IRVING K. POND, DES.

LORADO TAFT, SCULPT.

THE INLAND ARCHITECT AND NEWS RECORD

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

CONTENTS.

THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXXIX. APRIL, 1902. No. 3

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:

C. HOWARD WALKER.	D. H. BURNHAM,	W. L. B. JENNEY,
HENRY VAN BRUNT,	P. B. WIGHT,	IRVING K. POND,
LOUIS H. SULLIVAN,	ALLEN B. POND,	J. R. WILLETT,
WILLIAM S. MACHARG.	C. E. ILLSLEY.	F. W. FITZPATRICK.

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.

AMERICAN INSTITUTE OF ARCHITECTS.

OFFICERS FOR 1900:

PRESIDENT	*CHARLES F. McKIM, New York, N. Y.
SECRETARY AND TREASURER	*GLENN BROWN, Washington, D. C.
FIRST VICE-PRESIDENT	FRANK MILES DAY, Philadelphia, Pa.
SECOND VICE-PRESIDENT	ALFRED STONE, Providence, R. I.
AUDITOR FOR TWO YEARS	W. G. PRESTON, Boston, Mass.
AUDITOR FOR ONE YEAR	S. A. TREAT, Chicago, Ill.

BOARD OF DIRECTORS:

For three years.—Walter Cook, New York, N. Y.; William S. Eames, St. Louis, Mo.; Cass Gilbert, St. Paul, Minn.

For two years.—J. M. Carrère, New York city; James W. McLaughlin, Cincinnati, Ohio; R. Clipson Sturgis, Boston, Mass.

For one year.—Henry Van Brunt, Kansas City, Mo.; James B. Hill, Washington, D. C.; Normand S. Patton, Chicago, Ill.

*Executive Committee.

STANDING COMMITTEES FOR 1900:

Judiciary Committee.—Wm. S. Eames, St. Louis, Mo.; James G. Hill, Washington, D. C.; Arthur G. Everett, Boston, Mass.

House and Library Committee.—Robert Stead, Washington, D. C.; Glenn Brown, Washington, D. C.; Frank Miles Day, Philadelphia, Pa.

Committee on Contracts and Lien Laws.—Alfred Stone, Providence, R. I.; W. B. Mundie, Chicago, Ill.; Arthur G. Everett, Boston, Mass.

Committee on Applied Arts and Sciences.—W. G. Preston, Boston, Mass.; F. E. Kidder, Denver, Colo.; Frederick Baumann, Chicago, Ill.

Committee on Foreign Correspondence.—Glenn Brown, Washington, D. C. J. G. Howard, New York city; R. W. Gibson, New York city.

Legislative Committee on Government Architecture.—George B. Post, chairman. Committee—Bruce Price, New York city; John M. Carrère, New York city; James G. Hill, Washington; Alfred Stone, Providence. Alternates—Edward H. Kendall, New York city; E. B. Green, Buffalo, N. Y.; D. H. Burnham, Chicago, Ill.; Robert Stead, Washington.

NEXT CONVENTION AT BUFFALO, N. Y.

THE ARCHITECTURAL LEAGUE OF AMERICA.

OFFICERS FOR 1901-1902.

PRESIDENT	JOSEPH C. LLEWELLYN, Chicago.
VICE-PRESIDENT	RICHARD E. SCHMIDT, Chicago.
TREASURER	AUGUST WILMANNS, Chicago.
CORRESPONDING SECRETARY	EMIL LORCH, Chicago and Detroit.
RECORDING SECRETARY	HUGH M. G. GARDEN, Chicago.
ADDITIONAL MEMBERS EXECUTIVE BOARD	R. C. SPENCER, JR., Chicago.
	PROF. NEWTON A. WELLS, Urbana, Ill.

NEXT CONVENTION AT TORONTO, CANADA.

Court Proceedings Threatened In Capitol Competition.

To keep track of the many vicissitudes which the last competition for the State capitol of Pennsylvania is experiencing, readers are referred to the Philadelphia papers, but with the threatened injunction by Henry Ives Cobb, the suit against the Chapter by a member who was expelled for participating in the competition, and the prospect of the whole matter being aired in the courts, with a possibility of Professor Ware on the stand, and a witness who states that the successful architect said before the plans were submitted that the competition was only a matter of form, and that he would be awarded the work, it looks as though it would have been much better and saved considerable worry and incidentally lawyer's fees to have done the obviously right thing at the right time. It has been from the first the blackest kind of a competition pot, and it will not be strange if smutch spots show upon every one who has been sojourning in its immediate vicinity. They have no one to blame but themselves, as this and other journals certainly gave ample warning, and the fate of the first competition should alone have deterred those persons from placing themselves in the position in which they now seem to be involved. The architectural profession is itself honest and is too apt to believe in the honesty of others, but there seems to be something about competitions that is almost certain to smack of dishonesty if they are not drawn upon the strongest lines possible in the direction of perfect fairness, and even then it is best to leave them alone if a political body has any connection with the enterprise.

Danger of Deterioration In Steel Construction.

When Gen. William Sooy Smith stated recently that "the steel framework in many of the big buildings in the business district of Chicago is corroding, and it is only a question of time when these buildings will fall to the ground," his remarks seemed to be very startling to a large number of people who were uninformed in regard to the real state of the case. That the ironwork of bridges and viaducts that are constantly exposed to the elements will corrode and render the structure useless in a comparatively short time is known to every engineer, but in the case of a building in which the steel is more or less protected, the results must be vastly different. It is true that to thoroughly protect steel it should be practically encased in lime or cement, but the approximate protection of its covering in the ordinary course of construction should and probably is sufficient for all practical purposes. It is also true that there has been some careless building done — cases where haste and ignorance have combined in sufficient quantities to threaten just such a calamity as Mr. Sooy Smith prophecies. But as far as the only possible evidence, that of the present condition of the majority of the steel frame office structures goes, they are not and probably will not deteriorate to any appreciable extent. Too great care can not be taken in this wholly new and untested method of building, and until at least the first half century has passed since the first of these "skyscrapers" was raised, the exact effect of the elements upon their structural strength can only be very broadly estimated.

