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THE INLAND ARCHITECT AND NEWS RECORD

Entered at the Postoffice at Chicago as second-class matter.

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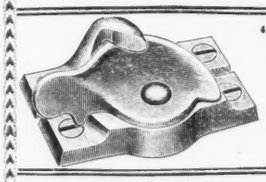

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THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXXIX. MARCH, 1902. No. 2

THE INLAND ARCHITECT AND NEWS RECORD

A Monthly Journal Devoted to

ARCHITECTURE,

CONSTRUCTION, DECORATION AND FURNISHING

IN THE WEST.

PUBLISHED BY THE INLAND PUBLISHING CO.,
609-610 MANHATTAN BUILDING, CHICAGO, ILL.

L. MULLER, Jr., Manager. ROBERT CRAIK McLEAN, Editor.

SPECIAL CONTRIBUTORS:

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TERMS: Regular number, $5 a year; Photogravure edition, $10 a year. Single copies, Regular number, 50c.; Photogravure edition (including 7 photogravures), $1. Advance payment required.

The columns and illustration pages of THE INLAND ARCHITECT are open to all alike, merit and availability only determining what shall be published. Contributions appropriate to its pages are always desired.

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An Exhaustive Computation of the Cost of Strikes.

While printing in this issue an exhaustive compilation of facts in regard to the cost of labor strikes, both to the employer and the employed, we do not expect to reach the unthinking workman or the arbitrary employer. But to those who in every-day affairs are accustomed to count the cost, the array of statistics must be most convincing. It is becoming plain to those who have watched these matters for the past twenty years that more judgment and more equity is entering the disputes that occur between labor and capital each year, though the process is infinitely slow and in its best aspects leaving much to be desired. While, like war, the cost is more largely in the human misery involved than in the money lost, it is this latter aspect that we have sought to deal with, for this is the only ground upon which a proper understanding can be reached between these great forces that are together working out the problem of our civilization. Strikes are as old as civilization, yet we can now assume that civilization is old enough to know better, and look forward to a day when perfect equity will adjust all differences.

A Remarkable Advance in Fireproofing Methods.

The recent consolidation of a number of fireproofing companies, with headquarters at Pittsburg, directs attention to the growth, its direction and quality, of the fireproofing interest generally. When hollow tile was first manufactured it was also placed by the manufacturer, and for many years only a few firms were engaged in the business. Only in large office buildings, as a rule, were the hollow tile floor arch and partition used, and these in each case were tested thoroughly for a maximum bearing weight before being accepted. Then the use broadened. Breweries used the flat arch for the floors of their malthouses, and the spans were increased from five to twelve feet between girders. But it is only of recent date that the steel girder has been abandoned in light structures, such as residences, dry kilns, factories and other places where a span of but twenty feet between walls was required. Here tile has been used with perhaps a metal support between, and to stand a test of two hundred pounds per square foot. Now that the enterprise of the fireproofing companies has met the demand so that hollow tile may be adapted to any purpose, the fireproofing of buildings seems to lie entirely with the owner and architect. It is true that fireproofing has been in great danger of falling into disrepute through the desire of owners to build cheap and still be able to claim that "the building is fireproof," but with the disappearance of the small and irresponsible companies that were largely the cause of this, and the advancement of those of old and established reputation, both in and out of the consolidation, there is no reason why every structure should not be fireproofed, and at but little greater cost, when the rate of insurance is considered, than that involved in any other substantial construction. Fireproofing material can not be economically shipped to points very far distant from where it is made, so that the monopoly of a trust may be little feared, but aside from this there are many large concerns that can carry on their own plants independently, and this will also tend to preserve a healthful competition.

THE COST OF STRIKES.

BY F. W. FITZPATRICK.

TO prepare a short paper upon this most interesting subject is a somewhat difficult task. In the first place, to make it short, and in the second to limit one's self to so essentially a detail of the larger and far more interesting problem of labor that one is tempted to discuss the moment he approaches anywhere near the subject. Still, to us Americans particularly ought this phase of the greater subject of labor be rather interesting.

We are accused, and not without some justice, of being excessively commercial. That we are fast assuming the leadership, if we have it not already in our grasp, in all matters commercial, we must gracefully concede, so perhaps, therefore, this attempt to show the *cost* of labor troubles in dollars and cents may not be without beneficent results.

The figures are enormous and we can but give a few of the more direct, immediate losses to employed and employers. To attempt, as I had first contemplated doing, to give the total and absolute loss, direct and indirect, of all our labor troubles, the loss of assured gains, the stoppage of contemplated work for fear of strikes, and all those thousand and one losses, is simply a task beyond the power of man and absolutely incalculable.

Strikes and lockouts are as common as is the habit of warfare among nations. True, in times past most labor was performed by slaves, but they gave trouble, and labor in its higher branches gave trouble and had trouble inflicted upon it. We have a record of labor troubles in the building of the Chaldean temple of Abu-Sharien, and from that time down to the present writing, when the employes of the great steel corporation have gone back to work after a long, protracted strike that at one time threatened to involve some seven hundred thousand men, if not, indeed, our whole industrial system, have there been troubles, and most serious ones. But we are not fortunate enough to have accurate data and statistics for all of this long period of strikes. It is only within the last thirty years or so that anything like a system has been established by governments to collect and tabulate data anent labor. Massachusetts organized the first bureau of labor the world ever had, June 22, 1869. Our federal Government established one in January, 1885, and changed it to a department of labor, June 13, 1888. This department is under the able direction of Carrol D. Wright, and to the various reports prepared under his direction and to the courtesy of his chief clerk, Mr. G. W. Hanger, am I indebted for much statistical matter that I have introduced into this brief paper upon the subject.

The direct cost to both employes and employers and to the Government has been enormous, but the loss to the employed far exceeds that of the employers. The organization of the employed has become a science and a power indeed, while the organization of employers for purposes of mutual protection, lockouts, etc., has been until very recently desultory, poorly managed and short lived. Within the last four years, however, the tendency has been not to the petty organization of a few employers for mutual protection and defense against labor digression, but has been toward the actual consolidation of great corporations under one management, resulting in a community of interests and a centralization of capital that passes almost beyond estimation, a colossal power. The fizzle of the great steel strike has pretty thoroughly demonstrated that power. True, that strike was entered upon without the sympathy of the people, it seemed so useless, so unnecessary — a mere *defi* and an anxiety to measure weapons with the enemy — but, nevertheless, had the employers not been so closely allied and well generaled, the advantages of the skirmish might have been more equally distributed. As it is, the lesson can not be without its effect. The losses to the employers were considerable, to the employes enormous; both parties are more wary and have a better idea of each other's strength, and both appreciate that every possible means must be taken toward conciliation and adjustment before drastic measures are resorted to. It is hardly credible that with that lesson before them either party will show any disposition to carry a chip about tauntingly poised upon the right shoulder.

To meet this most thorough organization of capital, the different labor fraternities have become closely united, they have perfected their organization through federations and have selected for their leaders not mere agitators and glib talkers, as was often the case in years gone by, but men of profound thought, brainy leaders and astute managers.

No man can foretell what the outcome will be. Recent tendencies have been toward arbitration, some countries have compulsory arbitration, and it has been discussed in our own Congress, and perhaps better reason will prevail and all difficulties will be settled by such peaceful means. The recently organized arbitration board, composed of great capitalists, labor leaders, publicists, educators and clergymen, to whom troubles may be referred — voluntarily referred — is a step in the right direction. But just as we are all agog over the feverish condition of the nations, and realize how little a thing some insignificant complications in the East, or some other trifling cause, may disarrange the whole equilibrium of the world and plunge us into cruel and bloody war, so is this labor question at a feverish point where some misstep of either party may plunge this country, if not the world, into as cruel a commercial war, if not into bloody strife.

But I find myself wandering into the broad field again. To get back to the cost of strikes, let us refer to some interesting calculations made by our Government bureaus.

The Department of labor is at present engaged upon a very exhaustive history of the cost of strikes that will be published some time next year. For the period of thirteen years from 1881 to 1894 we have very exact information; for the last six years the information in detail is more exact, possibly, but no tabulations have been completed; therefore, for purposes of comparison, do I particularly insist upon such figures as I obtained for the years intervening between 1886 and 1894 as being most authentic.

From January 1, 1881, to June 30, 1894 — thirteen and one-half years — 69,166 establishments were involved in strikes and 6,067 establishments were involved in lockouts. The average number of shops involved in each strike was 4.8. For seven and one-half years after 1881 Illinois came first, with 10,060 strikes and 1,193 lockouts; New York stood second on the list with 9,539 strikes and 723 lockouts, and Pennsylvania stood third, with 8,219 strikes and 190 lockouts. For the six years before 1894, New York stood at the head of the list, with 9,247 strikes and 1,528 lockouts; then came Illinois, with 2,768 strikes and 130 lockouts. All told, during the period of thirteen and one-half years above referred to New York had 18,786 strikes and 2,251 lockouts; Illinois 12,828 strikes, 1,320 lockouts; Pennsylvania 10,661 strikes and 2,251 lockouts. In gross results, however, Illinois, that is Chicago, stands at the head of the list for amounts involved and frequency and virulence of the strikes and lockouts. That city is certainly the hotbed of labor troubles.

Of all the industries, the building trades gave us the most trouble. During the same period we have been glancing at the building trades had to their credit 20,875 strikes. The next most fruitful source of trouble is coal mining; it is credited with 3,421 strikes. Then comes clothing, tobacco, food preparation, quarrying, metalwork, transportation, printing, boots and shoes, furniture and brickmaking in about the order named.

The most prolific cause of trouble is the demand for increase of wages. This question has been the prime trouble in forty-two per cent of our strikes. Then comes the demand for the reduction of hours, with eighteen per cent of the strikes as a result; following which, protests against reduction, demands for increase of wages and reduction of hours, sympathy with other strikers, against non-union men, for recognition of new wage scales, for recognition of unions, for reinstatement of union men discharged, and protests against non-union foremen, have the remainder of the strikes almost equally divided among them.

The comparative strength of organizations may be estimated by the fact that from 1881 to 1886 eighty-two per cent of the strikes were ordered by labor organizations and 79.18 per cent of the lockouts were ordered by combinations of employers. During that latter period, as the figures will show, there was more or less friction among the unions and certainly a lack of organization among employers. To-day, with our trusts on the one hand and more perfected labor organizations on the other, there is hardly a strike that is not ordered and carried on by some union, if not the Federation in general, and few individual employers are there who will undertake a lockout. During the period from 1881 to 1894 there was an average of twenty-five days lost to each of the 69,166 establishments closed by strike, while 47.6 days was the average loss to each of the 6,067 establishments closed by lockouts.

From 1881 to 1886 46.52 per cent of the strikes were successful in getting what they were initiated for, 13.47 per cent were par-

tially successful and 39.95 per cent utterly failed. With lockouts during the same period, 25.47 per cent carried their point, 8.58 per cent were partially successful and 60.48 per cent had finally to come to terms with their employes. For the ensuing period, from 1886 to 1894, the conditions were about the same as far as strikes were concerned; 43.52 per cent successful, 10.19 per cent partially successful, and 46.25 per cent total failures. But with lockouts conditions had radically changed; there were 48.87 per cent successful ones, 10.15 per cent partially so, and 40.49 per cent only of failures. Averaging the whole period of thirteen and one-half years, strikes were successful in 44.49 per cent of cases, partially so in 11.25 per cent, and failures in 44.25 per cent, while with the lockouts, 40.43 per cent were successful, 9.58 per cent partially so, and 47.75 per cent were failures. Or in numbers, during that entire period of from 1881 to 1894, 1,188,525 men were involved in successful strikes, 462,777 in partially successful strikes, and 2,061,259 in strikes that failed. Multiply this number by twenty-five days each, and that again by the average wage earned, and see if the game is worthy of the candle.

To sum it up roughly, from 1881 to 1894, 3,714,231 persons were forced out of employment by strikes and lost on an average of $44 by reason thereof, and 366,690 people were locked out, at a loss of $73, or, in other words, the combined wage loss of strikes and lockouts during that period was $190,493,173, and involved 4,080,921 persons at a loss of $47 to each. The employers of labor lost during that time, by reason of strikes and lockouts, $94,825,237, just about one-half of the money lost by the employes, who were not one-half as well able to stand the loss. But this is not all, for counting the wages actually lost and the amounts paid by organizations for the support of the strikers during the troubles, money that is assessed against the wage-earners of the country, $204,000,000 represents in round numbers the cost to the employed.

An item that may not be altogether uninteresting is that during these thirteen and one-half years of strikes, 340,000 men were given employment where they had not been before, which means that that number of men went on strike in their particular trade or locality for good, while of those locked out only 50,000 permanently lost those particular places.

