. Makers of machinery, engines, boilers, lathes, etc., are busier now than in September, because of the heavy orders, which an active fall trade encouraged. The western nail makers will continue the lookout against their workmen. The pipe makers are crowded with orders. Paint manufacturers are enlarging their capacity in the eastern states. Manufacturing corporations are springing into existence through several western states. Taking all the facts bearing on the building situation it can be asserted with safety that the requirements for 1886 will be larger than in 1885. Preparations for a heavier production are being made in nearly all industries. The increase will help to maintain the sharp competition of the past two years.

Details as to probable building activity are encouraging. Throughout the Northwest there are abundant and unmistakable evidences of greater activity. The agricultural interests are prospering and will continue to prosper. Much mining machinery has been ordered in Pennsylvania and New Jersey shops for the mining regions. The railroad interests are prepared to do a large amount of railroad work. Bridge building will be pushed. Wheat culture, great as it is, has not reached its limits. The great remote Northwest is inviting enterprise. Chicago is the natural base of the great operations to be prosecuted in this new region, rich in undeveloped resources.

Congress will no doubt enter upon the discussion of questions which most business men would prefer to let remain unsettled. Legislators are anxious to do something and law making is their business. The behests of the business men are much more respected now than a few years ago. Besides our commercial and industrial organizations have been perfected, and are now in such shape that the business intelligence behind them can be brought to bear on conservative action and results in congress, should extreme or ill-advised legislation be threatened.

Albuquerque, N. M.—Building outlook is improving and present indications are that considerable building will be done in this city next season.

Architect J. B. Randall reports: For B. P. Schuster, two one-story brick cottages, 44 by 60 feet; cost \$6,000; under way. For E. Medler, builder. For Adolph Otero, three one-story brick cottages, 27 by 45 feet; cost \$7,500; ready to let contracts. For W. S. Woodside, two-story store building, 34 by 80 feet; cost \$7,500; under way. J. M. Scott, builder. For R. E. Twachtell, one-story brick cottage, 28 by 70 feet; cost \$4,500; ready to let contracts.

Bismark, Dak.—Architect W. L. Dow, of Sioux Falls, Dakota, reports: For the territory of Dakota, one-story and basement brick boiler house and laundry, 42 by 70 feet, also temporary yard wall; cost \$6,000; completed. For Presbyterian Society, brick church and chapel, 48 by 90 feet; cost \$16,000; under way.

Chicago, Ill.—During the past week the exceptionally fine weather has broken, and snow and rain practically putting a stop to all outside work. Considerable of the larger class of work will be carried on under cover, notably, three office buildings by Burnham & Root.

The foundations of the "Rookery" building for the Central Safe Deposit Co., which will cost not less and probably some hundred thousand dollars more than \$1,000,000, are being excavated, the entire lot being under roof. The Commerce building, an eight story office structure, 45 by 90 feet, cutstone front, on Pacific avenue, is also to be carried on in this way, and also the Phoenix Insurance building on Clark and Jackson streets.

Patton & Fisher report: Four houses on Ellis avenue for W. S. Walker, to be built of a fine quality of Harris Bros.' Janesville brick, with Vert Island red sandstone trimmings, to cost \$16,000. Also two cottages for S. E. Gross, on Sacramento street and Gross Terrace, brick; to cost about \$1,300 each. Also two-story addition to the factory of the Webster & Comstock Manufacturing Company. Also contract being let for a mission church on Warren avenue and Albany avenue, for the First Congregational Church; to cost \$16,000.

Architects Adler & Sullivan report: Two houses on Michigan avenue, near Eighteenth street, for Walter L. Peck, 26 feet front, 75 deep, stone front; to cost \$18,000. Also remodeling the Springer building, southwest corner State and Randolph streets. The character of the improvement not yet fully decided upon. Also making plans to adopt the Exposition building at Milwaukee, Wis., to the use of the Sangerfest to be given by the Milwaukee Musical Society in the spring. The prospect for the coming year for this firm indicate an extremely busy one, judging from the work already projected.

Architect L. G. Hallberg reports: Presbyterian Mission Chapel building, 65 by 90 feet, 310-14 West Erie street, Indiana pressed brick, stone trimmings; cost \$20,000; under way. Tobias & Co., builders. For Dr. E. F. Ingalls, two-story dwelling, 505-7 West Adams street, pressed brick, frontstone trimmings; cost \$20,000; under way. Wm. Helt & Co., mason contractors. For Women's Hospital, two-story building, 100 by 52 feet, 3152-58 Rhodes avenue, Indiana pressed brick and stone; cost \$25,000; under way. Anton Carlson, mason contractor.

Architect S. V. Shipman reports: For A. M. Fuller, two three-story stone front stores and flats, 50 by 65 feet, 620-622 West Van Buren street; cost \$15,000; excavating. Wm. H. Hiffmann, J. W. Cassell & Co., carpenters.

Architect Wm. Zimmerman: For M. B. Hair, two three-story dwellings, 43 by 62 feet, Adams street and Oakley avenue; cost \$12,000, George Lehman builder. For George F. Crane, two three-story dwellings, 50 by 70 feet, on Drexel boulevard near Forty-second street, cost \$21,000; A. Lanquist, mason, M. Terbot, carpenter.

Architects Froman & Jebson: For M. Cohen, three-story club house, 50 by 120 feet, 531-33 North Wells street; cost \$20,000; Indiana pressed brick, Lemont stone trimmings; under way. John Mountain, contractor.

Architect Henry Rehboldt: For M. Keating, two three-story stone front dwellings, 40 by 73 feet, 3143-45 Vernon avenue; cost \$15,000; McGraw & Earth, contractors.

Architect E. Baumann: For G. W. Smith, five-story warehouse, 40 by 100 feet, at 192-94 Michigan street, Anderson pressed brick, Lemont stone trimmings; cost \$16,000; John M. Murphy & Co., and C. H. Blair contractors.

Architect John Dillenberg: Two-story addition to Sacred Heart Convent on Taylor street, 60 by 105 feet; cost \$18,000; John Conway mason, B. Heeney carpenter. For J. Schmidt, two-story store and flats, 22 by 63 feet, corner of Ogden and Western avenues; cost \$4,000; under way.

Messrs. Geo. Lehman & Sons, builders, are erecting for themselves a four-story store and flat building at 588 W. Harrison street; cost \$12,000.

Mr. S. G. R. Bishop, of Maywood, Ill., has planned for himself a block of five two-story dwellings, 80 by 64 feet, 153-61 Oakley avenue, Indiana pressed brick, stone trimmings; cost \$25,000; under way. H. Zander, builder.

Architect H. D. Deam: For John Baker, two-story pressed brick and stone front dwelling, 24 by 60 feet, 1007 West Adams street; cost \$5,000; under way. M. Holec, builder.

Architect Julius Zittel: For Jacob Walter, three-story store and flats, 25 by 75 feet, 144 Thirty-fifth street, Indiana pressed brick and Lemont stone trimmings; cost \$10,000; under way. John McCarthy, mason, M. Jennings, carpenter.

Architect P. W. Kuehl: For Joseph Winterbotham, three-story store and flats, 30 by 102 feet, 357 Fifth avenue, pressed brick front, Lemont stone trimmings; cost \$7,000; under way. John Togassen, builder.

Architects Holabird & Roche: For H. H. Brown, three-story stores and flats, 82 by 120 feet, corner Polk street and Ogden avenue, St. Louis pressed brick front; under way. W. A. and A. E. Wells, builders.