LIBRARY BUILDINGS.*

A BUILDING is not the first requisite of a public library. A good collection of books, with a capable librarian, will be of great service in a hired room, or in one corner of a store. First the librarian, then the books and after that the building.

But when the building is occupied the value of the library is doubled. The item of rent is dropped. The library is no longer dependent on the favor of some other institution, and is not cramped by the effort to include two or three departments in a single room. It will not only give far better service to the community, but will command their respect, interest and support to a greater degree than before.

The following hints are intended as a reply to many library boards who are asking for building plans.

The vital point in successful building is to group all the parts of a modern library in their true relations.

In a popular library, outside the reference room, for each foot of wall space available eighty books can be placed on eight shelves. Floor cases having two sides will hold 160 books for each running foot, and in a close stack twenty-five books, approximately, can be shelved for each square foot of floor space. But the latter rule will be materially modified by ledges, varying width of passages, stairs, etc.

The above figures give full capacity. In practical work, to provide for convenient classification, expansion, oversized books and working facilities, the shelves of a library should be sufficient for twice the actual number of books, and the lines of future enlargement should be fully determined.

By careful study the building committee is prepared to draw an outline sketch indicating in a general way their needs and views. They are not likely to secure what they want by copying or even by competition. The best architects have not the time nor the disposition to compete with each other. A better way is to choose an architect, one who has succeeded in library work, if possible, who will faithfully study the special problems, consult freely with the library board, propose plans and change them freely till they are right. And if such plans are also submitted for revision to some librarian of experience, or to the library commission of the State, whose business and pleasure it is to give disinterested advice, so much the better.

The following outlines taken from actual library buildings are offered by way of suggestion:

An inexpensive building for a small country neighborhood may have one square room with book shelves on the side and rear walls. A convenient entrance is from a square porch on one side of the front corner, and a librarian's alcove is at the opposite corner, leaving the entire front like a store window, which may be filled with plants or picture bulletins. With a stone foundation the wooden frame may be finished with stained shingles.

A somewhat larger building may have a wider front, with entrance at the center.

Book shelves under high windows may cover the side and rear walls, and tables may stand in the open space.

It will be convenient to bring together the books most in demand for circulation on one side of the room, and those needed most for study on the opposite side. One corner may contain juvenile books. In this way confusion between readers, borrowers and children will be avoided. Each class of patrons will go by a direct line to its own quarter. This is the beginning of the plan of departments which will be of great importance in the larger building.

The number of books for circulation will increase rapidly, and it may soon be necessary to provide double-faced floor cases. These will be placed with passages running from the center of the room toward the end, and that end will become the book or delivery room, and the opposite side will be the study or reference room.

The next step is to add space to the rear, giving a third department to the still open room. If the bookroom is at the back the student readers may be at tables in the right-hand space, and the children in the space on the left. The librarian at a desk in the center is equally near to all departments, and may exercise full supervision.

The presence of a considerable number of other busy persons has a sobering and quieting effect on all, and the impression of such a library having all its departments in one is dignified and wholesome. It may be well to separate the departments by light, open, hand rails, screens, cords or low book cases. It is a mistake to divide a small building into three or four small rooms.

For a larger library these rails must be made into partitions, giving to each department a separate room. Partitions of glass, set in wooden frames, and possibly only eight feet high, may answer an excellent purpose, adding to the impression of extent, admitting light to the interior of the building, and allowing some supervision from the center. With partitions on each side, the entrance becomes a central hallway, with a department at each side, and the bookroom at the end. This is the best position for the bookroom for two special reasons. Overlapping the departments in both wings it is equally accessible from either, and at the back of the house a plainer and cheaper wall can be built, admitting of easy removal when the growth of the library requires enlargement.

Sometimes the angles between the bookroom and the main building may be filled to advantage by workroom and office. These working-rooms, though not large and not conspicuous, are of vital consequence, and should be carefully planned.

We have now reached a type of building which, for lack of a better word, I may call the "butterfly plan," having two spread wings and a body extending to the back. Others call it the "trefoil." This general type is being substantially followed in most new libraries of modern size. From one entrance hall direct access is given to three distinct departments, or perhaps five, by placing two rooms in each wing.

If we have an open park to build in we shall be tempted to expand the hallway to a great central court or rotunda. Perhaps the importance of the library may justify it, but we should be on our guard against separating departments by spaces so great as to make supervision difficult, or passing from one to another inconvenient. We should aim to concentrate rather than scatter.

More frequently the lot will be too narrow. We must draw in the wings and make the narrower rooms longer from front to back. With a corner lot we can enter on the side street, leaving a grand reading-room on the main front, and turning at right angles as we enter the house, pass between other rooms to the bookroom at the extreme end of the lot. Or again, we shall be obliged to dispense entirely with one wing of our plan, and have but two department rooms instead of three on the floor. Every location must be studied by itself.

Basement rooms are of great service for workrooms and storage. A basement directly under the main bookroom is specially valuable to receive the overflow of books not in great demand.

A second and even a third story will be useful for special collections, class and lecture rooms, or for a large audience hall. In the library of moderate size it will often be found convenient to build a bookroom about sixteen feet high to cover two stories of bookcases, and wholly independent of the level of the second floor of the main building.

To meet the needs of a rapidly growing library it is important at the beginning to fix the lines of extension.

A building with a front of two rooms, and a passage between, may add a third room at the rear, and at a later stage add a second building as large as the first and parallel to it, the two being connected by the room first added. This is the architect's plan for the Omaha Public Library.