As a general rule, I eschew giving tabulated statements as much as the average reader fights shy of them in reading, but just one table here is, I think, absolutely necessary to elucidate one point I wish to make. It shows better than any other description I could give the distribution and intensity, one might say, of the troubles in our country. I wish to call your attention particularly to Chicago's line. Note the totals of its troubles, remembering that it was a city of 1,000,000 people at the time these figures were made, and compare these figures with New York's, a city of nearly 2,500,000 people, during the same period. The "Windy City," it will be seen, loses or wastes an average of $4,215,213 a year in strikes and lockouts (a direct loss, mark you). Her school system costs but four times that amount, for her 230,000 pupils. Her strikers and locked out workmen average but 44,163 a year!

STRIKES.

FROM JANUARY 1, 1887, TO JUNE 30, 1894.

CITIES.	Total strikes.	Establishments involved.	Employes thrown out of employment.	Wage losses to employes.	Assistance to employes by labor organizations.	Loss to employers.
New York	2,614	6,467	215,649	$6,449,385	$ 792,817	$3,545,776
Brooklyn	671	1,271	31,768	914,045	145,848	532,780
Chicago	528	8,325	282,611	8,846,497	1,886,788	14,444,934
Boston	257	911	25,574	800,882	173,564	589,982
Allegheny and Pittsburg	251	4,142	100,822	7,379,765	722,706	2,599,487
Philadelphia	240	1,132	59,527	2,002,219	1,4,277	836,568
St. Louis	111	1,064	19,693	848,357	96,506	572,933
Cincinnati	109	580	17,577	736,306	72,886	572,272
Milwaukee	100	1,237	20,778	1,265,049	112,862	799,700
Lynn, Mass	100	110	4,027	147,028	9,871	86,488
Fall River, Mass	95	156	30,232	500,264	22,429	118,319
San Francisco	92	337	7,254	480,387	96,854	415,625
Baltimore	92	280	11,192	424,149	18,604	187,552
New Haven	82	205	5,287	206,340	35,588	40,568
Newark	69	324	11,538	500,896	58,734	154,460
Cleveland	64	314	11,322	208,738	26,324	117,207
Rochester	56	237	9,314	478,702	11,781	300,621
Indianapolis	51	309	7,851	116,429	10,353	161,102
Haverhill, Mass	51	76	5,271	97,239	6,660	78,495
Minneapolis	50	163	7,635	167,524	18,399	189,400
Paterson, N. J.	47	117	22,326	1,019,768	26,757	555,200
Buffalo	46	408	14,079	459,758	19,950	818,015
Jersey City	46	113	7,819	90,020	1,330	12,275
St. Paul	45	255	22,475	780,325	24,520	1,017,795
Troy, N. Y.	42	123	3,649	68,031	3,769	39,802
Total	5,909	28,662	955,250	$34,988,100	$4,590,171	$28,786,446
Total in United States from 1881 to 1894	.....	.....	.....	$163,807,657	$10,914,406	$82,589,786

LOCKOUTS.

FROM JANUARY 1, 1887, TO JUNE 30, 1894.

CITIES.	Total lockouts.	Establishments involved.	Employes thrown out of employment.	Wage losses to employes.	Assistance to employes by labor organizations.	Loss to employers.
New York	43	393	19,957	$ 587,801	$83,112	$ 370,442
Brooklyn	9	64	2,360	68,424	6,092	121,225
Chicago	18	1,151	48,612	3,576,817	70,050	2,789,910
Boston	19	128	3,072	212,434	40,450	97,111
Allegheny and Pittsburg	15	385	11,572	5,353,764	250,025	727,959
Philadelphia	14	82	9,262	447,958	62,585	510,575
St. Louis	8	42	1,006	217,247	45,249	48,140
Cincinnati	13	96	3,908	211,375	27,508	60,339
Milwaukee	7	25	752	245,755	12,375	505,600
Woburn, Mass	4	19	1,577	78,646	4,329	45,600
Albany, N. Y.	3	77	1,512	42,267	.....	12,000
San Francisco	12	42	776	67,763	13,170	18,200
Baltimore	5	6	239	7,240	2,684	7,950
New Haven	5	8	64	3,344	840	15,725
Newark	4	49	2,974	139,536	12,350	29,700
Rochester	6	81	18,271	462,260	3,159	205,545
Indianapolis	6	116	1,135	65,224	900	20,000
Haverhill, Mass	10	57	7,436	101,606	5,900	60,400
Minneapolis	7	7	1,650	28,250	12,828	26,100
Buffalo	5	30	930	72,438	365	13,670
Jersey City	10	55	1,056	30,780	8,303	46,150
Richmond, Va	6	15	117	10,503	2,274	650
Seattle, Wash	5	23	423	19,600	2,628	4,040
Detroit, Mich	5	11	1,264	56,201	14,642	5,500
Springfield, Mass	5	8	208	1,230	.....	11,755
Total	244	2,970	140,135	$12,108,463	$671,818	$5,754,286
Total in United States from 1881 to 1894	.....	.....	.....	$26,685,516	$2,524,298	$12,235,451

Note also the comparison in dollars between the cost of these strikes from 1887 to 1894 in these twenty-six cities, and the total in all the United States for the entire period of 1881 to 1894. I think these twenty-six cities may be well termed, as we say in meteorological observations, "great centers of disturbance." In giving any comparison or going deeper into the subject, the reader must remember that the cities of New York, Massachusetts, Ohio and Pennsylvania have fifty-one per cent of all the manufacturing establishments in the country within their confines, and fifty-six per cent of the total capital invested in mechanical industries in the United States. In these States, from 1887 to 1894, 74.80 per cent of all the strikes in the United States originated, and 89.40 per cent of the lockouts. The total of these twenty-six cities may be compared to the totals in the whole country for the same period of 1887-1894. There were 10,487 strikes, involving 46,862 establishments, that cost a loss in wages of $111,992,934, and a loss to employers of $51,888,233. Furthermore, these twenty-six cities contained 34.26 per cent of the manufacturing establishments of the country and employed 38.88 per cent of the capital invested in mechanical industries in the United States. New York, Brooklyn, Chicago, Allegheny, Pittsburg and Philadelphia reported 43.49 per cent of all the strikes during that period and 47.48 per cent of the establishments involved.

To-day there are enrolled in the International Union of Bricklayers and Masons 81,000 members, the American Federation of Labor, 1,210,000; Knights of Labor, 216,000, and in the mining unions, 75,000. Apart from these are the railroad workers — locomotive engineers, 37,000; firemen, 29,000; conductors, 30,000; trainmen, 27,000. All told, our working population numbers 31,800,000, that is, all classes employed in gainful occupations; 22,000,000 of these are males and all are over ten years of age. This on a population of 76,303,387 people, as compared to 62,622,250 in 1890. As near as can be gotten at before this present census is complete, in no year since 1894 have the conditions been so serious as they were at that time. Prior to that, the troubles of 1886 and 1887 entailed the greatest loss both in strikes and in lockouts. During the first six months of 1894 over $28,000,000 was lost to the employes in wages on account of strikes, while the years of 1886 and 1887 showed a combined loss of $31,000,000. The great coal strike of 1900 bade fair to raise those figures to enormous proportions; 140,000 men and boys were involved and lost over $4,000,000 in wages, and lost to the operators very nearly $4,000,000 and $2,000,000 more to the railroads, but that was the most serious trouble of the year. Eighteen hundred and ninety-

eight and 1899 were made memorable by the great building trades' strike in Chicago.

In spots there have been even greater troubles than those of 1894 and 1886 or 1887, but the general tone throughout the country has been less bellicose, so that the general average from 1895 to the present time may be struck at that of 1890.

Our strikes and lockouts this year, that is to June 30, a fiscal year, will have cost us just about 37 cents per capita of our population, and yet that is but the direct tax upon us; just imagine what the indirect loss must be. We know that the street car strike in St. Louis cost the strikers and the people $500,000 per day, but we also know that the bank clearings in that city fell off just $2,500,000 the first week of that strike. Taking the 37 cents as about the cost per capita of strikes and lockouts, observe that our total money circulation on July 1, 1901, was $26.93. We coined $1.30 in gold per capita and 48 cents in silver, so that it takes pretty nearly our total silver coinage to pay for the folly of our people in not amicably adjusting labor difficulties. This is, perhaps, one way of disposing of the silver question. I may add that at the rate of 37 cents per capita wasted in strikes, we are drawing upon exactly one-tenth of our total bank deposits, taking our record of yesterday as a basis for calculations. It may be not entirely foreign to the subject either to note that our alcoholic drink bill last year was nearly $13 per head, which fact may account to some degree for strikes and other kindred troubles.

In France the average for a year is about 70,000 men, 8,000 women and 3,000 children out of employment by reason of strikes and lockouts. These lose a total average of 1,000,000 days per year, in which figure, however, is included 150,000 days lost by 6,000 people who are not strikers but are rather thrown out of employment by reason of the latter.

Three hundred and fifty strikes per year is a fair average for France; twenty per cent of these generally succeed, thirty-three per cent partially succeed, so that the percentage of failures with us is much smaller than that of the French. The year 1900 was a particularly bad year. There were 902 strikes, during which 222,714 people lost 3,760,599 days' time. Less than twenty-two per cent of these strikes were successful in gaining the objects for which they were inaugurated.

In Great Britain an average of 200,000 people are affected annually by strikes and lockouts. In the year 1893, during the time of the great coal strikes, these lost 31,000,000 days. Since then the average has been 8,000,000 days per annum lost. About one-third of the strikes are successful, one-third failures and the other third compromises. In 1897 there was a general increase of wages in all lines of employment in Great Britain that ran all the way from 4 cents for people engaged in textile manufactures up to 51 cents to those engaged in the building trades. That same year there was also a very general reduction of hours, averaging nearly four hours per week. It is interesting to note that of the 1,015,169 persons affected by wage changes, but 11,000 suffered any reduction, and only 52,000, scant five per cent, were involved in any strike upon this question.

There is being compiled for publication in about two years a statement of the cost of strikes in all lands for the past twenty years. It will be most interesting data. At the present writing we may but guess at the totals it will show. I think that the final showing will demonstrate that the civilized world loses annually by strikes and lockouts $82,000,000 in wages to its workers and $40,000,000 direct loss to the employers of labor.

The direct loss to the world and the indirect loss, that is, losses of assured gains, stoppage of works contemplated and matters of that kind directly traceable to strikes and lockouts, will all aggregate, I am sure, over $5,000,000,000 a year! This direct and indirect loss, or diversion of money from its regular channels, caused by strikes and other labor troubles in the United States, is estimated at $430,000,000 for the past year. Our total railway earnings were but $140,000,000. Think of the brake and clog that that loss is to modern progress, and think of the thousand times more useful channels in which the money that is so lost could be spent!

Of the 31,800,000 people employed in the United States in gainful occupations, there are but 15,000,000 employed in occupations that have been subject to strikes and lockouts in the past. Remember that there are many millions engaged in agricultural, domestic or professional lines where strikes and lockouts are unknown tribulations.

Now, then, the 314,000 people who strike or are locked out in this country entail a loss that may be estimated at $1.80 per year for each one of the 15,000,000 people who labor in occupations where strikes and lockouts are common, or a loss of $88.90 for each one of their own number thus engaged in strikes or lockouts. The cost of maintaining our schools amounts in all to $9.06 per annum for the 21,000,000 children from five to eighteen years of age who actually do or should attend these schools. In other words, per capita, our strikes and lockouts cost one-seventh as much as does our public school system. Not a flattering showing by any means.

The comparison of the cost of strikes and the cost of education is not a haphazard one, nor one for mere effect. The two bear the closest relation one to the other, for I firmly believe that it is by education and by education only that the conditions can be ameliorated. In times past we have attempted all sorts of expedients to settle the labor question; there has been legislation galore, attempts have been made to have compulsory arbitration with permanent arbitration boards as courts of appeal, before which labor organizations and employers' combinations might adjust their difficulties. All this is good and the tendencies are in the right direction; let us call these various steps processes of evolution. But methinks that the most beneficent and effective of all means to stop strikes has been somewhat neglected in the past. In our own schools the history of the wars is still harped upon, with deeds of glory and blood magnified into the most valorous performances of men and of nations. The particular words are not used, but the child being taught is still led to believe that "might is right." It proceeds to adjust its wrongs by that process and grows up into manhood's estate firmly convinced that he must fight for his rights. "The social doctors have gathered around the economic man," says a recent writer upon this subject. "What he needs is to be fed; he needs support for his body, cushions for his head, restoratives for his nerves," say they — each one eager to apply his particular kind of remedy. He may need all these remedies, but much more is he in need of, is the economic man, as well as all his brethren — Education; not mere book learning, but a training from the earliest infancy to recognize the rights of others and to respect these rights, to realize that might is not right, that conciliation and arbitration are the proper adjustments for all disputes. Let our schools cut off one or two newfangled and rather useless studies and devote that time instead to teaching the youngsters "good will to all men." Let some one rewrite our histories for the schoolroom, expurgating much of the silly twaddle about the glories of war and that sort of thing, showing rather the beneficent effects of peace and prosperity. It may take a couple of generations, but believe me, this labor question is not one that can be adjusted or solved by the application of any of the quick and ready processes or nostrums so many would have us believe so effective. By this means of education may we hope that our childrens' children may hold broader views of life and be nearer the solution of all these vexatious problems. I do not look for the millennium, but I do most earnestly pray that men may some day realize the folly of war between nations to settle their major disputes, and of strikes and lockouts and all lesser forms of violence in the settlement of their minor disputes.