Architect W. A. Arnold: For L. R. Giddings, three three-story stores and flats, 112 by 48 feet, 435-43 West Lake street, Indiana pressed brick with Bedford stone trimmings; cost \$15,000; T. C. Goudie, builder.

Architect W. L. Carroll: For J. Webb, four two-story dwellings, 72 by 60 feet, 878½-82 West Adams street, Indiana pressed brick, Lemont stone trimmings; cost \$18,000; under way. J. Webb, builder.

Architect C. W. Warneke: For Roger Plant, Jr., three story pressed brick and stone store and flats, 22 by 90 feet, 531 South Clark street; cost \$6,000; under way. A. Vanovski, mason, J. Hall, Carpenter. For A. Doughty, two-story livery stable, 56 by 140 feet, on Webster avenue; St. Louis pressed brick front; cost \$11,000; Fred Kirchoff, builder. For A. Doughty, three-story store and flats, 48 by 70 feet, on Webster avenue; Tiffany pressed brick and terra-cotta front; cost \$8,000; projected.

Cincinnati, O.—The following is reported by the secretary of the Builders' Exchange:

As the winter months roll around it becomes more and more difficult to glean news items on building improvements, from the fact that the present work has already been reported and is receiving the finishing touches.

The people of our city have thrown off their lethargic spell, as the many new buildings—stores, residences, etc., testify to, and beginning to realize that a fine building, well built, costs less and makes a better appearance than a poor cheap one. It is unnecessary to mention separately these, but let it suffice, and "be it recorded," that Cincinnati, has indeed, and very perceptibly, taken a stride forward architecturally, and that she possesses her full quota of competent and intelligent architects.

The latest projected improvement is a block of two stores on Fourth street, near Central avenue, to be of stone, six stories high, to occupy a space 40 by 90 feet.

Our Builders' Exchange has formulated a new code of building laws, composed of extracts from laws of different cities. This is a most important step, the exigencies of the times compelling such to be taken.

Architects Plympton and Trowbridge report: A residence for F. C. Olendick, Esq., 2½-stories high, 7 rooms, laundry, with shingle roof. The building is to be half timber and shingle. Although the house is low-priced, \$2,800, it is quite convenient and has a stylish appearance. The crematory planned by these gentlemen is well under way, and when completed will reflect great credit on them.

Architect Samuel Hannaford, reports: For the First National Bank, Vevay, Ind., a brick and stone bank building, two stories high. Contract not let. For D. W. Belding, Esq., a brick residence of 13 rooms, hardwood finish, slate roof, etc.; cost \$12,000. For E. G. Rathbone, Esq., Hamilton, Ohio, a pressed brick building, containing three stores, flats and a Masonic hall; size 100 by 100; cost \$50,000. For H. & S. Pogue, Walnut Hills, a brick building for flats, with tin roof; cost \$12,000. Time well employed.

Architect H. E. Siter, formerly with E. Anderson of our city, and before that with E. B. Thayer, Boston, has opened up an office. He is an architect of ability and will have his time well occupied.

Architect George W. Rapp reports: For W. Stichtenoth, a pressed brick dwelling, hardwood finish, slate roof. House contains ten rooms, 2½-stories high; cost \$15,000. Remodeling residence for W. W. Scarborough, Esq., Walnut Hills, City. Remodeling residence for J. D. Koch, Esq., city. Prospects good.

Architect Edwin Anderson has finished a set of plans, and the work is now under way, for A. J. Mullane, Esq. The improvements consist of alterations and addition to an old building on Fourth and Plum streets. There will be an ornamental front, three stories high, of stone, with a recessed bay window. The front store will be 25 by 60 feet, back of these will be two smaller ones. Between the front and back stores will be an entrance for the flats above. The whole is well planned. Prospects good for spring work.

Clinton, Mo.—A \$50,000 court house is now being talked of for this (Henry) county. It is thought a building that can be built for this amount will not be large enough, however, and no definite action has been taken.

Work is being pushed on the Methodist church and the building will soon be inclosed. It will be completed in the spring; R. Yungar, contractor. Other building is practically closed down for the season.

Creighton, Neb.—Outlook for next season is good.

Architect N. L. Raymond, reports: For F. J. Fox, one-and-one-half-story dwelling, 20 by 28 feet; cost \$4,000; under way. U. L. Raymond, builder. Also several buildings, to cost less than \$4,000 each, under way.

Dell Rapids, D. T.—Architect W. L. Dow, of Sioux Falls, D. T., reports: For G. A. Uline, two-story brick store building, 22 by 80 feet; cost \$4,500; completed; G. H. Augstead, builder.

Detroit, Mich.—There is very little in shape to report. Still the present condition appears good, and the outlook better.

Architects Donaldson & Meier report: For E. H. Flynn, two-story dwelling, 40 by 70 feet, brick, stone trimmings, slate roof; cost \$15,000; Tapping & Fisher, builders. For L. L. Farnsworth, two-story frame residence, 32 by 64 feet; cost \$4,500; J. P. Smith, builder. For W. H. Bronson, two-story residence, 28 by 65 feet, brick, stone trimmings, slate and tin roof; cost \$6,000; M. Scholl & Son, builders.

Architect A. C. Varney reports: For Wm. B. Wesson, three-story store building, 25 by 70 feet, brick, stone and terra-cotta trimmings; cost \$4,500; F. Shiber, mason; Conrad Schwartz, carpenter. For Methodist congregation, chapel, 30 by 60 feet, brick, stone and terra-cotta trimmings; cost \$4,000; projected.

Architect G. W. Lloyd reports: For Cass estate, five-story hotel building, 161 by 140 feet, brick, stone and terra-cotta trimmings; cost \$70,000; projected. W. H. Holland & Son, builders, are erecting for Mr. Edwards, two two-story dwellings, 50 by 73 feet, brick, stone trimmings, slate roof; cost \$9,500. Also two two-story dwellings, 25 by 70 feet, brick, stone trimmings, slate roof; cost \$8,000.

Mr. S. J. Martin is building three two-story brick and stone dwellings, 62 by 62 feet; cost \$9,000.

Mr. J. Laupke is erecting a two-story store and dwelling, 25 by 60 feet, brick; cost \$4,000; Begrin & Dolecki, builders.

Mr. Peter Raths is erecting three two-story stores and dwellings, 60 by 60 feet, brick; cost \$7,500; H. S. Peoples, builder.

Mr. C. D. Morgan is erecting two two-story frame dwellings, 40 by 60 feet, tin and slate roof; cost \$15,000.

Building permits were issued during November as follows: Permits for new buildings, \$231,730. Permits for alterations and repairs, \$12,025. Total for the month, \$243,755.

Frankfort, Ind.—Building season is practically closed. Outlook is not flattering.

Architect J. W. Hammond reports: For city of Frankfort third ward school building, two-story brick and stone, eight rooms; cost \$12,000; under way. A. A. Bayley, builder. Also, smaller buildings; costing \$4,800; under way and completed.

Marselles, Ill.—Architect A. W. Allen reports: For P. A. Butterfield, store building, 25 by 100 feet; cost \$3,000; under way. J. F. Morgan, builder.

Minneapolis, Minn.—Architect C. F. Struck reports: For W. W. Price, double house, stone first story, frame second story, 36 by 53 feet, on Thirteenth street near Nicollet, cost \$4,500. For Theo Jassoy, store building, stone first story, brick veneered second story, 80 by 100 feet, at Stillwater, Minn. For J. L. Rush, frame dwelling house at Chippewa Falls, Wis.; cost \$4,000. For W. R. O'Hearn, frame dwelling house at Black River Falls, Wis.; cost \$5,500.