When a library is so large that one bookroom is not enough, two such rooms may be built to the rear, one from each end of the building, with open space between, and these two wings may be carried back equally and joined at the back by another building, thus completing the square around an open court.

This gives wide interior space for light and air, or grass and flowers. Such is the plan of the Boston Public and Princeton University libraries. It will be the same in Minneapolis when that library is complete. In the plan of the new library at Newark, New Jersey, the central court is roofed over with glass, becoming a stairway court, with surrounding galleries opening on all rooms. In Columbia University, New York, as in the British Museum, the center is a great reading-room, capped by a dome high above the surrounding roofs, and lighted by great clerestory windows.

If the street front is very long there may be three extensions to the rear, one opposite the center and one from each end, leaving two open courts, as in the plan for the New York Public or the Utica Public; and this general scheme may be repeated and carried still farther back, leaving four open courts, as in the Library of Congress. This plan can be extended as far as space can be provided.

When the general plan of the large building is fixed, passages will be introduced, parallel to the front and sides, and departments will be located as may be judged most convenient, always having regard to the convenience of the patrons of each department in finding ready access to the books they need, and providing for supervision and attendance at least cost of time, effort and money. Extravagance in library building is not so often found in lavish ornament as in that unfortunate arrangement of departments which requires three attendants to do the work of one or two.

Natural light should be secured if possible for every room. Windows should be frequent and extend well up toward the ceiling, terminating in a straight line, so as to afford large supply of light from the top. Windows like those in an ordinary house or office building, coming within two or three feet of the floor, are more satisfactory, both for inside and outside appearance, than those which leave a high blank wall beneath them. From the street a blank wall has a prisonlike effect; on the inside it cuts off communication with the rest of the world, and the impression is unpleasant. The proper object of library windows six or eight feet above the floor is to allow unbroken wall space for book shelves beneath them. There is no serious objection to this at the back of the room, or sometimes at the sides of the house, where the windows are not conspicuous from the street, but every room of any size, if it is next to the outer wall, should have windows to look out of on at least one side.

A bookroom at the back of a building may secure excellent light from side windows eight feet above the floor, with lower windows at the back.

The lighting of large interior rooms is often a difficult problem. Light will not penetrate to advantage more than thirty feet. Skylights, domes and clerestory windows are used. In the case of the dome or clerestory the room to be lighted must be higher than those immediately surrounding it. The clerestory plan, with

*Paper read before the American Library Association at Waukesha, Wisconsin, July, 1901, by W. R. Eastman, New York State Library, Albany, New York.

upright windows, is most satisfactory when available, being cheaper and giving better security against the weather than the skylight. In a large building with interior courts, the lower story of the court is sometimes covered with a skylight and used as a room.

This appears in the plans for the New York Public and the Utica Public libraries. Skylights must be constructed with special care to protect rooms against the weather.

The problem of light is peculiarly difficult in the crowded blocks of cities. A library front may sometimes touch the walls of adjoining buildings, so that light can enter only from the front and rear. If extending more than forty feet back from the street, it will be necessary to narrow the rest of the building so as to leave open spaces on each side, or to introduce a little light by the device of light wells. Occasionally a large city library is found on the upper floors of an office building, where light and air are better than below, and the cost of accommodation is less. The use of elevators makes this feasible.

The general scheme of book shelves should be fixed before the plan of the building is drawn. Otherwise the space for books can not be determined and serious mistakes may be made. Between the two extremes of open wall shelves and the close stack a compromise is necessary. The large library will put the bulk of its books in a stack, and bring a considerable selection of the best books into an open room. The small library will begin with books along the walls and provide cases for additions from time to time, as needed. Its patrons will enjoy at first the generous spaces of the open room, without an array of empty cases to offend the eye and cumber the floor. When walls are covered with books a floor case will be introduced, and others, when needed, will be placed according to plan, till at last the floor is as full as it was meant to be, and the basement beneath having served for a time to hold the overflow, a second story of cases is put on top of the first. This process should be planned in advance for a term of twenty years.

For public access passages between cases should be five feet wide. Cases have sometimes been set on radial lines, so as to bring all parts under supervision from the center. This arrangement, especially 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.

For ordinary books in a popular library the shelf should not be more than eight inches wide, with an upright space of ten inches. Eight shelves of this height, with a base of four inches and crown finish of five inches, will fill eight feet from the floor, and the upper shelf may be reached at a height of eighty-one inches, or six feet nine inches. Ordinary shelves should not exceed three feet in length. A length of two and a half feet is preferred by many. A shelf more than three feet long is apt to bend under the weight of books. For books of larger size a limited number of shelves with twelve inches upright space, and a few still larger, should be provided. The proportion of oversize books will vary greatly according to the kind of library, a college or scientific collection having many more than the circulating library. Any reference-room will contain a large number of such books, and its shelves should correspond.

Much attention has been given to devices for adjustment of shelves. Some of these are quite ingenious and a few are satisfactory. No device should be introduced that will seriously break the smooth surface at the side. Notches, cross-bars, iron horns or hooks or ornamental brackets expose the last book to damage. If pins are used they should be so held to their places that they can not fall out. Heads of pins or bars should be sunk in the wood, and the place for books left, as near as possible, absolutely smooth on all sides. It is at least a question whether the importance of making shelves absolutely adjustable has not been greatly overrated. As a fact the shelves of the circulating library are very seldom adjusted. They may have all the usual appliances gained at large expense, but there is no occasion to adjust them outside the reference room. They remain as they were put up. It is probably well to have the second and third shelves movable, so that one can be dropped to the bottom and two spaces left where there were three at first. But all other shelves might as well be fixed at intervals of ten inches without the least real inconvenience, and the cases be stronger for it and far cheaper. A perfectly adjustable shelf is interesting as a study in mechanics, but is practically disappointing. Its very perfection is a snare, because it is so impossible to set it true without a spirit level and a machinist. All shelves in a reference room should be adjustable. Bound magazines might have special cases.