It may take years and we may have many wars and strikes to go through yet, but let us say with the great Paul: ". . . Now no chastening for the present seemeth to be joyous though grievous; nevertheless afterward it yieldeth the peaceful fruit of righteousness unto them which are exercised thereby . . ."

COST PER CUBIC FOOT OF BUILDINGS.

THE following is the first of a series of notes by architects in general practice in the United States, giving the percentage of cost of cubical contents and other items pertaining to the percentage of cost of structures.

COST PER CUBIC FOOT OF BUILDINGS.

The number of cubic feet should be calculated by multiplying the area covered by the building, using outside dimensions by the height measured from the bottom of the foundations to the average height of the roof. To this sum add the cubic contents of the vaults below sidewalk, pent houses, dormer windows, etc., and subtract the cubic contents of the courts open to the weather.

The height above sidewalk to top of bearing wall allowed by law is 130 feet. To this add the height from bottom of footings to sidewalk, usually, in the downtown office buildings, fourteen feet.

TO OBTAIN THE COST OF A COMPLETED BUILDING.

To the cost of the construction of the building, including boilers, heating plant, electric plant, decoration, etc., add the architect's fees, and divide this sum by the number of cubic feet. The result is the cost per cubic foot.

The cost per cubic foot varies greatly in the different classes of building according to the amount of subdivisions and the degree of finish, etc. Also the dimensions and the height of stories are important factors, for a story of twenty-two feet costs much less than two stories of half the height; also the larger the building the less it costs, other things being equal; for, as Mr. George A. Fuller used to say: "Air costs much less than masonry and steel."

Hence, to estimate in advance of construction, the cost of a building by the number of cubic feet, multiplied by a price per cubic foot, it is evident that great judgment is required. This must be based entirely on experience and precedent. Hence, a list of the cost of many buildings per cubic foot, calculated as hereinbefore described, with date of completion, is a necessity. The larger this list the better prepared is the architect to make such preliminary estimates, which are often very useful and even essential.

To this end we publish what Jenney & Mundie, architects, were able to furnish us, and would request all our professional readers to contribute what they are able, in order that we make a collection very useful to all.

FIREPROOF BUILDINGS — IRON AND STEEL CONSTRUCTION.

Manhattan building, Jenney & Mundie, architects; completed January, 1892.— Sixteen-story, two finished fronts; pressed brick, terra-cotta and granite; cast-iron columns; five elevators. Not entirely subdivided. Cost, per cubic foot, 17⅓ cents.

Leiter building, Jenney & Mundie, architects; completed May, 1892.— Granite three sides, brick on alley; eight stories; cast-iron columns; wholesale and retail store building. Cost, per cubic foot, 19¾ cents.

American Express Stables, Jenney & Mundie, architects; completed February, 1893.— Cubical feet, 3,017,810; steel construction, fireproofed; Sioux Falls Jasper first story, pressed brick above; tile arches; four stories and basement. Cost, per cubic foot, 10 1-5 cents.

Percentage of different items of cost:	Per cent.
Carpentry and joinery	8.9383
Plumbing, gas and sewerage	4.1424
Masonry	15.4484
Excavation	2.0280
Iron and steel	32.9962
Fireproofing	16.4926
Elevators and guards	2.1890
Steam heating and boilers	2.9761
Plastering	2.5363

Ludington building, Jenney & Mundie, architects; completed May, 1893.— Cubical feet, 2,676,405; storage wareroom and offices; eight stories; finished three sides terra-cotta. Cost, per cubic foot, 18¼ cents.

Percentage of different items of cost:	Per cent.
Iron and steel	34.068
Masonry and concrete	10.880
Terra-cotta	8.634
Glass and glazing	2.987
Elevators	3.146
Ornamental iron and stairs and fire-escape	2.510
Fireproofing	12.172
Carpentry	4.320
Boiler and heating	7.019
Plumbing and gas	2.648
Electric work	1.266
Plastering	6.150

Estimated cost frame building in 1896 was 15 11-13 cents per cubic foot, architect's fees included.

New York Life building, Jenney & Mundie, architects; completed April, 1894.— Office building.

Percentage of different items of cost:	Per cent.
Masonry and fireproofing	16.24
Iron and steel constructional	14.11
Carpentry and hardware	9.17
Plastering	2.82
Painting and glazing	5.76
Heating (steam)	4.87
Plumbing and sewerage	3.28
Granite	5.22
Terra-cotta	4.40
Elevators	3.84
Marble	13.25
Ornamental iron	5.98
Electric wiring	1.16

Trude building, Jenney & Mundie, architects; completed 1897. Office building; pressed brick and terra-cotta; granite entrance; large subdivisions. Cost, per cubic foot, 20 cents.

J. B. Waller, Jenney & Mundie, architects.— Six-story apartment building; pressed brick and terra-cotta. Cost, per cubic foot, 17 1-5 cents.

New York Life building, addition, Jenney & Mundie, architects; completed 1900.— Office building; addition at east, including additional story over old part. Cost, per cubic foot, 22 7-10 cents.

Fort Dearborn building, Jenney & Mundie, architects.— Office building; twelve stories; pressed brick and terra-cotta. Cost, per cubic foot, 36 4-10 cents.

Henry Channon building, Jenney & Mundie, architects.— Warehouse and manufacturing building; pressed brick, steel construction; fireproofed; no finish inside; no subdivisions. Cost, per cubic foot, 7 4-10 cents.

Isabella building, Jenney & Mundie, architects; completed May, 1893.— Office building; twelve-story; granite and terra-cotta; exposed on three sides; tile roof. Cost, per cubic foot, 57¼ cents.

Home Insurance building, Jenney & Mundie, architects; completed May, 1886.— Office building; originally ten-story building; afterward added two stories. Cost, per cubic foot, 39 9-10 cents.

The Fair, Jenney & Mundie, architects; completed June, 1893. General store; eight stories and roof space; 1893, original building; foundations put in for sixteen-story building; pressed brick and terra-cotta. Cost, per cubic foot, 24 1-5 cents.

THE APPOINTMENT OF ARCHITECT OF THE CAPITOL.

SINCE the death of Mr. Edward Clark, architect of the Capitol, at Washington, the question of his successor to that office has been agitated. The natural successor by way of promotion, and following the precedent established in the appointment of Mr. Clark after Dr. Walters' resignation in 1865, is Mr. Elliott Woods, who was Mr. Clark's assistant, and who, because of the latter's disability in 1898, was by Act of Congress made acting architect of the Capitol, and upon whom the responsibilities and duties of the office have since devolved. While Mr. Woods' administration of the office has been such as to meet the approbation of Mr. Clark, and the approval of House and Senate, it is claimed that as Mr. Woods, though he has been connected with the architect's office since 1885, is not an architect and that the importance of the office calls for one whose professional training has been such as to insure capable and professionally correct supervision of the nation's greatest and best structure. In pursuance of this the members of the American Institute of Architects, representing the profession generally, joined in recommending to the position Mr. Glenn Brown, of Washington.

ELLIOTT WOODS.

It was therefore important that no sentiment should enter into this question. The Capitol is too great a building, represents too much in our architectural history, to be placed in charge of any but the most competent, and in the intimate relations to the work sustained by Mr. Woods, and the scientific study given to the building by Mr. Brown, a nice question of preference arose. This was decided by Congress in establishing the position of "Superintendent of the Capitol" and appointing Mr. Woods to that position.

PAINTS IN ARCHITECTURE.

PAINT TESTS.

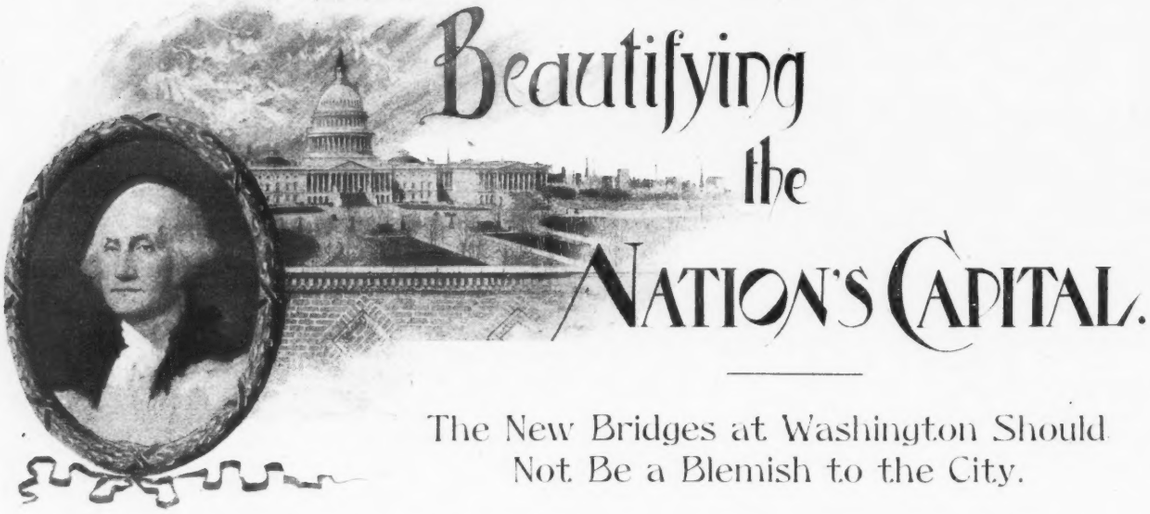
IN making practical tests of paint it is necessary, as a preliminary, to have a clear comprehension of what is to be determined, and then to insure beyond chance of error that conditions are the same for the competing materials. The importance of this last mentioned consideration was very clearly illustrated in a report recently submitted to a convention of painters.

The gentleman who made the report had been designated to test the comparative durability, for exterior use, of pure zinc, pure lead and varying combinations of the two. His observations covered a number of sample boards which had been exposed to the weather for two years. His conclusions, so far as determined, were that the presence of zinc white induces to cracking and the destruction of gloss. But for the last observation it is probable that the report would have gone forth unchallenged; but this being so clearly in opposition to facts familiar to all, he was questioned as to the nature of the zinc used. He innocently confessed that it was ground in japan, which at once explained the results obtained and comparatively annulled their value.

A comprehensive series of paint tests should include covering capacity per given volume, color value and purity, durability of substance, color and luster, and finally, cost of maintenance for a given period of years. It is not difficult to make such tests, and the results would justify the labor of any practicing architect.

I am satisfied that such tests, intelligently carried out, will demonstrate to the satisfaction, and incidental profit, of any one that zinc white is essential to successful exterior painting.

CHARLES JOURDAIN.



Beautifying the Nation's Capital.

The New Bridges at Washington Should Not Be a Blemish to the City.

OF late much space, in this and other journals, has been devoted to the project now under consideration, of beautifying Washington. It is one of the most praiseworthy projects ever conceived. This city is the nation's capital; we all take pride in it. Every one who can, visits it. It has splendid possibilities. Sordid commercialism has not yet spoiled it; it has only been neglected. We have awakened to the necessity of fixing it up and taking advantage of those possibilities provided for us by nature and the wise forethought of the fathers of our country.

Congress has wakened up; that generally lethargic body, when artistic matters are in question, has decided that something must be done. It has appointed a commission to take charge of the work; not a political commission, but one composed of the very highest talent in the world. It has placed that commission under the chairmanship of the man who gave us the World's Fair, and that alone would assure success, for Mr. Burnham never touches anything but that is a success.

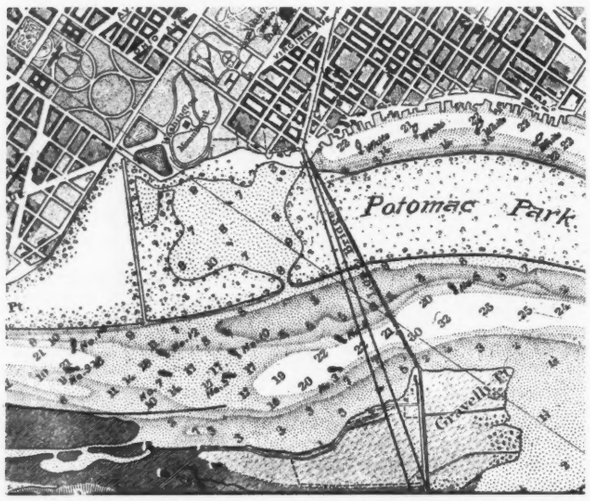


FIG. 1.—MAP SHOWING APPROXIMATE LINE OF NEW BRIDGES TO REPLACE LONG BRIDGE ACROSS THE POTOMAC RIVER.