Architect J. W. Kelly reports: For H. Thomas, dwelling house, brick veneered first story, shingled second story, 40 by 60 feet, on Park avenue; cost \$6,000. For C. T. Harris, dwelling house, brick veneered first story, frame second story, 40 by 60 feet, in Berry and Badger's addition; cost \$6,000. For Kerrick and Danforth, frame dwelling house, 50 by 70 feet, in Oak Lake addition; cost \$6,000.

Architect W. H. Hayes reports: For the Swedish Methodist Church, brick and frame parsonage of 12 rooms, 30 by 60 feet; cost \$5,000. He also has several small residences upon the boards costing from \$2,000 to \$3,000.

Architect W. A. Hunt reports: For A. D. Eads, frame residence, 32 by 42 feet, on the Bluffs; cost \$3,500.

Architect J. H. Record reports: For Carl Anderson, pressed brick and stone tenement block, three stories and basement, 57 by 50 feet, on Sixteenth avenue; cost \$12,000. For H. D. Walrath, two-story frame dwelling house, 33 by 50 feet, heated by steam, at Watertown, Dak.; cost \$5,500.

Architects Long and Kees report: For E. J. Phelps, row of seven brick houses three stories high, 60 by 125 feet, on corner of Nicollet and Seventeenth streets; cost \$30,000. For Prof. Northrup, brick residence, 43 by 60 feet, on east side; cost \$15,000. For Mr. Hastings, two-and-one-half story brick and frame residence, 40 by 55 feet, on East side; cost \$10,000.

Architects Hodgson and Son are moving into their new quarters in the Minnesota Loan and Trust Company building.

Ottawa, Ill.—Architect F. S. Allen of Streator, Ill., reports: For B. Hess, frame dwelling, 40 by 55 feet; cost \$6,000.

Pipestone, D. T.—Architect W. L. Dow of Sioux Falls, D. T., reports: For L. S. Cutting, three-story and basement hotel building, to be built of red pipestone. The portion to be erected now is 65 by 65 feet; cost \$12,000; under way. The whole building will be 65 by 150 feet, and cost \$24,000.

Sioux Falls, D. T.—Plenty of work for good mechanics, outlook for next year is better than one year ago, and it is expected considerable building will be done.

Architect W. L. Daw reports: For Territory of Dakota, two-story stone dormitory building, 50 by 70 feet, for deaf mute school; cost \$12,000, under way. E. G. Cart-r, carpenter, J. M. Mason, stone work. For Thos. U. Brown, two-story frame dwelling, 32 by 50 feet; cost \$4,000; under way. S. McCormick, builder. For Insurance Co. of Dakota, H. L. Hollister, president, three-story and basement office building, 44 by 72 feet, St. Louis pressed brick, stone basement and terra-cotta trimmings; cost \$20,000; under way.

contract for foundations only, let, Martin Johnson contractor. For Wm. Van Epps, two-story store building, 44 by 72 feet, Milwaukee pressed brick; cost \$9,000; completed; R. H. Booth & Son, builders. For Victor Hunt, two-story frame dwelling, 30 by 52 feet; cost \$4,000; completed; Jordan Bros., builders. Also, several frame dwellings, costing less than \$4,000 each, completed.

St. Paul.—The architects of St. Paul are generally busy, but claim that their work is not yet sufficiently advanced to make public.

Architect H. R. P. Hamilton reports: For Westminster Presbyterian church, frame church to seat 265 in auditorium and 150 in lecture-room. Lecture-room may be thrown into immediate connection with auditorium; finished in Georgia pine; cost \$5,000. For Highland Park Presbyterian church, at Minneapolis, frame church to seat 350; cost \$4,800; the foundation is already laid.

Architect Zschocke reports: For John Minea, brick residence, 34 by 50 feet; cost \$7,500.

Architect John Teltz reports: For Mr. McManus, two-and-one-half-story frame residence, 30 by 44 feet, on Grant street; cost \$3,500.

Architect George Wirth reports: For E. Ingalls, three-story brownstone block, 50 by 120 feet, at Duluth, Minn.; cost \$12,000.

Architects Millard & Ulric report: For Charles Mathies, frame cottage, 22 by 55

feet; cost \$3,500. For F. R. Welz, two-story brick double store, 41 by 86 feet; cost \$10,000. For A. Scheffer, remodeling residence on Dayton's Bluff; cost \$4,000.

Architect W. H. Castner reports: Small brick veneered school house in West St. Paul, 23 by 50 feet; cost \$3,000.

Architect M. L. Weiser, reports: For C. F. Meyer, three-story brick block, 50 by 110 feet, on Dakota avenue; cost \$13,000.

Architects W. H. Wilcox and Clarence H. Johnston have formed a partnership under the firm name of Wilcox & Johnston, with offices in the German American bank building.

Architect H. Sackville Treherne reports: For Clarence Jones, brick residence on Dayton avenue; cost \$8,000. For William Druse, four-story brick block, 50 by 120 feet; cost \$18,000. For J. B. Hutchinson, frame residence on Portland avenue; cost \$7,500.

Streator, Ill.—Architect F. S. Allen reports: For U. S. P. O. department, two-story brick postoffice building, 40 by 80 feet; cost \$6,500. For Schlitz Brewing Co. five three-story brick and stone store buildings, 50 by 150 feet; cost \$25,000. For Frank Whiting, frame cottage, 30 by 40 feet; cost \$2,500.

Utica, Ill.—Architect F. S. Allen, of Streator, Ill., reports: For Roman Catholic congregation, brick and terra-cotta church building, 50 by 100 feet; cost \$9,000.

PRICES OF BUILDING MATERIALS.

CHICAGO, December 10, 1885.

Common \$ 8 00@ 9 00

Fronts:

Chicago pressed (Anderson).....	22 00@29 00
St. Louis pressed.....	27 00
Purinton Kimbell "Standard".....	26 00
Indiana pressed.....	16 00@28 00
Philadelphia pressed.....	42 00@45 00
Milwaukee pressed.....	25 00
Tiffany Pressed.....	22 00@30 00
Trenton.....	38 00
Zanesville (Harris Bros.).....	29 00
Perth Amboy Buff.....	50 00
" " Mottled.....	50 00

Moulded:

Chicago (Anderson).....	\$65 00@300 00
St. Louis.....	50 00@125 00
Indiana.....	25 00@ 50 00
Tiffany.....	75 00
Zanesville (Harris Bros.).....	75 00

Enamelled:

Enamelled edge.....	90 00
Enamelled edge and end.....	105 00
Enamelled (Harris Bros.).....	80 00

CEMENT, LIME, ETC.

Chicago Lime.....	\$ 0 65@ 75
Wisconsin ".....	96@ 1 00
Milwaukee, Utica, Louisville, Akron.....	1 00@ 1 25
Portland.....	3 25@ 3 50
Keene's coarse.....	7 50@ 9 00
Keene's fine.....	11 00@12 50
Plaster of Paris.....	1 75@ 2 00
Hair (cattle), per bu.....	20@ 25
Hair (goat), per bu.....	40
Sand (lake shore), per yard.....	1 00@ 1 25

(Quotations furnished by J. S. F. Batchen.)