Iron shelf construction has the advantage of lightness and strength, filling the least space and admitting light and air. Where three or more stories of cases are stacked one upon another iron is a necessity. It also offers the best facilities for adjustment of shelves and is most durable.

On the other hand it is more difficult to get, can be had only of the manufacturers in fixed patterns, and costs at least twice as much as any wood, even oak, unless carved for ornament, and four or five times as much as some very good wooden shelves. This great cost raises the question whether the advantages named are really important. Few village libraries need more than two stories of shelves in a stack. If iron is more durable we can buy two sets of wooden shelves for the cost of one of iron — and when we buy the second set will know better what we want. The importance of shelf adjustment has been exaggerated.

A more important condition, to my mind, is that iron is not so well adapted to the changing conditions of a growing library. It is made at a factory and to be ordered complete. It is bolted to the floor and wall at fixed intervals. But we have seen that a gradual accumulation of bookcases is better than to put all shelving in position at first.

Wooden cases are movable. You begin with those you need and add others as you have more books; you can change and alter them at any time with only the aid of the village carpenter, and enjoy the wide open spaces till the time for filling them comes.

Iron, with all its ornaments, belongs in the shop. It is not the furniture you prefer in your home. The item of cost will usually decide the question. For libraries of less than thirty thousand volumes, where close storage is not imperative, wood has the advantage.

A floor of hardwood is good enough for most libraries. Wood covered with corticene or linoleum tends to insure the needed quiet. Floors of tile, marble or concrete are very noisy, and should have strips of carpet laid in the passages.

On the walls of reading-rooms it is neither necessary nor desirable to have an ornamental wainscot, nor indeed any wainscot at all, not even a base-board. Bookcases will cover the lower walls, and the books are the best ornaments.

Small tables for four are preferred in a reading-room to long, common tables. They give the reader an agreeable feeling of privacy.

Do not make tables too high. Thirty inches are enough.

Light bent wood chairs are easy to handle.

Steam or hot water gives the best heat, and incandescent electric lamps give the best light.

Be sure that you have sufficient ventilation.

Windows should be made to slide up and down, not to swing on hinges or pivots.

Without dwelling further on details, let us be sure

1. That we have room within the walls for all the books we now have or are likely to have in twenty years; provide the first outfit of shelves for twice the number of books expected at the end of one year, and add bookcases as we need them, leaving always a liberal margin of empty space on every shelf. We must plan for the location of additional cases for twenty years, with due consideration of the question of public access.

2. That all needed departments are provided in harmonious relation with each other, and so located as to serve the public to the best advantage and at least cost of time, strength and money.

3. That the best use of the location is made, and the buildings suited to the constituency and local conditions.

4. That the estimated cost is well within the limit named, for new objects of expense are certain to appear during the process of building, and debt must not be thought of.

5. That the building is convenient for work and supervision, a point at which many an elegant and costly building has failed.

Make it also neat and beautiful, for it is to be the abiding place of all that is best in human thought and experience, and is to be a home in which all inquiring souls are to be welcomed. Since the people are to be our guests, let us make the place of their reception worthy of its purpose.

CUBICAL CONTENTS AND PERCENTAGE OF COST OF UNITED STATES GOVERNMENT BUILDINGS BUILT SINCE 1818.

IN the following record of our Government buildings will be found much information in regard to the cost of construction in the early days of our republic, as well as some interesting comparisons of cost with private work of similar character.

Location.	Material Used.	Contents, Cu. Ft.	Building Cost.	Average Cu. Ft.	Year Built.
Kennebunkport, Maine..	Brick	25,000	$ 1,575	.063	1832
Salem, Mass.....	Br. and St.	235,000	14,272	.067	1819
Chicago, Ill (temporary)	Brick	4,100,000	242,699	.0677	1895-96
Boise, Idaho.....	Stone	607,666	77,252	.127	1870-71
New London, Conn.....	Granite ..	114,000	14,600	.128	1833-35
Machias, Maine.....	Br. and St.	184,000	24,766	.135	1871-72
Akron, Ohio.....	Br. and St.	383,728	64,820	.1692	1898-99
Newburyport, Mass.....	Granite ..	118,000	20,188	.17	1833-35
Greensboro, N. C.....	Brick	288,659	52,688	.1825	1885-87
Ottumwa, Iowa.....	Brick	235,000	42,263	.1841	1889-90
New York, N. Y.....	Br. and St.	9,700,454	1,818,373	.1875	1892-99
Lima, Ohio.....	Br. and St.	250,500	47,332	.189	1894-95
Brockton, Mass.....	Br. and St.	273,963	54,792	.20	1898-00
Alexandria, Va.....	Br. and St.	274,000	56,158	.205	1894-96
Statesville, N. C.....	Br. and St.	349,842	72,972	.2084	1890-91
Nebraska City, Neb.....	Br. and St.	506,300	105,653	.2087	1886-89
New Bedford, Mass.....	Stone	120,000	25,500	.2121	1890-93
Greenville, S. C.....	St. and Br.	408,489	86,704	.2122	1890-92
Huntsville, Ala.....	Brick	422,529	89,726	.2125	1888-90
New Bedford, Mass.....	Granite ..	120,000	25,000	.215	1835-36
Rock Island, Ill.....	Gr. Br. St.	302,600	65,650	.217	1895-96
Madison, Ind.....	Stone	185,863	41,214	.2217	1896-97
San Francisco, Cal.....	Br. and St.	1,680,800	375,809	.2236	1874-77
Jefferson, Tex.....	Br. and St.	233,536	52,607	.225	1888-90
Martinsburg, W. Va....	Br. and St.	357,753	80,041	.225	1892-95
Newport, R. I.....	Brick	138,000	31,421	.2277	1830-75
Owensburg, Ky.....	Br. and St.	217,012	49,526	.228	1888-89
Opelousas, La.....	Br. and St.	194,327	44,327	.228	1890-91
Augusta, Ga.....	Br. Gr. etc.	530,412	121,354	.229	1888-90
Portland, Ore.....	Stone	1,593,650	365,332	.2292	1869-75
Pottsville, Pa.....	Br. and St.	157,252	36,276	.23	1898-99
Newburry, N. C.....	Stone	298,422	68,747	.2304	1895-97
Beaver Falls, Penn.....	Br. and St.	167,230	38,677	.2313	1896-97
Camden, Ark.....	Brick	89,000	20,863	.234	1894-96
Vicksburg, Miss.....	Br. and St.	426,090	100,233	.235	1890-92
Danville, Ill.....	Br. and St.	253,511	83,338	.235	1892-94
Clarksville, Tenn.....	Brick	180,261	43,934	.2388	1887-88