These gentlemen have traveled and studied and labored. They realize our people are taking the foremost place in the world of commerce, therefore are we becoming a world power. Other nations realize it, too; they court our favor; they seek alliance with us; they send us important visitors to testify to their good will and "distinguished consideration." This commission rightly argues that since we have taken so exalted a place as a world power we can not afford to have our capital rank below those of our generally outdistanced competitors. Washington must be as beautiful as Paris, as Vienna, as Berlin. We must not limit ourselves to a place with the bare necessities of a city for legislative purposes.

This feeling finds expression in the organization of that commission, but it is not merely a spasmodic, passing whim. The evolution of the nation demands it. It is a natural growth. As we progress, or as we grow older, we seek for an individual expression of our natural tendencies toward luxury, refinement, a higher education of our masses.

From time immemorial individuals who were favored by great fortunes or political power, as great merchants, financiers or rulers, have considered it their special privilege to devote their energies and wealth to the building of beautiful structures in the form of temples, churches, arenas, residences, palaces, monuments, aqueducts and bridges, which were intended not only to gratify their own exalted tastes and desires, but were especially intended for the education and gratification of the multitudes who would see and gratefully appreciate the structures for centuries to come. As a result, to-day artists, students and tourists are visiting Rome, Florence, Venice and among the modern cities, Paris, Vienna, Berlin, London and St. Petersburg. In the latter cities the highest executive authorities for centuries have regarded the beautification of their capitals as a most sacred trust and the highest mode of expressing their superior civilization. Though the struggle for existence and the need and desire for dividends in each of these cities was and is great, yet the authorities do not permit greed to control, and allow the building of structures in rude and ugly nakedness for mere purposes of dividends, however powerful and wealthy the corporation. All new structures must harmonize with the existing highly cultivated sense of the beautiful. This not only expresses the demands of the authorities, but also of the people, who would not tolerate an administration that would permit the spoliation of their capital. The State is more powerful than a corporation, and should exercise its power for the public benefit. Emperors, though they may have the power to permit the building of crude structures, have usually had so high a sense of their obligations not only to the present but also to future generations, that they would shrink from exercising power so wilful, arbitrary and pernicious.

The plans prepared by the commission contemplate the tearing down of much that is ugly and the building of much that is beautiful. Part of its scheme is a grand bridge across the Potomac to Arlington, where thousands of our soldier heroes are buried. There has been much controversy over that bridge. Now, with this commission in charge, we are assured of the construction of a handsome, harmonious bridge in the near future.

A very closely related project thereto and the subject of our present article are the two bridges to be built now further down the river, to replace what is called the "Long bridge."

Incidentally it may be noted that there is in the United States a general movement not only toward the construction of more artistic and beautiful public buildings and monuments, but also an appreciation for and strong movement to secure more artistic bridge structures. In the latter respect we are almost more than

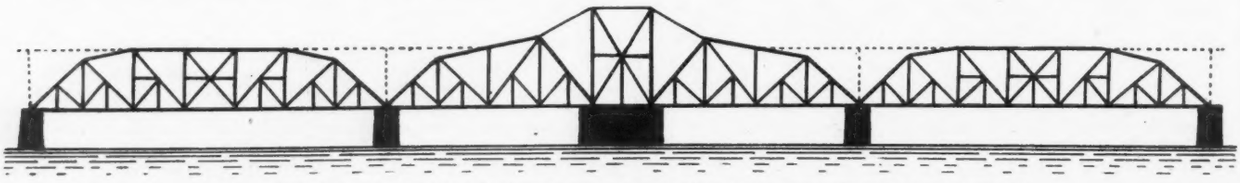
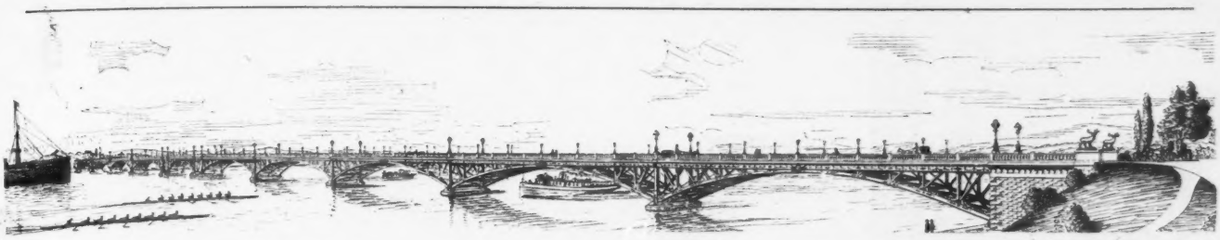


FIG. 2.—OBSOLETE, INARTISTIC AND DANGEROUS SWING BRIDGE PROPOSED BY ENGINEER OF RAILROAD COMPANY.



ARTISTIC POSSIBILITIES OF SCHERZER ROLLING LIFT OR BASCULE BRIDGE, IN COMBINATION WITH ARCHED DECK FIXED SPANS.

DETAIL ELEVATION OF SCHERZER ROLLING LIFT OR BASCULE BRIDGE, AND TWO ADJACENT FIXED SPANS, DECK TYPE.

a century behind Europe. As a rule, the outlines of American bridges would offend public taste in Europe, although in economical engineering the American bridges have reached the highest stages of development. New York city has a number of bridges that it may justly be proud of from an artistic point of view, notably the Brooklyn bridge and the Washington bridge across the Harlem River. St. Louis may well be proud of the Eads bridge constructed in 1873. Many comparatively small cities throughout the United States are building handsome arched bridge structures, equal to the best European practice.

One of the most prominent and well-known bridge structures in the United States is this old historic Long bridge across the Potomac River at Washington, D. C. This bridge is to be replaced under an Act of Congress, approved February 12, 1901, by a new double-track railroad bridge and a new highway bridge adjacent to the railroad bridge and forming the connecting link for traffic between Washington and Mount Vernon. The railroad bridge is to be built and paid for by the Baltimore & Potomac or Pennsylvania Railroad Company. The highway bridge is to be built and paid for jointly by the Government of the United States and the District of Columbia. The plans of both bridges must be approved by the Secretary of War. Fig. 1 is a plat showing the Potomac River at Washington, D. C., and the approximate lines of the new railroad bridge and highway bridge, both to replace the old Long bridge. It also shows the approximate line of the proposed bridge to Arlington, for which competitive plans were received last year by the War Department, and for the construction of which a bill for the appropriation of $5,000,000 is again before Congress. At a public meeting of the engineer board having the plans, etc., of the highway bridge for street railroad and highway traffic between Washington and Mount Vernon under consideration, held at Washington on April 4, 1901, a design of bridge was submitted by a representative of the Pennsylvania Railroad Company for a steel bridge to replace the old Long bridge. Fig. 2 shows the general outline of this design, which incorporates a plain, "old-fashioned" center-pier swing bridge to span the dredged and navigable channel of the Potomac River, combined with fixed plain through-truss spans. It will be readily seen that the design is exceedingly plain and provides only for the bare necessity of carrying railroad trains in the cheapest possible manner. It could not have been plainer had it been intended to build the bridge in a wilderness. Such a bridge in the immediate vicinity and full view of Washington, the capital of the wealthiest, most enlightened, intelligent and progressive nation of the world, would be extremely offensive and objectionable to public taste. But it is especially objectionable because it controls the design and type of the highway bridge to be built alongside of it and forming the connecting link between the city of Washington and Mount Vernon. If only one of these bridges has artistic outlines, the defects of the other will be more glaring. In the bridge to Mount Vernon, which will be crossed by many millions of patriots visiting the city of Washington, not only the inhabitants of the city of Washington, but the entire United States have a deep public interest, and this bridge should be equal in importance with the bridge to Arlington. The bridge to the home and tomb of George Washington should at least be in keeping with the magnificent plans of the city of Washington, the Capitol building, the Congressional Library and the many splendid public buildings and artistic monuments, and should, in some manner, harmonize with the monumental Memorial bridge proposed to be built in the future, from Washington to Arlington. We give these bridges such extended notice because of their commanding prominence and because, when built, they will typify the public taste and civilization of the United States, and will remain as permanent prominent monuments for many decades, favorably or unfavorably impressing, and representing the people of the United States.

It would not be supposed that the Pennsylvania Railroad Company, in whose control the railroad bridge lies, and whose money is to build it, wishes in any way to disfigure the beautiful surroundings contemplated in the improvement of Washington, especially Potomac Park, over which these bridges extend. If no other evidence of this were presented, the extraordinary concession just made at the request of the commission in regard to their terminal, which, because it threatened to disfigure the Mall, will be changed at an enormous expense to a proper position north of the Capitol, would indicate that it appreciates the value of a change of plan where demanded by the public. This disposition to build artistic bridges has already found appropriate expression in a monumental bridge across the Susquehanna river at Rockville, Pennsylvania, in the form of a magnificent long stone arch bridge, a view of which is shown in Fig. 3. The press reports state that a similar monumental bridge is soon to be built across the Passaic River. These bridges will be seen by very few people, on account of their isolation, compared with the new bridge at Washington. Under the Act of Congress, of February 12, 1901, above mentioned, exceedingly valuable concessions, in addition to $1,500,000 in money, were given to the Pennsylvania Railroad Company for track elevation, which railroads in other cities are compelled to perform without compensation under police power.

The insistence of the railroad company to build the railroad bridge on the original design will prevent the building, by the Government of the United States and the District of Columbia, of an appropriate bridge forming the connecting link between Washington and Mount Vernon. That the Pennsylvania Railroad Company is all-powerful in the premises, is unquestioned, but the

FIG. 3.—NEW PENNSYLVANIA RAILROAD BRIDGE ACROSS THE SUSQUEHANNA RIVER, ROCKVILLE, PA.

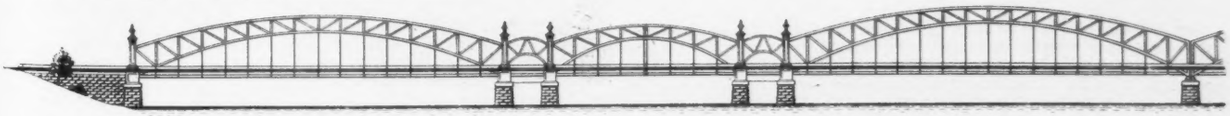
hope may yet be ventured that it will modify its harmful and humiliating decision and build a structure in keeping with other structures upon its lines, and comply with the wishes expressed by the Hon. Elihu Root, Secretary of War of the United States of America, in a communication to the president of the railroad company, dated October 26, 1901, as follows:

"October 26, 1901.

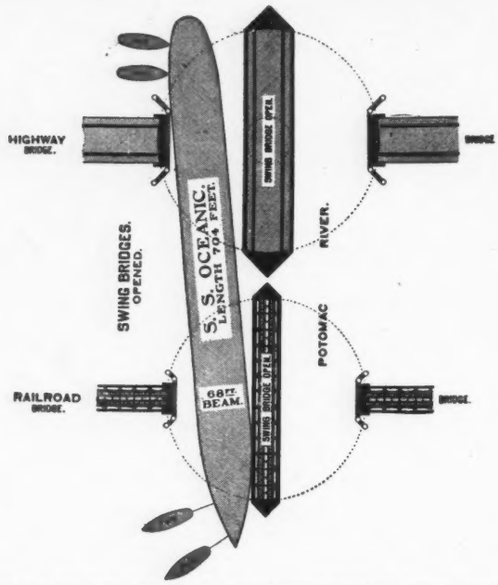
"*Mr. A. J. Cassatt, President, Pennsylvania Railroad Company, Philadelphia, Pennsylvania:*

"DEAR SIR,— Referring to your application of April 11, last, and to subsequent correspondence on the subject, I have the honor to transmit herewith for retention an instrument approving, under authority of the Act of Congress, approved February 12, 1901, the designs, drawings and map of location of a proposed bridge over the Potomac River in lieu of the present Long bridge, subject to the conditions set forth in said instrument.

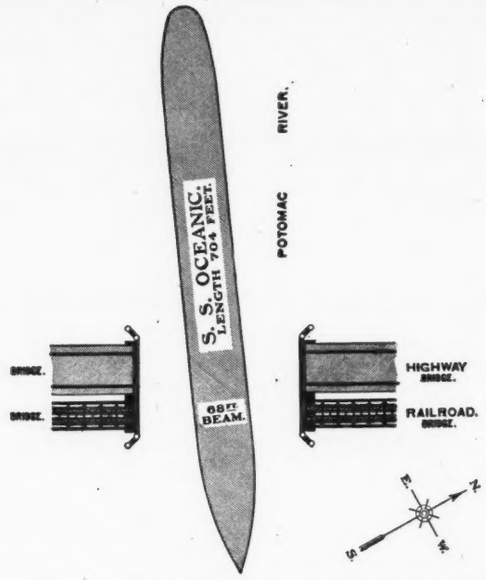
"In approving these plans, however, I feel constrained to again call attention to the views of the Board of Engineers and the Chief of Engineers, United States Army, concerning the importance of having the superstructure of this bridge constructed with a view to a more pleasant architectural effect. These views were set out in my letter to you of July 10, and are as follows:



DETAIL ELEVATION OF SCHERZER ROLLING LIFT OR BASCULE BRIDGE, AND TWO ADJACENT FIXED SPANS, THROUGH TYPE.