Limestone:

Buff Bedford.....	Per cubic foot.
Blue Bedford.....	65
Hoosier blue Bedford.....	65
" buff ".....	50
Joliet.....	35@ 50
Lemont.....	40@ 50
Salem Oolitic.....	50

Foundation:

Dimension.....	20@ 25
Rubble, per cord.....	8 00
Sidewalk.....	40@ 1 00
Planned.....	40@ 1 00

Sandstone:

Hummelstown Brown Stone.....	1 50
Brown Connecticut.....	1 50
Amherst.....	60@ 75
Berea.....	55@ 65
Brown Potomac.....	1 25
Carbonell.....	1 10
Malone Blue.....	55@ 65
Long Meadow Brown Stone.....	55
" " Red ".....	65
New York bluestone.....	1 35@ 1 40

Marble:

Italian, veined.....	4 00
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Marble, continued:

Tennessee, red.....	2 50@ 5 00
Tennessee, Knoxville.....	3 00
Vermont, white.....	3 50@ 8 00
Ophite.....	4 50@ 5 00
Armodyte.....	1 50

Slate:

Roofing, Vermont, per square:	
Green.....	6 50
Purple.....	6 50
Red.....	13 50
Black, Lehigh.....	5 75@ 6 75
Black, Chapman's.....	7 30@ 8 00
Black, Bangor.....	5 50@ 5 80

LUMBER, CAR LOTS.

(Lumbermen's Exchange, 250 So. Water St.)

Boards:

Pine, 1st quality, clear.....	\$46 00@48 00
Pine, 2d quality.....	45 00@47 00
Pine, 3d quality.....	43 00@44 00
Common.....	13 00

Siding:

Pine.....	10 50@22 00
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Framing Timber:

Pine.....	12 00@17 00
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Laths:

Pine.....	2 00
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Shingles:

Pine (sawed).....	2 10@ 2 60
Cedar.....	2 25@ 2 35

Miscellaneous:

Pickets, pine.....	9@ 21
Posts, cedar.....	9 00@21 00
Pine, yellow southern.....	30 00@35 00

HARDWOODS.

(Quotations furnished by The Holbrook Co.)

Walnut, 1st & 2d, 1 in.....	\$ 75 00@ 80 00
1 1/4 and up.....	80 00@ 100 00
Walnut, counter top.....	15@ 20
Ash, 1st & 2d, 1 in.....	30 00@ 32 00
1 1/4 & up.....	30 00@ 36 00
Maple, 1st & 2d, 1 in.....	25 00@ 35 00
1 1/4 & up.....	35 00@ 40 00
Oak, white, 1st & 2d, 1 in.....	30 00@ 35 00
1 1/4 & up.....	35 00@ 40 00
Oak, red, 1st & 2d, 1 in.....	30 00@ 35 00
1 1/4 & up.....	35 00@ 40 00
Oak, quarter sawed.....	40 00@ 50 00
Cherry, 1st & 2d, 1 in.....	80 00@ 75 00
1 1/4, 1 1/2 & 2 in.....	80 00@ 85 00
2 1/2, 3 & 4 in.....	95 00@ 100 00
Beech, Red, 1st & 2d.....	25 00@ 30 00
Whitewood, 1st & 2d, 1, 1 1/4, 1 1/2 & 2 in.....	26 00@ 30 00
2 1/2, 3 & 4 in.....	32 00@ 38 00
Birch, red, 1st & 2d.....	35 00@ 40 00
Butternut, 1st & 2d, 1 in.....	45 00@ 50 00
1 1/4 & up.....	50 00@ 55 00
Sycamore, 1st & 2d.....	20 00@ 25 00
Gum, red, 1st & 2d, 1 in.....	25 00@ 30 00
1 1/4 & up.....	35 00@ 40 00

FINISHING WOODS.

Mahogany, Mexican, per lb.....	15@ 20
Mahogany, St. Domingo, per lb.....	20@ 25

Finishing Woods, continued:

Mahogany, Cuba, per lb.....	12@ 20
Rosewood, per lb.....	5@ 15

CALIFORNIA WOODS, ETC.

(Quotations furnished by Charles B. Crombie & Co.)

Redwood lumber.....	\$60 00@65 00
Redwood shingles—square, hexagon, round, diamond and octagon, small quantities.....	6 50@ 7 00
Mexican Spanish cedar.....	150 00@300 00
California pine.....	65 00@ 75 00

Georgia Yellow Pine:

Flooring:	
1st & 2d clear, 4 in.....	35 00
1st & 2d clear, 6 in.....	35 00
Boards, D 1 s.....	33 00@ 35 00
Beaded Ceiling:	
1st & 2d clear, 1/2 in.....	18 00@ 21 00
3/4 in.....	26 00@ 30 00
1 in.....	33 00@ 36 00
Step plank:	
1st & 2d clear 1 1/4, 1 1/2 & 2 in.....	33 00@ 35 00

Georgia Cypress:

Lumber, 1st & 2d clear.....	35 00@ 40 00
Shingles.....	3 75@ 4 25

Frame Oak Lumber and Timber:

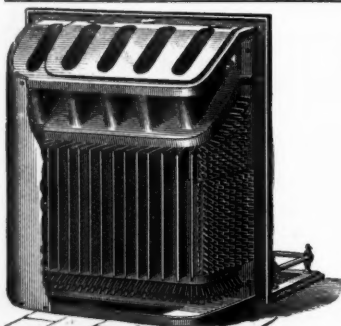
Plank.....	23 00@ 25 00
Timber.....	24 00@ 30 00

PAINT, ETC.

	Per lb.	Dry.	In Oil.
White lead (American).....	8 1/2@ 10	6 1/2@ 7	1 1/2
Zinc, white (American).....	8@ 10	6@ 7	1 1/2
Red, Venetian.....	20@ 50	40@ 1 00	2 2
Red, Vermilion.....	12@	2@	1 5
Red, Indian (English).....	18@	2@	1 5
Yellow, Ochre.....	18@	2@	1 5
Yellow, Chrome.....	12@	2@	1 5
Green, Chrome.....	20@	3@	3 5
Black, lamp.....	8@	3@	3 5
Blue, ultramarine.....	16@	3@	3 5
Putty.....	1@	2@	3
Whiting (dry).....	2@	3@	3
Paris white (English).....	6@	1@	1 0
Litharge (American).....	9@	1@	1 6
Sienna, burnt.....	7@	1@	1 6
Umber, burnt.....	4@	1@	1 6
Oil, linseed (raw), per gal.....	42		45
Oil, linseed (boiled).....	40		40
Turpentine.....	1 25@ 2 00		3 25@ 4 00
Varnish, coach, " ".....			
Varnish, shellac, " ".....			

HARDWARE.

	Per Keg.
Nails:	
Spikes, wrought.....	\$3 7 5
Tenpenny, common.....	3 10
Shingle, 4's.....	3 7 5
Lath, 3's fine.....	6 10
Steel nails, 10's to 60's.....	3 15
For steel nails add 15 c. per keg.	
For finishing-nails add \$1.50 per keg.	
For casing-nails add 75 c. per keg.	



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EDWIN L. KIMBALL, M.D., Jackson.

The grate thoroughly warms and ventilates a room 16x14 feet when the mercury ranges from 30° to 40° below zero. In more moderate weather it also warms a second room, 12x14 feet.

JOSEPH RIPLEY, Sault Ste Marie.

We heat a large nursery with the grate, and find it wonderfully good in keeping the air in the room pure—a very difficult thing to do in a nursery full of children of all ages.