Location.	Material Used.	Contents, Cu. Ft.	Building Cost.	Average Cu. Ft.	Year Built.
Helena, Ark.	Brick	334,700	$ 80,458	.24	1890-93
South Bend, Ind.	Br. and St.	243,858	59,772	.245	1896-98
Binghamton, N. Y.	Stone	558,690	137,688	.246	1888-91
Taunton, Mass.	Br. and St.	300,363	74,756	.249	1895-97
So. Omaha, Neb.	Br. & T. C. / St. and Gr.	336,337	84,756	.25	1895-97
Brownsville, Texas	Brick	217,848	54,712	.25	1891-92
Meridian, Miss.	Br. and St. / Ga. Gr.	294,050	73,849	.251	1896-98
Staunton, Va.	Br. & Mar.	250,000	62,413	.2512	1893-94
Galesburg, Ill.	Br. and Gr.	287,842	72,721	.253	1893-94
Pawtucket, R. I.	Br. and St.	199,448	50,644	.253	1896-97
Texarkana, Ark.	Br. and St.	400,000	101,454	.2533	1890-92
Windsor, Vt.	Br. and St.	281,000	71,347	.254	1857-58
Philadelphia, Penn.	Brick	1,444,000	379,675	.256	1871
Salina, Kan.	Br. and St.	245,376	62,935	.2564	1895-98
Sheboygan, Wis.	Br. and St.	172,000	44,387	.2571	1894-95
Asheville, N. C.	Br. and St.	384,851	99,255	.2579	1890-92
Oxford, Miss.	Brick	235,141	60,611	.258	1885-87
Poughkeepsie, N. Y.	Br. and St.	281,300	72,801	.2588	1884-86
Tallahassee, Fla.	Br. and St.	311,404	80,884	.26	1892-95
Sedalia, Mo.	Br. and St.	190,701	49,581	.26	1890-92
Tyler, Texas	Br. and St.	191,868	50,008	.2606	1886-89
Marquette, Mich.	Br. and St.	348,000	92,272	.265	1888-89
Racine, Wis.	Stone	280,470	74,608	.266	1896-98
Sioux City, Iowa.	Stone	875,641	234,907	.2683	1893-97
Oshkosh, Wis.	Br. and St.	342,280	92,218	.2686	1888-90
Clarksburg, W. Va.	Br. and St.	296,700	79,829	.269	1887-88
Grand Rapids, Mich.	Br. and St.	524,500	141,413	.27	1876-79
Hoboken, N. Y.	Br. and St.	164,377	44,401	.27	1891-93
Monroe, La.	Brick	254,205	69,627	.273	1890-92
Lynn, Mass.	St. and Br.	324,796	89,043	.274	1896-98
Fort Dodge, Iowa.	Br. and St.	264,823	72,849	.275	1892-95
Leavensworth, Kan.	Stone	610,174	168,871	.2766	1886-90
Abingdon, Va.	Br. and St.	266,000	73,600	.2766	1888-90
Santa Fe, N. Mex.	Br. etc.	513,696	142,240	.2769	1888-89 / 1853
Winona, Wis.	Stone	528,584	144,581	.277	1890-91
Dayton, Ohio.	Stone	424,030	117,895	.278	1888-92
Rome, Ga.	Br. and St.	146,000	40,821	.28	1894-96
Saginaw, Mich.	St. and Gr.	350,659	98,614	.281	1896-98
Roanoke, Va.	St. and Br.	216,000	61,766	.281	1894-97
Waco, Tex.	Br. and St.	344,639	98,414	.284	1888-89
Jackson, Tenn.	Brick	214,000	60,977	.285	1884-86
Bloomington, Ill.	Br. and St.	232,354	66,819	.2876	1895-96
New Albany, Ind.	Stone	312,094	89,817	.2877	1887-88
Shreveport, La.	Brick	344,600	99,434	.2885	1885-87
New London, Conn.	Br. and Gr.	172,318	49,855	.289	1896-98
Wheeling, W. Va.	Stone	332,100	96,619	.2906	1857-60
Macon, Ga.	Br. and Gr.	395,953	115,109	.2907	1886-89
Montgomery, Ala.	Brick	506,300	147,410	.291	1881-85
Richmond, Ky.	Stone	297,883	84,990	.292	1893-97
Fargo, N. Dak.	Br. and St.	327,000	95,892	.2933	1893-97
Paris, Tex.	Br. and St.	346,174	102,383	.295	1892-95
Jacksonville, Fla.	Ga. Mar.	795,139	235,370	.296	1892-95
Fremont, Neb.	Stone	181,600	53,936	.297	1892-95
La Crosse, Wis.	Br. and St.	453,290	134,823	.297	1888-90
Reidsville, N. C.	Br. and St.	70,420	20,936	.2975	1893-94
Kalamazoo, Mich.	Br. and St.	230,000	68,848	.299	1890-92
Fort Worth, Tex.	Stone	678,000	204,281	.301	1892-96
Concord, N. H.	Granite	578,018	174,466	.302	1885-89
Key West, Fla.	Br. and St.	354,634	107,956	.304	1888-91
Aurora, Ill.	Stone	262,276	79,681	.304	1893-95
Wichita, Kan.	Stone	677,192	206,208	.3046	1887-90
Youngstown, Ohio.	Br. and St.	185,202	56,525	.3052	1896-98
Atchison, Kan.	Stone	279,742	85,393	.3056	1892-94
Mankato, Minn.	Stone	306,000	93,628	.306	1892-96
York, Penn.	Br. and St.	203,000	61,975	.3066	1892-95
Columbus, Ga.	Br. and St.	298,000	91,699	.3075	1893-96 / 1900
Fort Scott, Kan.	Br. and St.	356,000	109,454	.3075	1887-90
Lexington, Ky.	Stone	414,000	124,930	.309	1886-89
Lafayette, Ind.	Stone	209,573	64,846	.3092	1892-94
Beatrice, Neb.	Stone	160,167	49,719	.3104	1892-93
Baton Rouge, La.	Br. and St.	269,000	84,529	.3142	1894-97
San Antonio, Tex.	St. and Gr.	588,300	185,219	.3148	1887-90
Quincy, Ill.	Stone	521,177	164,325	.315	1883-87
Carson City, Nev.	Br. and St.	421,528	134,606	.3193	1888-91
Pueblo, Colo.	Gr. and St.	866,100	275,077	.32	1896-98