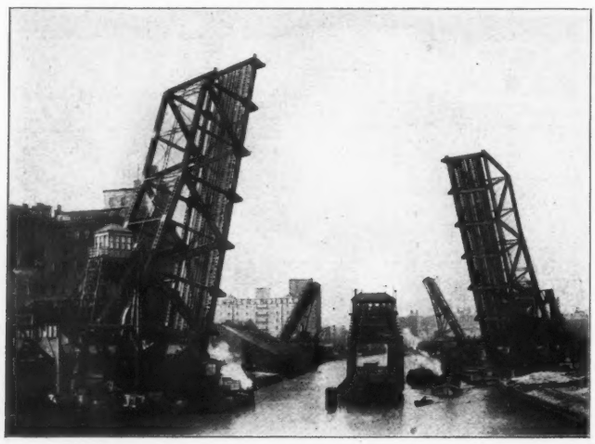


SHOWING CHANNEL ARTIFICIALLY OBSTRUCTED BY USING SWING BRIDGES.



SHOWING CHANNEL UNOBSTRUCTED BY USING ROLLING LIFT OR BASCULE BRIDGES

"The board is of the opinion that the proposed new bridge will not be an unreasonable obstruction to navigation of the Potomac River; but, while recommending the plans for the proposed structure generally, as follows: the number and width of spans, the clear headroom, the line for the bridge crossing, etc., all as herein described, the board would like to see a change from the



LONGEST SPAN AND SAFEST MOVABLE BRIDGE IN THE WORLD, AT ENTRANCE TO GRAND CENTRAL STATION, CHICAGO. VIEW BEFORE REMOVING SWING BRIDGE.

style of the proposed superstructure, which, as now planned, is to be of an ordinary form of railroad bridge truss, to one more pleasing in design and in keeping with the situation. The proposed details of piers are not shown on the plans. The bridge is to be an approach to the capital of the nation from the great railroads traversing and to traverse immense areas of our country, and it would undoubtedly gratify the community if such a change as is suggested could be effected, and the board believes that the Baltimore & Potomac Railroad Company, whose public-spirited policy is well known, would be willing, owing to the exceptional situation, to give the matter careful consideration if the suggestion of a more pleasing architectural effect were brought to its attention.

"A MORE IMPOSING DESIGN SUGGESTED.

"In this connection, and in response to the assurance contained in your reply of July 20, 1901, that your company will be glad to consider any suggestions which the War Department may desire to present, it is to be observed that this new bridge is to be one of the principal approaches to the capital of the nation, a connection to other beautiful structures proposed to be erected in the near future, and any modification in the style of superstructure which the Baltimore & Potomac Railroad Company may be pleased to make, with a view to securing a more imposing design and producing an architectural effect more in harmony with the exceptional situation of this bridge, will be gratifying alike to the War Department and this entire community, and I am sure would also be highly appreciated by the thousands of our countrymen who annually visit the capital city.

"The Chief of Engineers, United States Army, will, if desired, be glad to coöperate with the company in carrying out the above suggestion, and the War Department would be glad to receive any further expressions you may be pleased to make of your views and conclusions in the matter.

"Very respectfully,

"ELIHU ROOT,

"*Secretary of War.*"

The plan submitted by the Pennsylvania Railroad Company is all the more incomprehensible when one considers what it has done in other lines. It has spent millions to straighten its line; it is progressive enough to declare in favor of electric power to operate its trains in tunnels; it is planning an enormous outlay to tunnel into New York; it has declared its willingness to spend a million or more in building a handsome station in Washington — a monument — and yet, for a paltry few thousands of dollars, it will mar this city at this important entrance to it across the Potomac Park.

Does not the present state of civilization, public spirit and culture in the United States demand that the Potomac River at the capital of the nation, in proximity to the White House, be spanned by bridges at least as beautiful in outline as the long monumental bridge already constructed by the Pennsylvania Railroad Company across the Susquehanna River at Rockville, Pennsylvania?

A rolling lift or bascule bridge to span the navigable channel of the Potomac River in combination with harmonious fixed spans has been suggested to the Government authorities and the railroad company in place of the old-fashioned swinging draw which the company proposes.

In a letter to the Secretary of War regarding this railroad bridge across the Potomac, Architect D. H. Burnham stated that "a stone-pier, steel-arch bridge is not possible where a 'draw' is introduced. The bascule principle might indeed be introduced for the draw, but this form is deemed by the engineers to be unsafe for heavy railway traffic. Apart from the bascule for the draw, I know of no truss that would not project above the line

VIEW OF SCHERZER ROLLING LIFT BRIDGE, AT ENTRANCE TO GRAND CENTRAL STATION, CHICAGO, AFTER REMOVING SWING BRIDGE.

of the steel arches, thus introducing the very element of design that should be avoided."

The names of "the engineers" who it is stated deem the bascule bridge unsafe for heavy railway traffic are not mentioned by Mr. Burnham, but the chief engineers of other railroads have for a number of years been replacing swing bridges with bascule bridges, largely on account of the superior safety of the bascule bridges over the swing bridge. For instance, the N. Y. N. H. & H. R. R. has had in operation for a number of years a six-track bascule bridge at the entrance to the South Terminal Station, Boston, Massachusetts, it being the widest and the most important movable bridge on the lines of that railroad. On account of the safety and satisfactory operation of this bridge, they are removing a swing bridge at Bridgeport, Connecticut, and replacing the same with a four-track bascule bridge. The most important movable bridge at Cleveland, Ohio, crossed by the main lines and used by the fast and heavy trains of the C. C. C. & St. L. R'y, the L. S. & M. S. R'y and the Erie Railroad, is a bascule bridge and replaced a swing bridge largely because of the superior safety of the bascule bridge for railroad traffic. A bascule bridge has replaced the swing bridge at the entrance of the Grand Central Station at Chicago. This bridge is used by the main lines of the B. & O. R. R., Chicago Great Western R. R., the C. T. T. R. R. and other railroads, and is considered by engineers much safer for railway traffic than any swing bridge. Even the Pennsylvania Lines west of Pittsburg have selected a bascule bridge in preference to a swing bridge for their crossing over the main drainage and ship canal at Chicago — this is the eight-track bridge of which four tracks are used by the P. C. C. & St. L. R'y, two tracks by the C. T. T. R. R. and two tracks by the C. J. R. R. The engineers of all of these railroads and their consulting engineers selected a bascule bridge, in preference to the swing bridge, largely because of the superior safety of the bascule bridge for extremely heavy railroad traffic. This bridge frequently carries a thousand heavy railroad trains in a day. Among the above-mentioned bridges are the three largest, strongest, safest and most efficient movable railroad bridges in the world.

Naturally, the Scherzer Rolling Lift Bridge Company, which has replaced a large number of swing bridges with its improved rolling lift or bascule bridge, and which is now replacing swing bridges in New York, Chicago, Cleveland and many other centers has taken a deep interest in these bridges because of their prominence. While it has done all it legitimately could do to place its system prominently before the railway company and the authorities, it also public-spiritedly has set aside its own claims and joined in the general protest that the company use some design more in harmony with the proposed improvements at Washington than the old-fashioned swing bridge proposed.

Although the Scherzer bridge, that we would strongly advocate not only for the Potomac River crossing, but for crossing any navigable channel, has been used in so many prominent positions and is so universally known and admired as the most modern and scientific movable bridge — still some of our readers, away from the great waterways, may not be familiar with all its excellent points; therefore do we devote some little space to its illustration and description, showing the artistic outlines possible with this bridge, utterly impossible with the swing bridge.

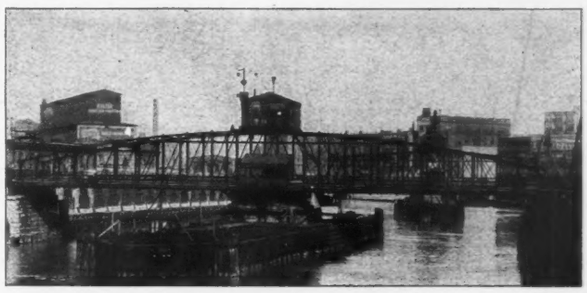
That the commission, whose only desire is that the design which it has submitted to Congress may be a complete thing and not marred in one of its most vital parts, practically condemns any form of swing bridge, is indicated by the expression of Mr. Burnham, its chairman, in a recent address on the subject of the commission's plans, in which he said that it was not possible to construct a stone bridge, because a stone bridge must be of one solid construction from bank to bank, and that there must be a passageway for vessels in any form of bridge used here, that "the bridge must therefore be of steel, with some form of bascule for the draw." Thus, any form of swing bridge is condemned by the very highest authority, a fact that can not be overlooked by either railroad company or Congress, private interests or national.

In view of this opinion, some of the most valuable, both artistic and practical, points in regard to the most well-known, successful and thoroughly tested lift or bascule bridge will be of interest in its special relation to these bridges at Washington.

The movable parts of the Scherzer Rolling Lift Bridge are supported by piers placed on the sides of the navigable channel, and no center pier support is necessary. The entire navigable channel is available, and is unobstructed for the passage of vessels. The span of the bridge may be made large enough to fulfil any requirements of navigation without impairing the simplicity, safety or efficiency of the bridge.

It moves, when opened, in the most advantageous direction; that is, the vertical direction entirely within the lines of the roadway; it does not encroach upon or interfere with adjacent bridges, adjacent docks or adjacent waterway, nor would it interfere with any future additions to the width of the bridge.

When opened for the passage of vessels, it acts as a barrier, closing the roadway, and thus absolutely preventing the many disastrous accidents common to swing bridges when opened. Without additional cost, the bridge itself forms the most per-



TYPICAL CENTER PIER SWING BRIDGE.

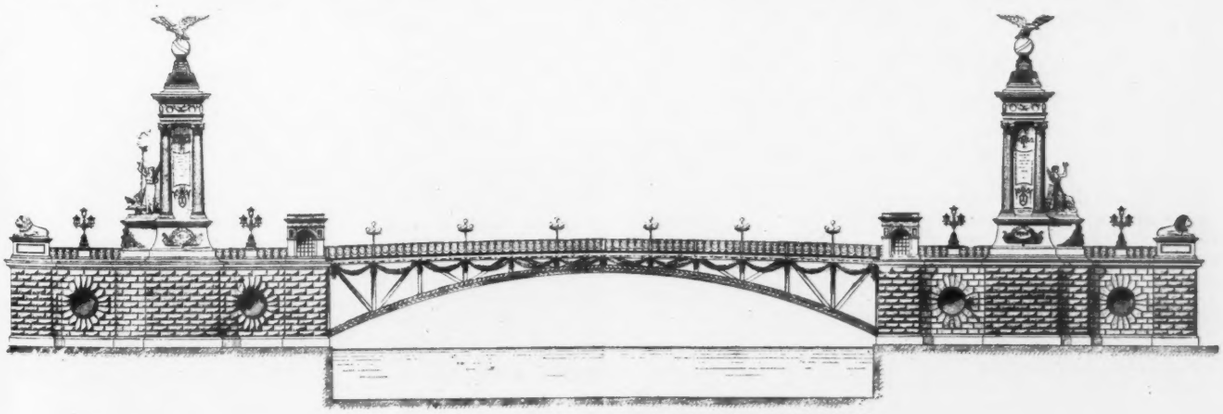
fect, substantial and successful bridge gate and signal ever invented.

The large unobstructed opening in the direct line of the navigable channel, obtained by the use of this bridge, enables vessels to pass the bridge very rapidly, and as a partial opening of the bridge will be sufficient for the passage of small vessels, the power expended and the time occupied in opening and closing the bridge are both reduced to a minimum. The large bridges of this type now in use are usually completely opened or closed in less than thirty seconds, and receive highway or railroad traffic in less than one minute from the time the bridge begins to close. A swing bridge can not be operated so rapidly and safely, nor can vessels pass through the narrow openings provided by the swing bridge so rapidly.

The construction and erection of the Scherzer Rolling Lift Bridge causes no obstruction whatever to navigation. The movable parts of the bridge are erected and completely equipped for operation on the piers at each side of the navigable waterway, in the positions which they occupy when the bridge is open for navigation, and it is not necessary to close the bridge until it is entirely completed and ready for use.

We still believe that should concerted action be taken by the Park Commission and all those interested in the advancement of Washington, the Pennsylvania Railroad Company is broad-spirited enough to take the matter under due consideration.

Concerted action, however, is the only possible means of obtaining beautiful and harmonious bridges. It is a matter that appeals to the architect as much as to the engineer. As a body, they secured competitions for public buildings; as a body, they secured from Congress the appointment of the Park Commission; as a body, why should not they now see that the commission's ideas are carried out, and labor with the Pennsylvania Company to obtain a modification of their design for the proposed railroad bridge.