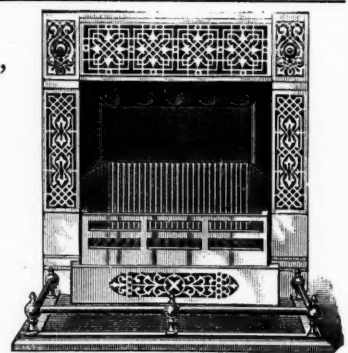
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One of my grates heats my dining-room, 15x20 feet; the other is in my sitting-room, and it also thoroughly warms a chamber above the sitting-room. Having the grate, I have kept my furnace with a very small fire, and I have thus saved greatly in fuel, as is proved by a friend who has been compelled to use twice as much fuel to heat an equal space.

J. H. PENMANN, Battle Creek.

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	Minimum Breaking Strain.		
	Days' test.	Per sq. centimetre	Per Eng. sq. in.
Neat "Star" Cement,	7	40 kilos.	568.9 lbs
do do	28	50 "	711.1 "
1 Cement and 3 Standard Sand	7	15 "	213.3 "
do do	28	20 "	284.4 "
1 Cement and 6 Standard Sand	7	6 "	85.3 "
do do	28	10 "	142.2 "

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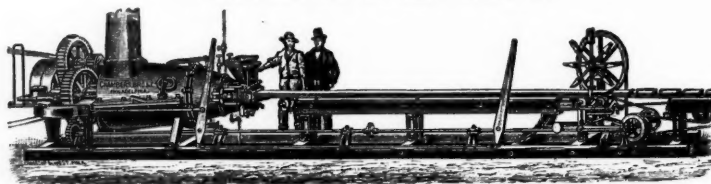
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PROPOSALS.

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[At Brooklyn, N. Y.]

OFFICE OF THE SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., December 5, 1885.

Sealed proposals will be received at this office until 2 P.M., on the 21st day of December, 1885, for furnishing and putting in place the iron columns, girders, beams, etc., required for the first floor of the postoffice, etc., building at Brooklyn, N. Y., in accordance with the drawings and specifications, copies of which and any additional information may be had on application at this office, or at the office of the superintendent.

Bids must be accompanied by a certified check for \$200.
M. E. BELL, Supervising Architect.

MONUMENT.

[At Charleston, S. C.]

CHARLESTON, S. C., November 28, 1885.

Bids will be received until 12 M., January 15, 1886, for furnishing and setting all the granite work necessary for the Calhoun Monument, at Charleston, S. C., and for setting five bronze statues, all in accordance with plans and specifications for same, which will be furnished to intending bidders, upon application to the undersigned.

The right to reject any or all bids is reserved.

The successful bidder will be required to give bond for the faithful performance of the work.

LOUIS DESAUSSURE,
C. IRVINE WALKER, } Committee.
SAML. B. PICKENS, }

TIMBER.

[On the Great Kanawha River, W. Va.]

U. S. ENGINEER OFFICE, CHARLESTON,
KANAWHA COUNTY, W. VA., November 14, 1885.

Separate proposals for furnishing about 87,000 feet B. M., of first-class white oak, and 6,000 B. M., of white pine, at Lock and Dam, No. 6, Great Kanawha River, W. Va., for lock-gates and for wickets of movable dam, will be received at the U. S. Engineer Office, Charleston, Kanawha County, W. Va., until noon of December 22, 1885, and opened immediately thereafter.

Blank forms, specifications and all necessary information can be had by application to Mr A. M. Scott, Assistant Engineer, at the Charleston office.

WM. P. CRAIGHILL,
Lieut.-Col. Engineers, U. S. A.

HEATING-APPARATUS.

[At Washington, D. C.]

OFFICE OF BUILDING FOR STATE,
WAR AND NAVY DEPARTMENTS,
WASHINGTON, D. C., November 29, 1885.

Sealed proposals for furnishing and delivering, complete, the materials, fittings, etc., required for the construction of the heating and steam apparatus for the west and center wings of the building for State, War and Navy Departments in this city, will be received until 12 M., on Thursday, December 17, 1885, and opened immediately thereafter in presence of bidders.

The proposals and contracts will be separate and distinct for each of the following four classes of materials and articles, namely:

Class 1. Boilers, tanks, safety-pans, smoke stacks, etc.
Class 2. Cast-iron flange-pipe, coils, dampers, etc.
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Class 4. Wrought-iron pipe.

Specifications, blank forms of proposal and general instructions to bidders will be furnished to established manufacturers and dealers in the respective classes on application, but the drawings for classes Nos. 1 and 2 can be seen only at this office.

THOS. LINCOLN CASEY,
Colonel, Corps of Engineers.

BRIDGE.

[At Omaha, Neb.]

BOARD OF PUBLIC WORKS,
OMAHA, NEB., October 29, 1885.

The Board of Public Works of the City of Omaha, Neb., invite proposals until 2 o'clock, P. M., January 9, 1886, for the construction of a viaduct on Eleventh street, over the tracks of the Union Pacific and Burlington & Missouri River Railroads.

Proposals must be based upon the specifications and outline plans on file in the office of the Board of Public Works, copies of which will be furnished upon application. Bids are to be accompanied with detail drawings and strain sheets, and shall specify the cost of superstructure for a 20-foot roadway and a 30-foot roadway, and shall separate the superstructure from the foundation work.

Each bidder shall deposit with his proposal a certified check, payable to the undersigned, in the sum of one thousand dollars, to be forfeited to the City of Omaha in case he shall fail to execute a contract and bond satisfactory to the Board within twenty days after the notification of the award, should his proposal be accepted.