Wilmington, N. C.	Stone	486,746	156,513	.3215	1888-91
Buffalo, N. Y.	Granite	4,707,782	1,522,000	.3235	1894-01
Wiscassett, Me.	Br. and St.	94,000	30,457	.324	1868-70
Aberdeen, Miss.	Br. and St.	230,000	74,661	.3246	1886-88
Lancaster, Penn.	Stone	255,726	84,013	.3246	1890-92
Lynchburg, Va.	Brick	369,319	120,289	.326	1885-88
Canton, Ohio.	Stone	297,536	97,655	.3282	1891-94
Terre Haute, Ind.	Stone	501,927	164,966	.3286	1884-89
Pensacola, Fla.	Stone	569,726	187,284	.3298	1884-87
Springfield, Ohio.	St. and Gr.	403,544	133,961	.332	1891-94
Davenport, Iowa.	Stone	357,000	118,621	.3322	1893-96
Haverhill, Mass.	Br. and St.	188,000	62,636	.3333	1894-95
Columbus, Ohio.	Stone	793,954	264,589	.3333	1883-87
Norfolk, Va.	Gr. and St.	612,688	204,589	.3339	1898-90
Portsmouth, Ohio.	St. and Gr.	187,510	62,672	.3342	1890-92
Erie, N. Y.	Gr. and St.	667,500	223,759	.3352	1883-87
Frankfort, Ky.	Stone	337,070	113,407	.336	1884-87
New Bedford, Mass.	Stone	312,734	105,117	.336	1890-93
Newburg, N. Y.	St. and Br.	187,851	63,048	.336	1895-98
Springfield, Mass.	Stone	387,321	130,861	.338	1888-91
Houston, Tex.	Br. and St.	242,417	82,551	.34	1888-91
Alexandria, Va.	Stone	170,000	57,914	.3407	1856-59
Bay City, Mich.	Stone	441,946	760,657	.341	1891-93
Chester, Penn.	Stone	189,040	64,600	.3414	1893-96
Galveston, Tex.	Br. and St.	715,163	244,511	.3417	1888-91
Townsend, Wash.	Stone	707,550	241,823	.343	1887-93
Hannibal, Mo.	Stone	357,073	122,689	.3433	1884-88
Reading, Penn.	Br. & Mar.	385,000	132,578	.3443	1887-89
Bridgeport, Conn.	Stone	363,168	125,065	.3444	1889-92
Eastport, Me.	Granite	312,562	108,087	.3458	1890-93
Worcester, Mass.	Marble	948,000	327,623	.346	1892-97
Minneapolis, Minn.	Stone	1,581,000	613,678	.347	1885-90
Oswego, N. W.	Stone	328,200	113,978	.347	1856-58
San Jose, Cal.	Stone	459,800	160,548	.35	1892-95
Williamsport, Penn.	St. & Mar.	506,050	176,897	.35	1888-91
San Francisco, Cal.	Br. and St.	2,385,000	840,000	.351	1874-81
Watertown, N. Y.	Marble	170,566	59,943	.351	1890-92
Louisville, Ky.	Stone	3,115,235	1,100,845	.3533	1885-93
Cedar Rapids, Iowa.	St. and Gr.	299,326	105,814	.3535	1892-95
Sioux City, S. Dak.	Granite	442,833	157,017	.354	1892-95
Jackson, Miss.	Brick	312,000	110,492	.3541	1883-85
Birmingham, Ala.	Brick	548,000	296,425	.358	1889-93
El Paso, Tex.	St. and Br.	548,000	196,425	.358	1889-93
Peoria, Ill.	Stone	717,580	251,834	.359	1884-89
Rockland, Me.	Granite	370,000	132,828	.359	1873-77
Philadelphia, Penn.		714,000	256,987	.36	1844
Scranton, Penn.	Granite	629,011	229,515	.364	1890-94
Jackson, Mich.	Stone	250,291	$ 91,565	.3666	1892-95
Milwaukee, Wis.	Granite	3,877,065	1,432,211	.3694	1892-99
Lewiston, Mo.	Granite	184,152	68,027	.37	1893-95
Nashville, Tenn.	Stone	1,093,500	404,684	.37	1876-82
Covington, Ky.	Stone	708,300	264,231	.373	1875-79
Rutland, Vt.	Br. and St.	186,000	70,324	.373	1859-60
Ashland, Wis.	Stone	251,713	93,941	.3733	1892-94
Keokuk, Iowa.	Br. & T. C.	413,200	155,275	.3757	1887-90
Mobile, Ala.	Stone	1,009,600	379,565	.376	1856
Syracuse, N. Y.	Stone	879,599	330,793	.376	1884-89
Troy, N. Y.	Granite	1,119,908	421,091	.376	1890-95
Norfolk, Va.	Granite	542,700	203,904	.376	1852-59
Dover, Del.	Br. and St.	136,000	51,320	.3775	1875-77
Galveston, Tex.	Br. and St.	286,300	108,360	.3785	1856-58
Topeka, Kan.	Stone	755,600	286,058	.3786	1879-84 / 1900
Burlington, Iowa.	Br. and St.	275,869	104,823	.38	1892-96
Springfield, Ohio.	Stone	327,600	124,660	.3811	1887-90
Jefferson City, Mo.	Stone	375,400	143,163	.3813	1885-89
Evansville, Ind.	Stone	615,500	235,462	.382	1876-79
Parkersburg, W. Va.	Br. and St.	585,400	223,059	.382	1874-75
St. Paul, Minn.	Granite	2,734,309	1,050,000	.3833	1893-98 / 1898-01
Lowell, Mass.	Granite	517,375	199,801	.3866	1891-95
Plattsburg, N. Y.	Br. and St.	170,000	66,425	.391	1857-59
Danville, Va.	Br. and St.	250,000	97,800	.391	1881-83
Rochester, N. Y.	Stone	1,311,000	513,440	.3916	1884-91
Duluth, Minn.	Stone	644,526	251,417	.3947	1891-94
Utica, N. Y.	Br. and St.	630,300	252,307	.40	1877-82
Houlton, Me.	Br. and Gr.	144,857	59,793	.4128	1893-94
Waldoboro, Me.	Granite	54,000	22,425	.415	1853-57
Brooklyn, N. Y.	Granite	3,600,000	1,499,945	.4166	1885-92
Augusta, Me.	Granite	427,600	178,281	.417	1886-90