SCHERZER ROLLING LIFT BRIDGE, WITH MONUMENTAL ORNAMENTATION.

SAVED BY ITS FIREPROOFING.

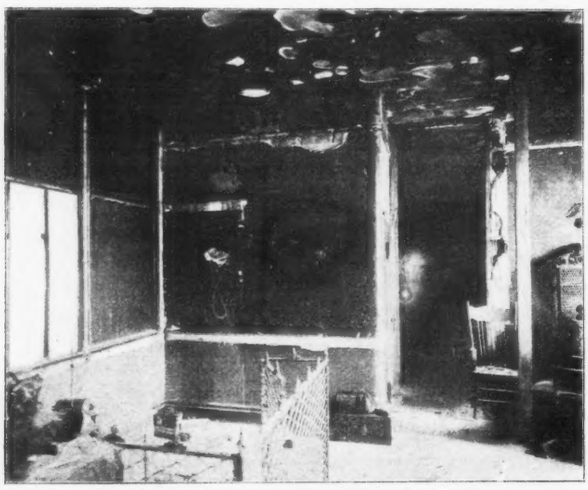
THE many disastrous fires that have occurred in important business districts in several cities, each one of them being adjacent to and threatening large office structures, has directed attention in a still greater degree not only toward the wisdom of fireproofing but to the foolishness of accepting any but the best as a fireproofing agent. For twenty years it has been possible to so thoroughly cover all fire-destroying material in the structural parts of buildings, and the modern steel construction being the best method for buildings, high and light, it is here that the largest quantity of fireproofing has been done. Not only this, but in these modern office buildings in most cases the proper amount of money has been expended to allow the fireproofing companies to do their best work. The result is that in all fires that have occurred in office buildings there is yet to be found one case where the fire was not held within the rooms where it started, and the destruction of the building avoided, no matter what may have been the inflammable nature of the contents of the rooms.

OLD COLONY BUILDING, CHICAGO.

The fire in the Reid, Murdoch & Fischer wholesale premises at Chicago, in which $15,000 worth of goods were destroyed and the fireproofing company's estimate of $250 for repairs was considered too high; the fire in the offices of the Wagner Car Company in the Woman's Temple and the half dozen incipient fires in the Great Northern Hotel, in which no damage to walls or floor arches occurred, were among the many examples of this.

The latest and one of the best examples of the fire-resisting qualities of true fireproofing was given by a slight, yet dangerous, fire that recently occurred in the Old Colony building in Chicago. The building stands seventeen stories high, facing on three streets. The architects, Holabird & Roche, in design and plan made it one of the best office buildings in the city and it was thoroughly fireproofed with hollow tile upon a system that has been placed in the majority of fireproof structures during the last twenty-five years.

It was one of those accidents that are so unforeseen but liable to happen at any time. It started in a pipe shaft which extended from the basement to the roof. This is about 4 by 6 feet in size and contains not only the elevator counterweights, the guides of which are of wood, but also a number of steam pipes covered with pipe covering. The grease on the wooden guides, the pipe covering and the wooden doors at each story furnished a considerable quantity of fuel, which, together with the chimney-like draft, made an exceedingly hot fire throughout the entire length of the shaft, which here and there burst out into the offices, doing more or less damage before the fire department got to work.



"NO DAMAGE HAD BEEN DONE TO THE TILE WORK, EITHER IN CEILINGS OR WALLS."

The greatest damage, singularly enough, was found to be on the seventh floor in the offices of the Expanded Metal Fire Proofing Company, where the fire was so severe as to totally destroy the entire contents of the two rooms. The flames had broken out of the shaft and through a transom and burned so fiercely that a metal rack made for holding plans was badly twisted, giving evidence of the great heat generated.

The tile partitions surrounding these offices were practically intact, there being no damage done to the tilework either in ceilings or walls, though in several places the plastering had fallen from the tile, and the walls were uninjured except where the firemen had cut holes through which to operate their pipes.

"THOUGH IN SEVERAL PLACES THE PLASTERING HAD FALLEN FROM THE TILE, THE WALLS WERE OTHERWISE INTACT."

It was noticed that a sample partition of the expanded metal method had also been destroyed, but the manager explained to the architect, Mr. Holabird, who was making a personal examination of the fireproofing and who stood on the other side of this partition, that the plastering had been knocked off by the firemen when the water was turned on.

On continuing his examination, Mr. Holabird found that, owing to the stable quality of the tile partitions, the adjoining offices were not in the least injured and that the fire could not have spread outside of these rooms, except where there were doors between connecting offices.

Mr. Holabird seemed perfectly satisfied by his inspection regarding the present method of fireproofing as demonstrated by this fire, and said that all question regarding the fireproof qualities of tile construction and the safety of "skyscrapers" fireproofed by this method was past, as he considered this fire test most conclusive evidence that the present method of fireproofing buildings was safe and substantial.

It is apparent that this incident but adds to the proof of the necessity for not only the permanence of the present building laws, but additions thereto, and their rigid enforcement. In New York, interested people have sought to weaken them, but have not succeeded. In fact, such action would be suicidal, as it would not only affect the insurance rates, but place life and property in the greatest jeopardy.

This is why the recent fire in the Old Colony building may be taken as a perfect object lesson. Any laxness on the part of the architect in convincing the owner that the greatest economy was in the best fireproofing obtainable would have left a blackened and ruined structure, with an interior of twisted steel and fallen brick, instead of a building wholly undamaged except in the destroyed furniture and blackened walls that are easily replaced with no cost to the owner. Had the opposite been the case, the inferential damage to the architect would have been as great, perhaps, as that of the owners, for, no matter how unjust it may be, a disaster to a building is always in some degree reflected by the public mind upon the architect who designed it, and in no particular should an architect be more careful than in the quality of its fireproofing.

TYPES OF AUTOMATIC BOILER PRESSURE CONTROLLERS FOR MECHANICAL DRAFT.

MECHANICAL draft, and especially mechanically induced draft, may safely be characterized as the economic factor of modern boiler practice. Of the many advantages following in the train of induced draft none has been so instrumental in causing its rapid introduction and development as the marked savings effected thereby. The modern captain of industry is not slow to take advantage of any improvement which may serve to cheapen the first cost of his equipment, and at the same time materially increase the efficiency thereof.

The essential feature of mechanically induced draft may be said to reside in the application of a fan to create the draft which is necessary to supply oxygen to the fuel and which it has been the function of the chimney heretofore to produce. In the case of a fan installation the stack ceases to become the draft agent and hence need only be of a height sufficient to discharge the gases so as not to be obnoxious. The heat of the gaseous products of

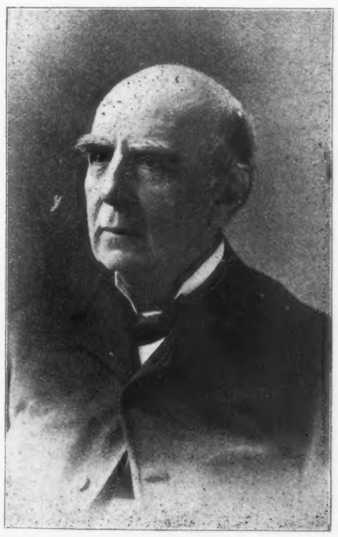
combustion is now no longer necessary, as in the case of the chimney, to create the necessary draft, and may therefore be extracted by the agency of economizers or feed-water heaters, thus reducing to a minimum the greatest source of loss which the boiler plant knows.

It will be seen that, instead of being a fixed quantity, as in the case of a chimney, the intensity of the draft may be varied by means of the fan engine speed. Thus, when increased steam consumption or other causes occasion a fall in the boiler pressure, the deficiency may be made good by an extra turn of the fan engine throttle. It often becomes desirable that this regulation for a constant steam pressure should be made automatically, and this is easily accomplished by placing a pressure-regulating valve in the steam pipe of the engine which drives the fan. Such a device may be so adjusted as to cause the fan engine speed, and hence the intensity of draft to be increased whenever the pressure tends to fall off, thus giving a very nearly constant boiler pressure.

In these days, however, the steam engine is by no means the only motive agent which is utilized for fan driving. In many situations the electric motor, either belted or direct connected, has been found to be by far the most suitable arrangement for fan work, being peculiarly adapted to such service by reason of the identity of motion of the driving and driven portions of such a combination. The application of motors for driving the fans of induced-draft plants has involved the problem of speed regulation for a constant steam pressure, as in the case of the steam-driven fan heretofore mentioned. This problem has been adequately solved by the Buffalo Forge Company, of Buffalo, which company, in its various mechanical draft installations, is now able to arrange for automatic control of the fan motor speed. This is effected, of course, through the medium of a special motor controller, actuated by fluctuating boiler power. In this way exceedingly close regulation of the boiler pressure can be obtained with a minimum need of attention on the part of the fireman, though of course it is not to be implied that the latter individual, under such arrangements, need become simply a figure-head.

OBITUARY.

THE death of Mr. Edward Clark, architect of the United States Capitol, has removed from public life in Washington a gentleman who in some respects occupied a unique position, and who by ability and integrity filled it with great credit to himself and satisfaction to others he more directly served, the Congress.



EDWARD CLARK.

He was born in 1822 in Philadelphia, and was assistant to Dr. Thomas U. Walters during the construction of the dome and wings of the Capitol, and when Dr. Walters resigned, in 1865, Mr. Clark succeeded him in charge. He served on the commission completing the Washington Monument and the Congressional Library, and was a member of the American Institute of Architects and other artistic and scientific societies.

Personally Mr. Clark was of a genial disposition. His heart was generous and bitterness was foreign both to his private and official life. The office of the architect being largely administrative, having the care and management of one of the most beautiful buildings in the world, necessarily requires the services of one who can not only plan, but execute with satisfaction the thousand and one details pertaining to the continuous care of the building. Mr. Clark was brought almost daily in contact with members of Congress, and it is well known how his efforts to meet their wishes and comfort succeeded. His career was long and honorable. From 1851, when under Mr. Thomas U. Walters, he served until his appointment in 1865 as architect of the Capitol, and from that date until his life's labors closed he was untiring and successful in his official relations. As declared by a member of the House, "A more accomplished gentleman has never held position in this country." And that has been the judgment of successive Congresses for more than thirty years.

THE President has appointed Mr. Elliott Woods as superintendent of the Capitol and its grounds, under the recent action of Congress, changing the title of architect to that of superintendent.

CORRESPONDENCE.

STATE LIBRARY, ALBANY, N. Y., January 18, 1902.

Editors Inland Architect and News-Record, Chicago, Ill.:

DEAR SIRS,—In your number of August, 1901, page 3, in an article copied from the *Commercial*, of Bangor, Maine, I am incorrectly quoted as favoring for public libraries a semi-circular bookroom, with cases on radial lines. The error was originally due to misunderstanding on the part of a reporter of the Brooklyn *Eagle*, and did not come to my notice till some time afterward.

In a paper read to the American Library Association, at Waukesha, Wisconsin, in July last, I said: "Cases have sometimes been set on radial lines so as to bring all parts under supervision from the center. This arrangement, specially if bounded by a semi-circular wall, is expensive, wasteful of space and of doubtful value, except in peculiar conditions. It is not adapted to further extension of the building."

The radial arrangement has the advantages of abundant light and a possible supervision from the center when the attendant's back is turned, but these are qualified by the defects noted, and satisfactory enlargement is well nigh impossible. Easy enlargement of the bookroom is a vital feature in the building plan for any collection that grows so rapidly as a public library, and where expansion is difficult and costly the advantages of close supervision do not outweigh the defect. For these reasons square corners seem to me much better for a bookroom. Bookcases, if portable, may be placed for a while on radial lines, even in a square room, and afterward moved if experience and the filling up of the room seem to indicate another arrangement. Sufficient supervision will be maintained. But it will be most unfortunate if lines of expansion and arrangement are limited from the outset by a semi-circular wall.

Yours very truly,

W. R. EASTMAN.

ASSOCIATION NOTES.

AMERICAN INSTITUTE OF ARCHITECTS.

The diplomas of the five American architectural schools will be accepted by the Institute in place of examination for membership as associates. The list includes Massachusetts Institute of Technology, Harvard, Columbia, Cornell, and the University of Pennsylvania.

PHILADELPHIA CHAPTER, A. I. A.

At a meeting of the members of the Philadelphia Chapter, on February 3, the name of a member who had submitted plans in the State Capitol competition was dropped from the rolls by a vote of twenty-three to four, and the action of the executive committee, which had asked for the resignation of another for the same cause, was ratified.

DETROIT CHAPTER, A. I. A.

At the annual meeting of the Detroit Chapter, January 7, the following officers were elected: President, John M. Donaldson; vice-president, William B. Stratton; secretary, Frank C. Baldwin; treasurer, H. J. M. Grylls; director, Zach Rier. The Chapter awarded the Chapter medal to John J. Frauenfelder, of the Detroit Architectural Club.