The Board reserves the right to reject any or all bids.
The Board of Public Works,
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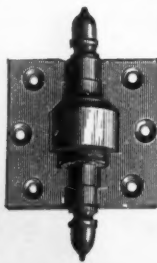
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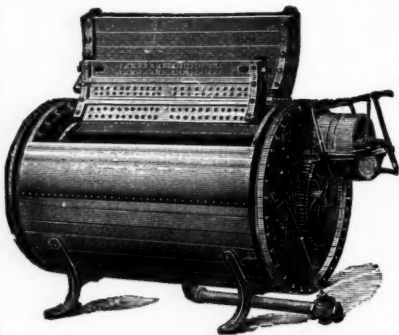
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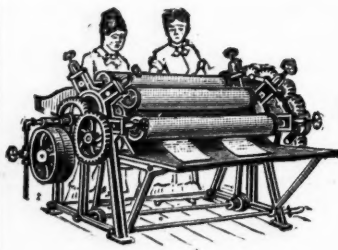
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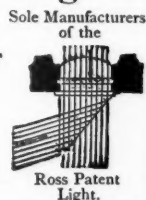
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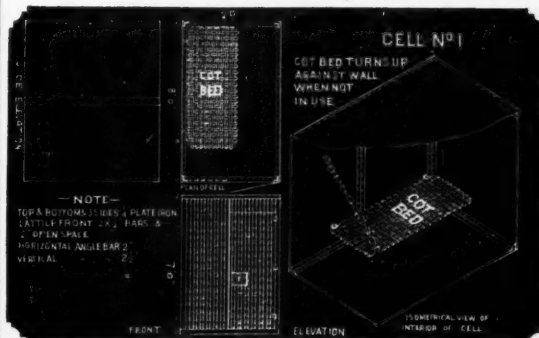
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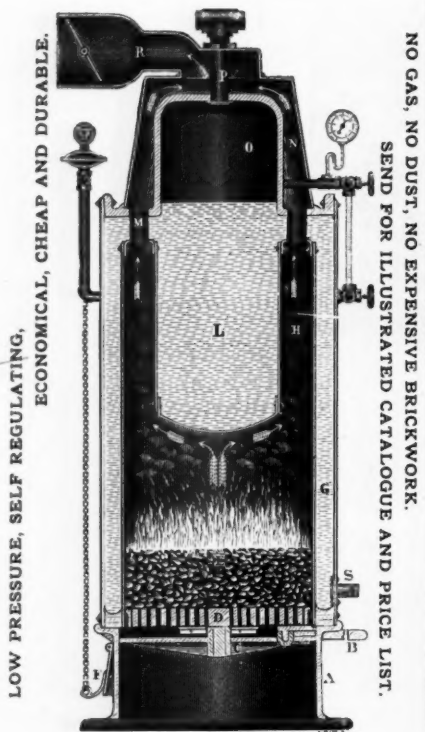
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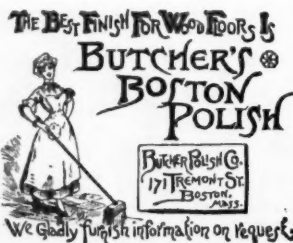
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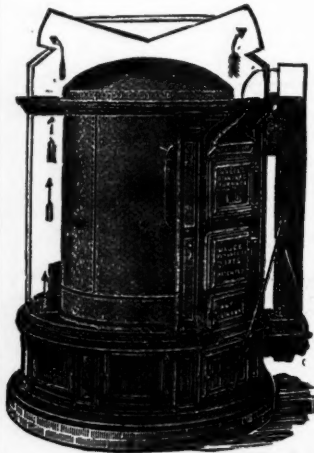
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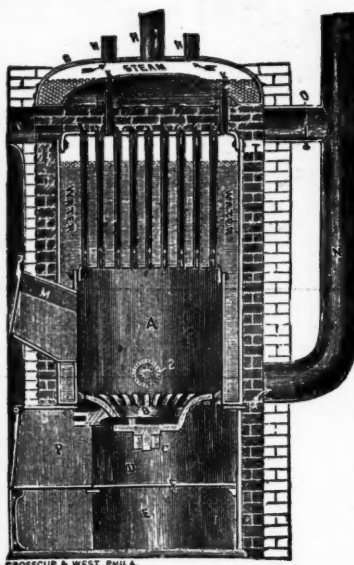
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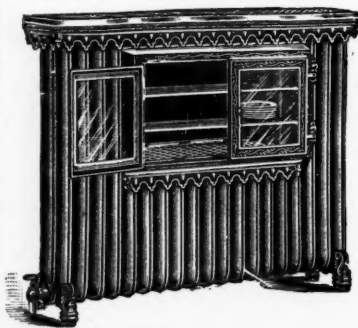
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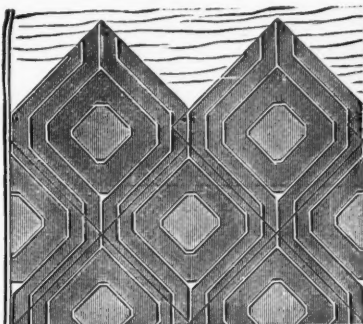
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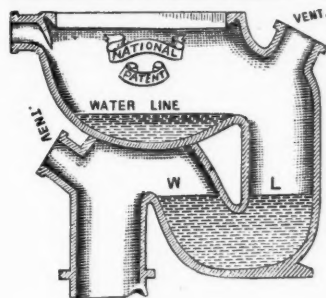
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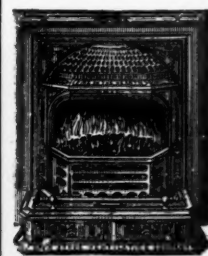
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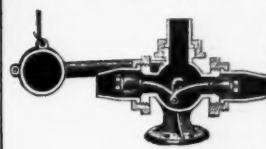
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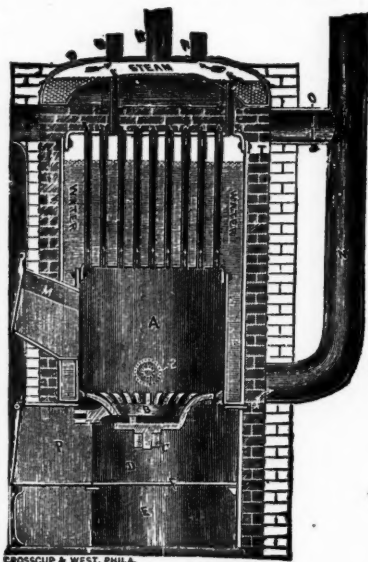
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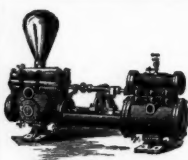
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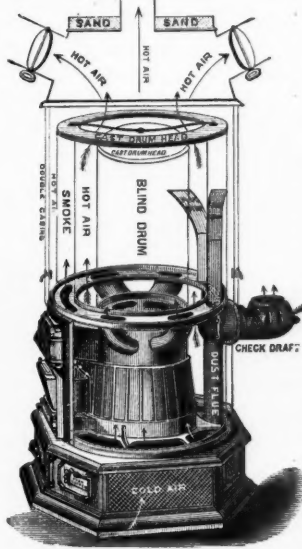
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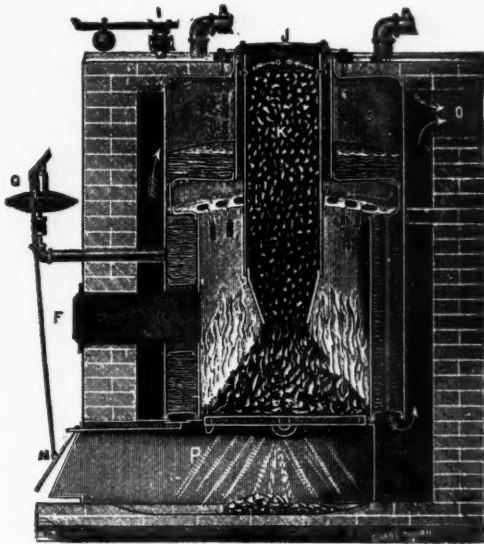
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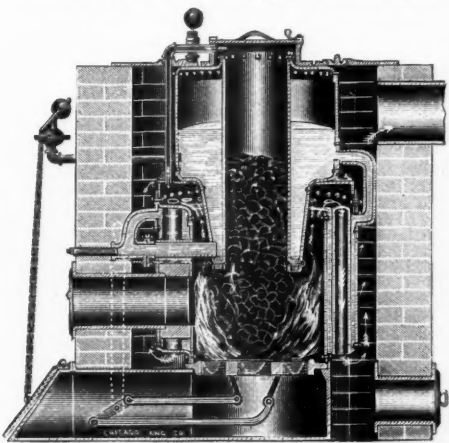
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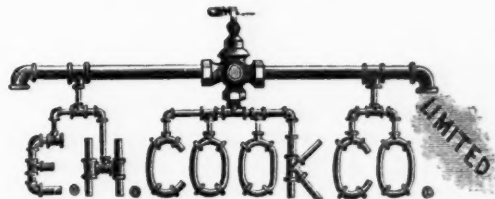
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Air Bells.	Page	Elevators.	Page	Mathematical Instruments.	Page	Slate and Metal Roofing.	Page
Zimdar's.....	XVII	Crane Bros. Mfg. Co.....	XXVIII	Frost & Adams.....	XXII	American Bangor Slate Co.....	XXVI
Architectural Books.		Fire Escapes.		Metallic Centrepieces.		Hughes, R.....	XI
Comstock, W. T.....	XVIII	Benner & Co.....	XIV	Warren Bros.....	XXVI	Spring Hinges.	
Inland Publishing Co., I.....	XXVI	Fireproofing.		Metal Shingles and Roofing.		Robinson, M. W.....	XVII
Architectural Ironworks.		Fireproof Building Co.....	X	Anglo-American Roofing Co..	X	Steam Pump Works.	
Etna Iron Works.....	XV	Haydenville Mining & Mfg. Co.	VI	Cincinnati Corrugating Co....	XIX	Davis, John & Co.....	XIII
Benner & Co., Ironworks.....	XIV	Pioneer Fireproof Construction		Merchant & Co.....	XXV	Knowles Steam Pump Works..	XXI
Brooks, F. H.....	XXVI	Co.....	VII	Van Noorden, E.....	XXI	G. F. Blake Mfg. Co.....	XXI
Globe Iron Works.....	XIX	Wight Fireproofing Co.....	I	Ornamental Centers.		Wheeler & Tappan.....	IX
Hecla Bronze and Iron Works.	III	" " " " " "	VI	Bartolomei, J. & Co.....	XII	Stone.	
Hecla Iron Co.....	V	Footpower Machinery.		Kellett, W. F.....	XI	Lake Superior Brownstone	XVIII
Union Foundry and Pullman		Marston, J. M. & Co.....	XX	Poli, Peter E.....	V	Long Meadow Brownstone	IX
Car Wheel Works.....	XII	W. F. & Jno. Barnes Co.....	XVII	Warren Bros.....	XXVI	Tomlinson & Reed.....	XXII
Architectural Views.		Furniture.		Painters and Decorators.		Young & Farrell Co.....	IX
Taylor, J. W.....	I	Andrews, A. H. & Co.....	XXVIII	Barry, S. S. & Son.....	XI	Stained and Decorative Glass.	
Frost & Adams.....	XXII	Furnaces, Ranges, Etc.		Caretti, Hogan & Co.....	XI	Western Sand Blast Co.....	IX