Detroit, Mich.	Stone	2,717,560	1,138,315	.4189	1890-97
Auburn, N. Y.	Stone	356,516	149,621	.42	1888-90
Gloucester, Mass.	Br. and St.	115,000	40,858	.422	1857-58
Lincoln, Neb.	Stone	445,300	198,244	.4227	1874-79
Montpelier, Vt.	Marble	341,500	144,671	.4236	1887-91
West Washington, D. C.	Granite	130,000	55,368	.425	1857-58
St. Albans, Vt.	Marble	184,581	78,546	.425	1893-95 / 1897-99
Fort Wayne, Ind.	Stone	461,079	196,374	.426	1885-89
Paducah, Ky.	Stone	300,200	128,032	.4265	1881-83
Baltimore, Md.	Granite	3,539,000	1,534,278	.433	1881-90
St. Joseph, Mo.	Stone	806,600	349,450	.4332	1885-91
Charleston, W. Va.	Br. and St.	303,200	132,879	.438	1881-84 / 1888-89
Toledo, Ohio.	Stone	851,940	375,641	.4409	1882-88
Los Angeles, Cal.	Br. and St.	802,800	325,192	.441	1889-92 / 1900
Manchester, N. H.	Granite	482,000	212,935	.4418	1887-91
Rockford, Ill.	Stone	186,000	82,169	.442	1893-95
Port Huron, Mich.	Stone	544,200	240,703	.442	1873-77
Wilmington, Del.	Granite	608,000	269,340	.443	1891-97
Albany, N. Y.	Stone	513,696	142,240	.4439	1877-84
Council Bluffs, Iowa.	Stone (D)	522,726	232,438	.4446	1884-88
Detroit, Mich.	Stone	454,000	202,733	.4465	1856-60 / 1898
Portsmouth, N. H.	Stone	312,500	145,116	.451	1858-61
Austin, Tex.	Stone	410,000	18,768	.453	1878-81
Chattanooga, Tenn.	Marble	601,854	274,743	.4564	1888-93
Kansas City, Mo.	Stone	796,200	364,609	.458	1879-85
Providence, R. I.	Granite	456,800	209,723	.4589	1855-57
Savannah, Ga.	Marble	835,897	387,912	.464	1889-89 / 1894-99
Galena, Ill.	Stone	130,000	61,372	.464	1838-57 / 1858
Savannah, Ga.	Granite	319,000	149,880	.47	1847-52
Bath, Me.	Granite	180,500	84,830	.47	1858
Buffalo, N. Y.	Stone	689,000	330,000	.4789	1855-58
Chicago, Ill.	Stone	685,695	334,060	.4858	1889-91
Fort Smith, Ark.	Br. and St.	237,000	115,933	.49	1887-89
Pittsburg, Penn.	Granite	3,275,977	1,610,462	.491	1881-91
Des Moines, Iowa.	Stone	1,097,500	550,024	.492	1867-71 / 1883-85
Ogdensburg, N. Y.	Stone	447,600	220,651	.493	1867-69
Denver, Colo.	Stone	1,138,500	570,501	.501	1885-92
Trenton, N. J.	Stone	649,200	326,382	.5025	1873-78
Fall River, Mass.	Granite	704,000	360,136	.511	1876-82
Springfield, Ill.	Stone	550,300	287,804	.523	1866-69
Burlington, Vt.	Br. and St.	113,000	60,126	.532	
Charleston, S. C.	Granite	752,100	405,689	.5394	1889-96
Atlanta, Ga.	Br. and St.	696,000	378,235	.543	1876-80 / 1889-90
New Haven, Conn.	Stone	424,300	237,027	.5508	1855-60 / 1895
Astoria, Ore.	Stone	123,000	67,986	.5527	1869-73
Sandusky, Ohio.	Stone	115,300	63,987	.5558	1856-57
Kansas City, Mo.	Granite	1,592,219	899,422	.5649	1892-00
Barnstable, Mass.	Br. and St.	60,700	34,444	.5675	1855-56
Sacramento, Cal.	St. and Gr.	464,832	264,121	.568	1890-94
Raleigh, N. C.	Granite	590,700	341,497	.5783	1874-79
Harrisburg, Pa.	Granite	490,000	290,056	.592	1878-82
Knoxville, Tenn.	Marble	547,000	338,293	.6184	1871-74
Richmond, Va.	Granite	562,228	389,757	.6309	1854-58 / 1886-89
Cincinnati, Ohio.	Granite	7,883,500	5,088,382	.6456	1874-75
St. Paul, Minn.	Stone	661,300	429,299	.6492	1867-73
Philadelphia, Pa.	Granite	7,378,900	4,623,943	.6537	1874-84
Memphis, Tenn.	Marble	803,400	520,500	.654	1876-85
Little Rock, Ark.	Stone	494,700	224,543	.655	1877-81 / 1898
Madison, Wis.	Stone	512,000	339,083	.662	1867-71 / 1873
Cairo, Ill.	Stone	414,400	281,044	.678	1867-72
Petersburg, Va.	Granite	124,000	84,665	.683	1856-59
Bangor, Maine	Granite	231,000	158,512	.686	1855-69
Columbia, S. C.	Granite	588,000	407,189	.6926	1871-74
Cleveland, Ohio.	Stone	654,200	456,188	.6973	1856-59 / 1880-85
Philadelphia, Pa.	Marble	714,000	500,000	.70	1819-24
Baltimore, Md.	St. and Br.	340,000	241,673	.711	1839
Omaha, Neb.	Granite	1,968,325	1,400,000	.7113	1891-99
New Orleans, La.	Granite	6,085,000	4,412,551	.725	1849-60 / 1871-81
Camden, N. J.	Marble	260,388	189,193	.726	1898-99
San Francisco, Cal.	Br. & CmT / Mast. Cov.	604,200	450,000	.744	1854-56
Portland, Maine.	Marble	525,000	392,315	.747	1866-73
Belfast, Maine.	Br. and St.	60,700	45,983	.76	1857-58 / 1887
Harrisonburg, Va.	Br. and St.	129,788	100,058	.7708	1885-89
Lansing, Mich.	Stone	135,000	106,121	.786	1891-94
Dallas, Tex.	Br. and St.	350,000	279,205	.7977	1885-88
Dubuque, Iowa.	Stone	350,000	274,688	.8076	1857-66 / 1899