ONTARIO ASSOCIATION OF ARCHITECTS.

The fourteenth annual meeting of the Ontario Association of Architects was held at Toronto on January 14. The following officers were elected: President, W. Langdon; first vice-president, John A. Pearson; second vice-president, G. W. Gouinlock; treasurer, W. Symons; registrar, W. R. Gregg; council, Lawrence Munro, A. H. Gregg, Edmund Burke, C. H. Wright and A. H. Dennison.

ST. LOUIS ARCHITECTURAL CLUB.

The annual exhibition of the St. Louis Architectural Club will be held April 4 to 14, the entries closing March 15. The committee consists of William B. Ittner, chairman; Louis Mullgardt, E. A. Maurey, J. P. Jamieson, Edward G. Garden, Dudley C. Chaffee; Albert Kelsey, of Philadelphia; Julius F. Harder, of New York; Walter H. Kleinpell, of Chicago; E. Helfensteller, secretary; C. H. Deitering, treasurer; S. L. Sherer, editor of catalogue.

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS.

The annual meeting of the American Society of Landscape Architects was held at the Arts Club, New York, January 14, and the following officers elected: Samuel Parsons, Jr., president; W. Barrett, vice-president; C. W. Lowrie, treasurer; Downing Vaux, secretary; J. C. Olmstead, executive committee. Arrangements were made for an exhibition of landscape designs during March. The meeting was followed by the annual dinner.

THE KANSAS CITY ARCHITECTURAL CLUB.

On October 21, 1901, an architectural club was organized in Kansas City, under the title of the Kansas City Architectural Club. It was started with fifteen charter members and the following officers: John Van Brunt, president; W. H. Cutler, vice-

president; C. H. Payson, secretary; F. E. McIlvain, treasurer. The club has engaged rooms in connection with the Kansas City Chapter of American Institute of Architects, and already has one competition under way, the subject being a band stand for a city park.

ST. LOUIS CHAPTER, A. I. A.

At a meeting of the St. Louis Chapter on January 29, in response to the request of the mayor of the city that the Chapter name a committee of architects who should assist the Public Welfare Commission in the inspection and construction of public buildings, the following architects were named. T. C. Young, M. P. McArdle, A. B. Groves, J. L. Mauran, R. M. Milligan and W. B. Ittner. Their duty is to furnish expert advice to the mayor and Board of Public Improvements.

The Chapter adopted resolutions protesting against the changing of title of architect of the United States Capitol.

EDINBURGH ARCHITECTURAL ASSOCIATION.

At a recent meeting of the Edinburgh Architectural Association Mr. Henry F. Kerr, president, in the chair, Mr. Louis A. Barnier, B.A., delivered a lecture on "The Old Monuments of Provence." The lecture opened with some remarks on the history of the country, and showed how the influence of Greek and Roman civilization began earlier and finished later than in the rest of the Gaul, and therefore left a stronger mark on the people, who have ever since preserved an individuality, and have been, so to speak, a nation apart from the rest of the French. Some of the monuments, Roman theaters, amphitheaters, temples, mausoleums, etc., in the following towns were specially mentioned: Orange, Avignon, Tarascon, Beaucaire, Arles, Aignes, Mortis, Carcassone and Nimes. These buildings were also illustrated with a set of very fine limelight views.

DETROIT ARCHITECTURAL CLUB.

The Detroit Architectural Club, through the educational committee, instituted some time ago a competition among its members, the subject being a design for a country residence to be located in a suburb of Detroit, on the shore of Lake St. Clair, the lot to have a lake and street frontage of 200 feet. Besides the residence, the sketches were to include buildings for saddle horses, hounds, automobiles, a greenhouse and a boathouse. A large number of designs were submitted. At the last regular meeting of the club, Architect J. W. Case adjudicated the different designs, awarding first mention to J. J. Frauenfelder, second mention to George S. Pottle, the prize for first mention being a handsome bronze medal, for second mention a set of books. A competition has also been held to procure a design for a bookcase to be placed in the clubrooms. Architect Albert Kahn adjudicated this competition and awarded first place to the design submitted by A. Eisen. The club has now under way a competition for a bandstand to be located on Belle Isle.

THE CHICAGO SCHOOL OF ARCHITECTURE.

Guilbert and Rugh, two of last year's graduates from the Chicago School of Architecture, located at Racine, Wisconsin, won the competition for the new high school building at Racine. The cost of the building will be $35,000. They are now taking figures on the work.

The class in building construction have made visits of inspection to a large number of factories and buildings, and will in the near future be the guests of the Pioneer Fireproof Construction Company on a trip to its works at Ottawa, Illinois.

The first two sets of designs by the school this year were criticised and the mentions awarded by Mr. Howard Shaw, architect. The subjects of the designs were: An Aquarium, and a Decoration of the Entrance of the First Regiment Armory for the Annual Flower Show.

The next three sets of designs were criticised and the mentions awarded by Mr. A. H. Granger, of Frost & Granger, architects. The subjects of the designs were: A City Residence; A Railroad Station for a Suburban Town, and an Automobile Stable.

It is the intention of the school to have the final criticism on all of the designs and the mentions awarded by well-known architects of Chicago. Mr. Birch Burdett Long is now associated with the school, and will have charge of all renderings of perspectives, elevations and plans.

ILLINOIS CHAPTER, A. I. A.

The Joint Arbitration Board of the Chicago Masons and Builders' Association and the United Order of American Bricklayers and Stonemasons' Union of Chicago, desiring to improve the prevailing method of teaching their trade to apprentices, petitioned the Chicago Board of Education for the free use of separate schoolrooms during the months of January, February and March, together with the services of suitable teachers who could take charge of these apprentices and give them a technical course of studies pertaining to their special requirements. The Board of Education, graciously acceding to this request, furnished space in the English High and Manual Training School, where classes were formed and put into operation under a corps of skilful teachers, on Monday, January 6.

The Joint Board, having succeeded thus far with their laudable movement, then appealed to the members of the Illinois Chapter of the American Institute of Architects to enlist their practical sympathies in the undertaking by giving lectures on the various branches of building operations which come within the sphere of a mechanic's daily working life. Through the vigorous action of Mr. Beaumont, the secretary of the Chapter, the entire course was filled with lecturers of ability, as follows:

William A. Otis, "Architectural Styles"; Gen. William Sooy Smith, "Pile Foundations, Driving, Timber Grillage, Concrete Capping and Concrete Wells"; Louis Ritter, C. E., "Foundations of Steel Grillage and Concrete"; Maj. W. L. B. Jenney, "Steel Skeleton Construction of Buildings"; Normand S. Patton, "Explanation of Building Terms in Common Use"; George Beaumont, "Brick Masonry"; William D. Gates, "The Making, Fitting and Setting of Terra-cotta and Ceramics"; Peter B. Wight, "The Making, Fitting and Setting of Fireproofing"; H. B. Wheelock, "Quarrying, Cutting, Fitting and Setting of Stone"; W. B. Mundie, to be announced later; S. S. Beman, "Dimension and Rubble Stone Foundations and Walls"; William Carbys Zimmerman, "How to Read an Architect's Plan."

OUR ILLUSTRATIONS.

Residence, Lake Forest, Illinois.

Concordia College, Milwaukee, Wisconsin. E. R. Liebert, architect.

Residence for Charles A. Miller, Philadelphia. Frank R. Watson, architect.

St. Paul's Church, Chicago. S. S. Beman, architect. Exterior and Interior Views are shown.

Office Building for Western Methodist Book Concern, Chicago. H. B. Wheelock, architect.

Savings Bank, Ansonia, Connecticut. Brown & Von Beren, architects, New Haven, Connecticut.

Decatur College of the James Millikin University, Decatur, Illinois. Patton & Miller, architects, Chicago.

Residence of M. C. Armour, Evanston, Illinois. H. B. Wheelock, architect, Chicago. The following views are shown: Exterior, Oriental Room, Parlor, Hall.

Granite Mausoleum, St. Louis, Missouri, for H. C. Pierce. Eames & Young, architects. The interior has an inlaid black and white marble floor, with a Renaissance treatment of walls and ceilings in statuary marble. The catacombs on either side contain receptacles for sixteen bodies. The interior is furnished with a bronze sarcophagus, with receptacles for two bodies, and is furnished with bronze seats and other furniture.

Photogravure Plate: Detail of Entrance, Lakeside Press Building, Chicago. Howard V. Shaw and S. A. Treat, associated architects.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

Residence, Chicago.

Residence, St. Louis, Missouri.

Residence, Binghamton, New York.

Residence for John A. Roche, Chicago. C. W. Rapp, architect.

Francis A. Parker School, Chicago. James Gamble Rogers, architect.

Residence of C. S. Roberts, Chicago. Wilson & Marshall, architects.

Residence of Robert Lanyon, Chicago. Wilson & Marshall, architects.

Correction: In the January number was published a view of the St. Louis Club, and the following communication is here given in correction of previous title:

February 3, 1902.

Editor of The Inland Architect, Chicago, Illinois:

DEAR SIR,— In your January number you publish a print of the St. Louis Club under the title "St. Louis Club, J. H. Freedlander, architect." This is an error, as Mr. Freedlander and I were the architects of this building under the title of "Arthur Dillon and J. H. Freedlander, associated architects."

Yours very sincerely,

ARTHUR DILLON.

PERSONALS.

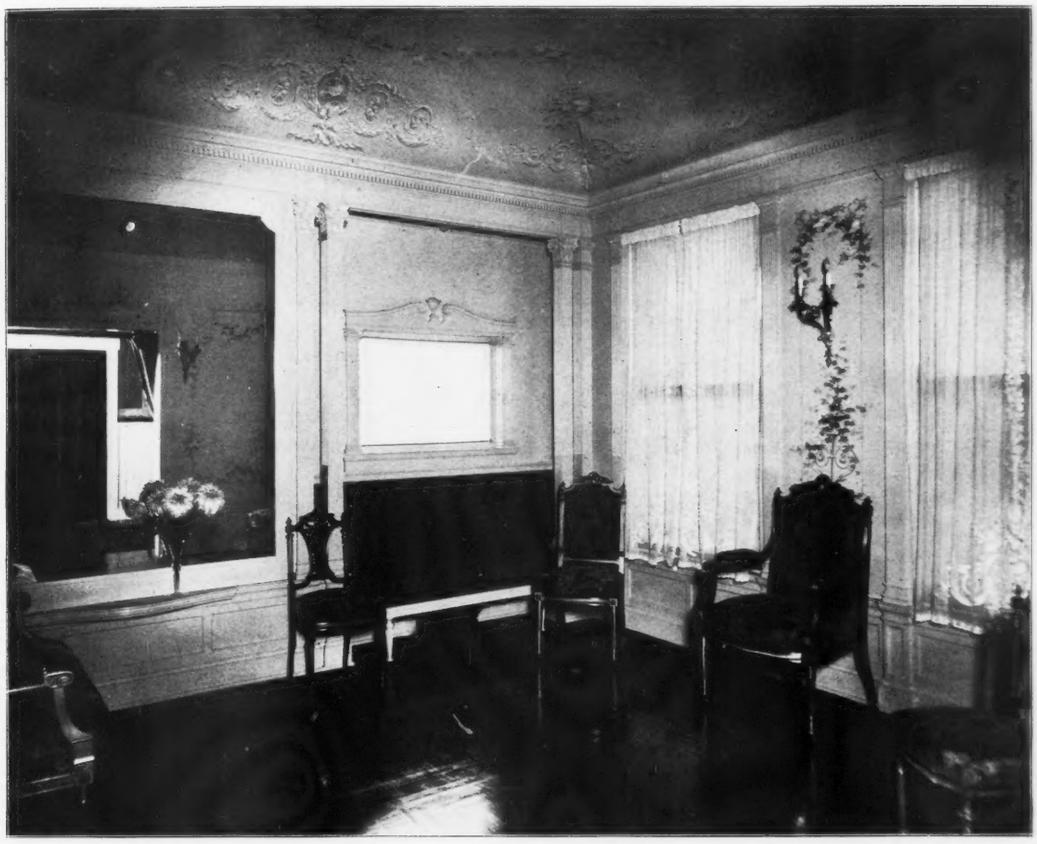
COPE & STEWARDSON, of Philadelphia, announce that Mr. James P. Jamieson is now connected in partnership with the firm.

MR. W. P. COLTON has been appointed advertising agent of the Lackawanna Railroad, to succeed Mr. William B. Hunter, whose resignation as advertising and industrial agent became effective February 17. Mr. Colton has been with the Lackawanna Railroad in various capacities for several years, the last two of which have been spent as chief clerk in the advertising department. An industrial agent has not yet been appointed. Mr. Hunter, who has been at the head of the advertising department for nearly three years, will become manager of the advertising and sales department of the Force Food Company, with headquarters at Buffalo.