Asbestos.		Abram Cox Stove Co.....	XXIII	Humphrey, E. H.....	XI	Decorative Glass Mfg. Co.....	VIII
Asbestos Packing Co.....	VI	Boynnton Furnace Co.....	XV	Nelson, T. & Son.....	XI	French Silvering and Ornament-	
Asphalt.		Magee Furnace Co.....	XX	Phillipson, William.....	XI	al Glass Co.....	VIII
Seyssel Rock Asphalte.....	I	Raymond Furnace Mfg. Co.....	XXI	Reilly & Barker.....	XI	Godwin, Alfred & Co.....	VIII
Boiler and Pipe Covering.		Ruttan Mfg. Co.....	XVI	Paints, Oils and Varnishes.		Healy & Millet.....	VIII
Kemper, Alfred C., agent.....	XV	Grates.		Coffin, Devoe & Co.....	XVII	Kinsella, F. D. & Co.....	VIII
Bricks (Pressed).		Jackson, Edw. A. & Bro.....	106	Photo Engravers.		Lamb, J. & R.....	VIII
Chicago Anderson Pressed Brick		Murlock Parlor Grate Co.....	XX	Chromotype Co.....	XVIII	McCully & Miles.....	VIII
Co.....	XIV	Gas Fixtures.		Planing Mill.		Misch, G. A.....	VIII
Harris Bros. (Abbot & Wright,		Archer & Pancoast Mfg. Co... XXVIII		Russell, J. K.....	XXV	Pyrographic Glass Co.....	VIII
agents).....	IV	Beaver, Wight & Wetmore Co.. X		Plumbers.		Wells, W. H. & Bro. Co.....	VIII
Wm. E. Hinchcliff & Co.....	XXIII	W. C. Vosburgh Mfg. Co.....	XXI	Beaver, Wight & Wetmore Co..	X	Steam Heating.	
Hydraulic Press Brick Co.....	XII	Wilmarth, T. W. & Co.....	VII	Becker, Peter.....	XI	A. A. Griffing Ironworks.....	XXVIII
Lockwood & Kimbell.....	II	Gas Machines.		Baggett, Martin.....	XI	Baker, Smith & Co.....	XXIII
Moulding, Thos.....	XI	Edward Fox & Co.....	IX	Murray, Alexander W.....	XI	Blair, Dunlop & Hopkins.....	XXIII
Peerless Pressed Brick Co.....	XII	Penna Globe Gas Light Co.....	XVIII	Nacey, P.....	XI	Cincinnati Steam Heating Co..	XX
Tiffany Pressed Brick Co.....	IV	Galvanized Iron Works.		Wait, Hugh.....	XI	Duplex Steam Heater Co.....	XX
Brick Machines.		McFarland, J. C.....	XIX	Plumbing Supplies.		Eureka Steam Heat Co.....	XXI
Chambers Bros.....	XVI	Knisely & Miller.....	XIX	Aspinall, E.....	XXI	Hay & Prentice.....	XXIII
Builders' Hardware.		Rothage, Geo. & Co.....	XIX	Bower Sewer Gas Trap.....	XXVI	John Davis & Co.....	IX
Larrabee & North.....	XI	Mesker & Co.....	V	Cudell, F. E.....	XXVI	Le Bosquet Bros.....	XXIII
Orr & Lockett.....	XXVIII	Glass (Plate).		Kelly, Thos. & Bro.....	XXI	Steel Shutters.	
Sargent, Greenleaf & Brooks..	IV	Chrystal Plate Glass Co.....	VIII	Meyer-Sniffen Co.....	XI	Clark, Burnett & Co.....	XXI
Builders' Sundries.		Granites.		Powell, Wm. & Co.....	XII	Specifications, Printed.	
Dibble Mfg. Co.....	XII	St. John, M. H.....	XXVI	Polish for Floors.		Inland Pub. Co.....	XXI
Mendenhall, L.....	V	Hallowell & Bodwell Co's.....	XIV	Butcher Polish Co ..	XX	Terra-Cotta.	
Scranton Mfg. Co.....	XXVI	Heating and Ventilating Apparatus.		Prices.		Northwestern Terra-Cotta Wks.	I
Yale & Towne Mfg. Co.....	XIV	Pope, Samuel I. & Co.....	I	Labor.....	106	Perth Amboy Terra-Cotta Co..	VI
Building Contractors.		Raymond Furnace & Mfg. Co. XXI		Material.....	106	Boston Architectural Terra-Cot-	
McLean, J. R., Sr.....	XXV	Ruttan Mfg. Co.....	XVI	Proposals.		tta Works.....	V
Carpenters.		Insurance (Life).		Building, etc.....	XVII	Boston Terra-Cotta Co.....	V
Mayor, Wm.....	XI	The Mutual Benefit, of Newark	XXVII	Printers.		Tiling.	
Sollitt & Son, Thos.....	XI	Interior Decorators and Furnishers.		Shepard & Johnston.....	XVI	Abbot & Wright (agents).....	VII
Swezey, M. B.....	XI	Crossman & Lee.....	XXVI	Publications.		Dibblee, Henry & Co.....	XVI
Cements.		Haskins.....	XVI	Scientific American.....	XXVI	Innes & Co.....	V
Belloni & Co.....	XXI	Interior Finish.		Southern Lumberman.....	XXVII	Producers' Marble Co.....	XIII
Fleming, Howard.....	III	Meyer, C. J. L. & Sons Co ..	XV	Radiators.		The United States Encaustic	
Meacham & Wright.....	XXII	Tomlinson & Carsey.....	X	Brooks, T. H.....	XXVI	Tile Co.....	XXV
"Star" Portland Cement Wks.	XVI	Warren, W. H.....	XI	Detroit Radiator Co.....	XX	Varnishes.	
Thiele, E.....	V	Iron and Stone Setters.		The A. A. Griffing Ironw'ks .. XXVIII		DeGolyer's.....	XIX
Coloring for Mortar.		McBeath & Rowe.....	XI	The H. B. Smith Co.....	XXVII	Ventilators, Etc.	
Curtis, J. D. (red).....	IX	Laundry Machinery.		Reflectors.		Van Noorden, E. & Co.....	XVIII
Dupee, H. D. (black).....	XVIII	Gordon, G. W.....	XVIII	Frink, I. P.....	XIX	Water Conductor.	
French, S. H. & Co. (black)...	XIX	Hawley, B. R.....	XXV	Roofers and Roofing Material.		S. S. S Conductor Co.....	XXII
Creosote Stains.		Troy Laundry Machine Co.....	XVIII	Anglo-American Roofing Co..	X	Weather Vanes.	
Cabot, Sam'l., Jr.....	III	Locks.		Cincinnati Corrugating Co....	XIX	Jones, Thomas W.....	XVI
Decoration.		Yale & Towne Mfg. Co.....	XVIII	Cary, John M.....	XXI	Window Blinds.	
Atwood, F. N.....	XXIV	Lumber.		Knisely & Miller.....	XII	Conway Mfg. Co.....	XVII
Kluge, A.....	I	Hayden Bros.....	III	Merchant & Co.....	XXV	Morstatt & Klatzl.....	XXII
Decorative Artists.		Holbrook Co., The.....	XI	National Sheet Metal Roofing		Willer, Wm.....	III
Almini, P. M.....	II	Mailing System.		Co.....	XXI	Wire and Iron Works.	
Atwood, F. N.....	XXIV	Cutler Mfg. Co.....	XXI	Sash Cord and Chains.		Dibblee, Henry & Co.....	XVI
Crossman & Lee.....	XXVI	Mantels, Grates, Etc.		Tolman, J. P. & Co.....	XVIII	The F. J. Myers Mfg. Co.....	XXVI
Kluge, Alex.....	I	Dibblee, Henry & Co.....	XVI	Morton, Thos.....	IX	Wood Carpet.	
Sullivan, J. B. & Bro.....	II	Innes & Co.....	V	Sash, Doors, and Blinds.		Moore, E. B. & Co.....	XXIV
Door Hangers.		Meyer, C. J. L. & Co.....	XV	Russell, J. K. & Co.....	XXV	Wood Mantels.	
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chine Co.....	XII	Riley, A. A.....	I	Wilce, E. P. & Co.....	XIX	Dibblee, Henry & Co.....	XVI
Scranton Mfg. Co.....	XXVI	Manufacturers' Agents.		Sanitary Appliances.		Meyer, C. J. L. & Co.....	XV
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Swezey, M. B.....	XXVI	Marble Tiles, Etc.		Sewer Pipe.		Gleason Wood Ornament Co..	XVIII
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Luhning & Dietzgen.....	XVI	Downey, Jos.....	XI	Dauchy & Co.....	XIX	Marston, J. M. & Co.....	XX
Queen, James W. & Co.....	XXVII	Fox & Hinds.....	XI	Skylights, Conservatories, Etc.			
Electric Lights.		Griffiths, John.....	XI	Knisely & Miller.....	V		
The U. S. Electric Lighting Co.	XIV	McBeath & Rowe.....	XI				
Western Edison Light Co.....	III	Price, C. & A.....	XI				
Electric Supplies.		Price, William D.....	XI				
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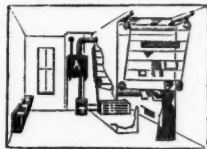
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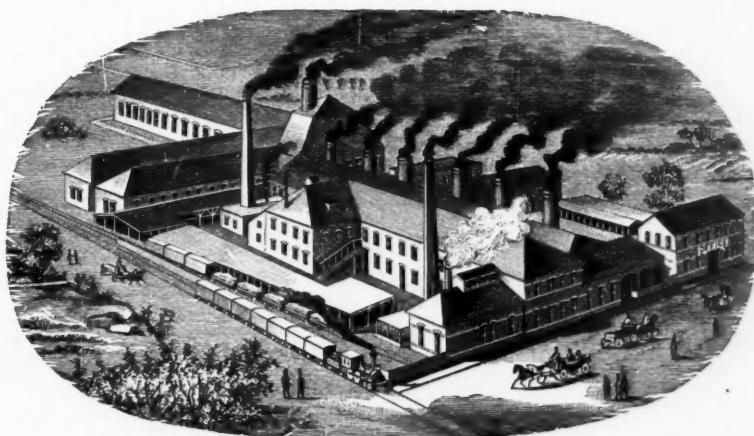
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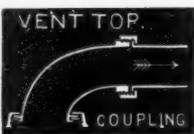
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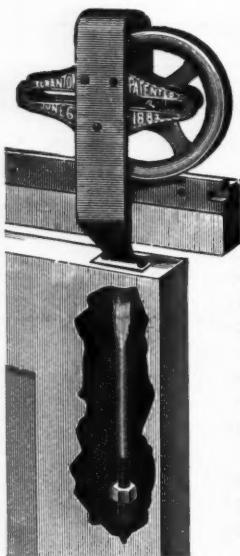
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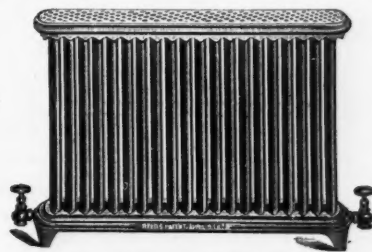
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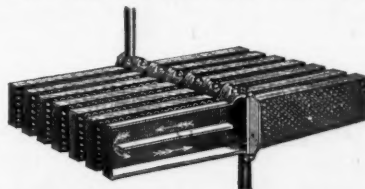
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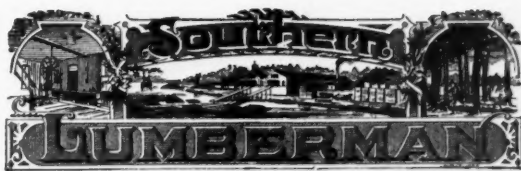
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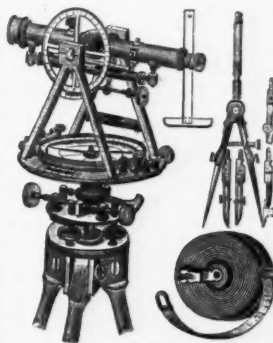


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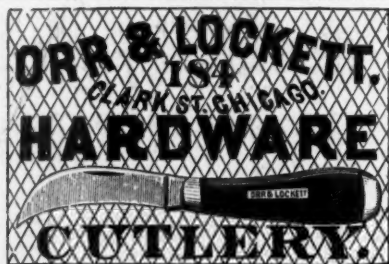
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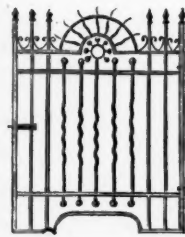
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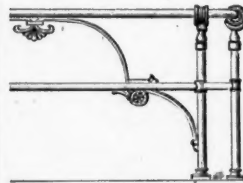
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