S. S. BEMAN, architect, of Chicago, has removed his offices to the Merchants Loan & Trust building, and in this connection the removal from the industrial town of Pullman is recalled. It was just after Mr. Beman had completed that great architectural work, which was at that time the most extensive of the kind in the country, and so complete was the success of Mr. Beman's plans that Mr. George M. Pullman said to him: "I feel that half at least of the honor of the accomplishment of this work belongs to you, and I wish to extend to you half the honor of the name. It will be called Pullman, using the first half of my name and the last half of yours." The removal of Mr. Beman's offices to their present location is notable, as it makes one more change in the old landmarks of Chicago.

VIEW IN HALL.

RESIDENCE FOR MR. MO
H. [illegible], Arc



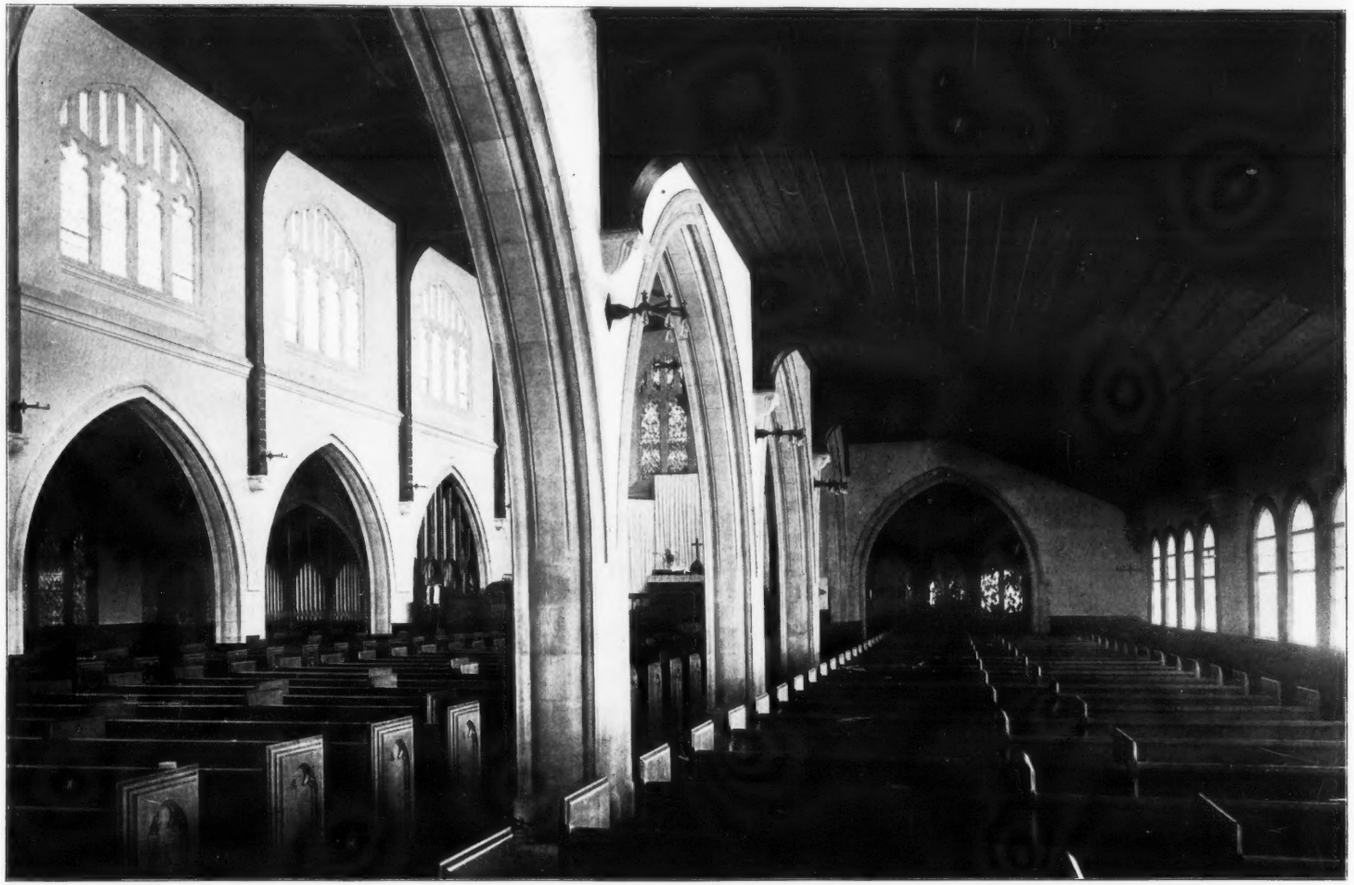
VIEW IN PARLOR.

VIEW IN ORIENTAL ROOM.

OR ARMOUR, EVANSTON, ILL.
H. ALEX., ARCHITECT.

MAUSOLEUM FOR H. C. PIERCE, ST. LOUIS, MO.

EAMES & YOUNG, ARCHITECTS.



INTERIOR VIEW, ST. PAUL'S CHURCH, CHICAGO.

S. S. BEMAN, ARCHITECT.

SAVINGS BANK OF ANSONIA, CONN.

BROWN & VON BEREN, ARCHITECTS.

OFFICE BUILDING FOR WESTERN METHODIST BOOK CONCERN, CHICAGO.

H. B. Wheelock, Architect.

RESIDENCE NEAR CHICAGO.

STONE FROM THE HOOSIER QUARRY OF THE BEDFORD QUARRIES COMPANY.

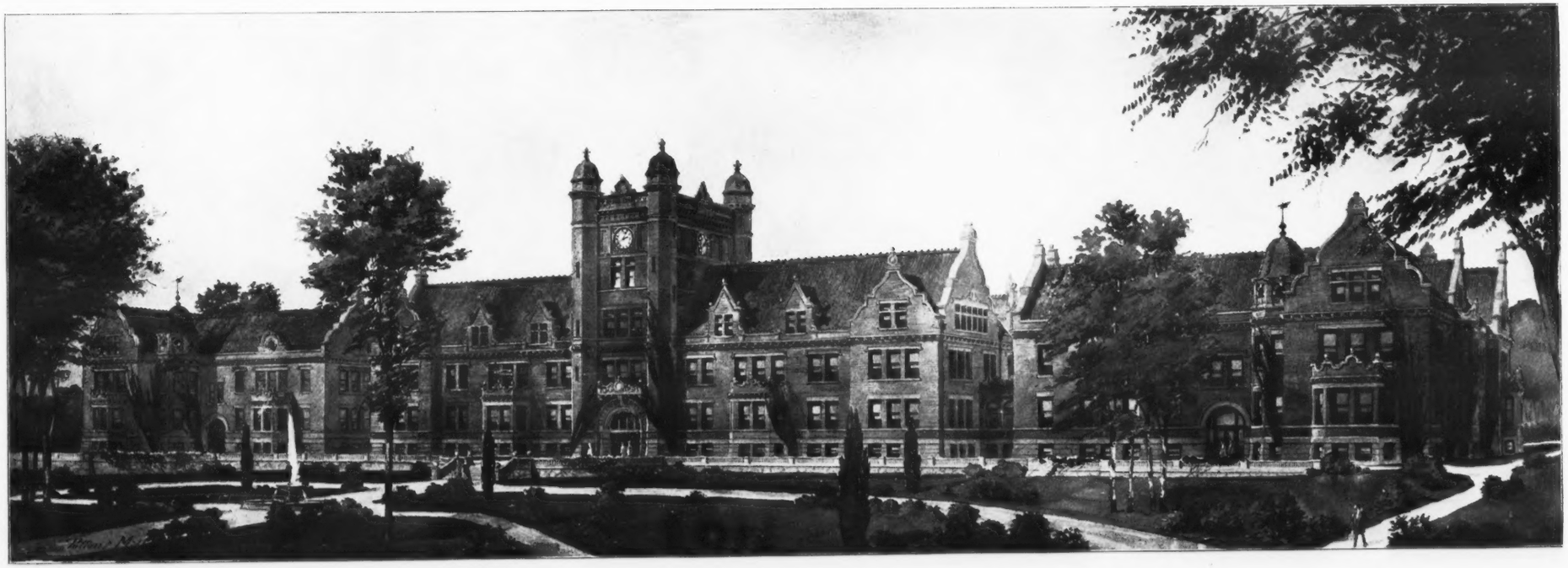
DETAIL OF ENTRANCE, LAKESIDE PRESS BUILDING, CHICAGO

HOWARD V. SHAW AND S. A. TREAT, ASSOCIATED ARCHITECTS.

INLAND ARCHITECT PRESS.

RESIDENCE OF CHARLES A. MILLER, PHILADELPHIA.

FRANK R. WATSON, ARCHITECT.



DECATUR COLLEGE OF THE JAMES MILLIKIN UNIVERSITY, DECATUR, ILL.

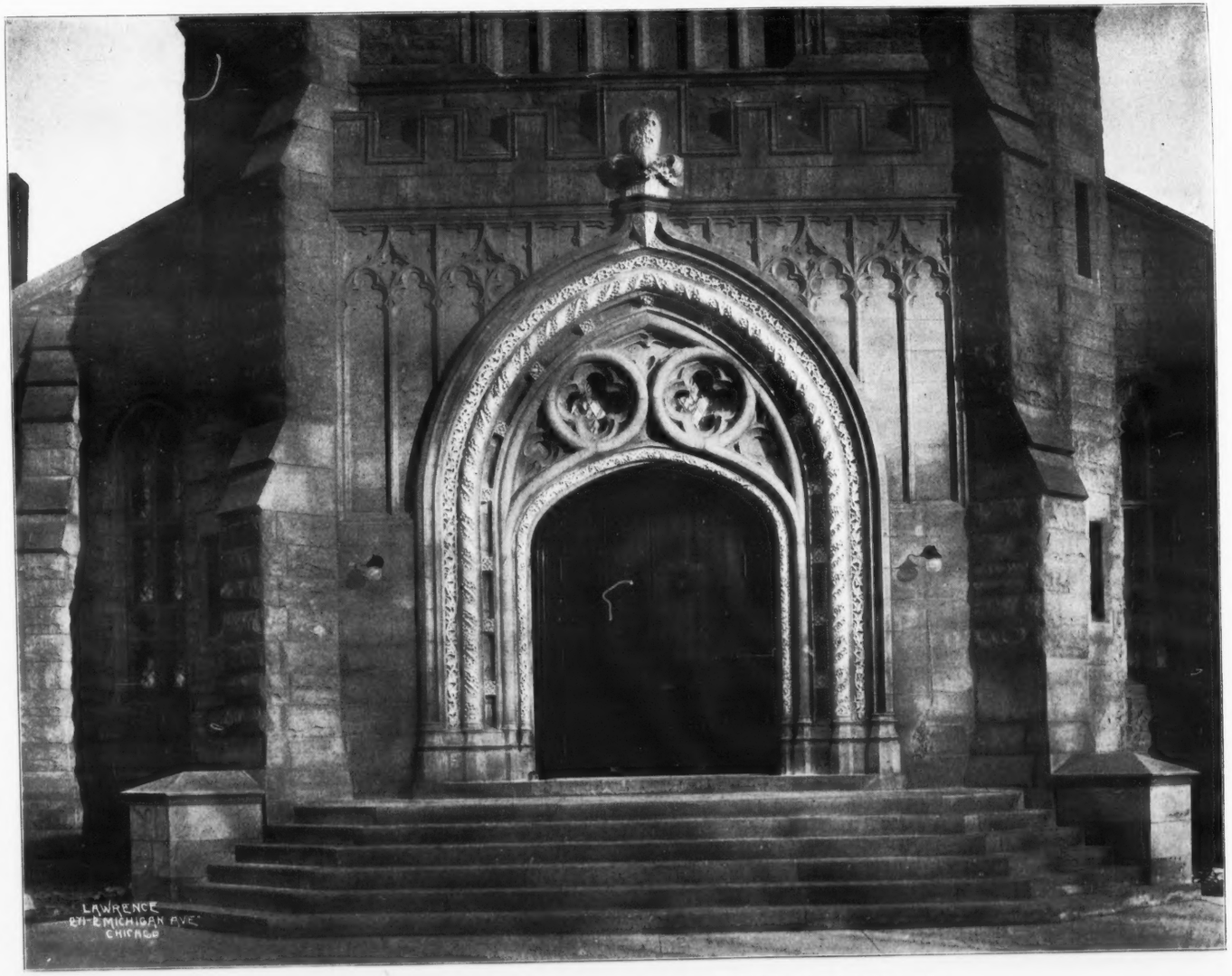
PATTON & MILLER, ARCHITECTS.

CONCORDIA COLLEGE, MILWAUKEE, WIS.

E. R. LIEBERT, ARCHITECT.

ST. PAUL'S CHURCH, CHICAGO.

S. S. BEMAN, ARCHITECT.



ENTRANCE DETAIL, ST. PAUL'S CHURCH, CHICAGO.

S. S. BEMAN, ARCHITECT.