Location.	Material Used.	Contents, Cu. Ft.	Building Cost.	Average Cu. Ft.	Year Built.
New York, N. Y.	Marble	1,146,600	$ 939,301	.8105	1842
New York, N. Y.	Granite	360,700	300,000	.8317	1880-82
Bristol, R. I.	Stone	25,000	22,136	.8854	1856-58
Boston, Mass.	Granite	5,098,100	4,623,122	.9068	1869-74 / 1875-85
Portland, Maine	Granite	525,000	494,981	.9428	1868-72
St. Louis, Mo.	Granite	5,885,000	5,686,855	.9663	1873-74
Allegheny, Pa.	Granite	409,628	401,408	.98	1894-98
New York, N. Y.	Granite	8,334,200	8,549,833	1.026	1869-70 / 1880
Hartford, Conn.	Granite	811,200	846,803	1.0438	1873-82
Boston, Mass.	Granite	719,200	884,347	1.2296	1837-47

CONSTRUCTION OF MODERN RAILWAY STATIONS.*

BY ALFRED HOYT GRANGER.

IN railway station planning and building, as in all building, the main point, I might say, is to make it as simple as possible. No unnecessary ornament should be applied. The designer should see if he can not get along without it, and, if so, leave it off.

I have very little to say of the new Rock Island station other than what is told by the drawing made by Mr. Long. It will be a station for the first two stories, with an office building for the railroads above it. The building will be 208 feet front, 157 feet deep to the concourse, which is 45 feet broad, running through the entire length from east to west. The covered shed runs from the concourse back to Harrison street, and from there umbrella sheds extend of indefinite length. Underneath the tracks, from the building proper to Harrison street, a space is utilized on the west for baggage and checking facilities, with a large sheltered place for cabs, omnibuses, etc., on the east side. The whole space inside the court of the building, which is U-shaped, is occupied by the general waiting-room. Off of this are ticket offices for suburban passengers, women's waiting and retiring rooms, smoking-rooms, etc., with an overhead connection with the elevated road.

Railway station planning is very simple, and is generally divided into three types — the head house plan, such as the Van Buren street station and the Minneapolis station of the Chicago, Milwaukee & St. Paul Railway Company; the side house, as at Des Moines, Iowa, and Omaha, Nebraska, or the Union Station here in Chicago, where the tracks are on both sides of the building, such as the small station at Clybourn Junction, Chicago. The suburban station belongs almost always to the side-house plan.

The general station plan has practically no variety in its requirements, which are large waiting-rooms for both men and women, ticket offices, baggage and express rooms, toilet-rooms, and often a small train-order room for the use of employes only.

In manufacturing towns it is better to have two large waiting-rooms of equal size, as there are often many people who wish to smoke. Off each of these waiting-rooms should be toilet-rooms.

An attractive type of plan for small residence town stations contains a large general waiting-room and a small retiring-room for women, and a smoking-room for men.

Where the waiting-rooms are of nearly equal size, the ticket office is generally located in an inner vestibule, off the outer or entrance vestibule, and between the two general waiting-rooms. The old plan of having a ticket window open into each waiting-room is practically obsolete, as one ticket agent can much better handle the people at a large central window.

Where there is but one large general waiting-room, as in the second type of station described, the ticket office should open into it. The baggage and express rooms are generally separated from the main station by a covered way about 40 feet long, extending the entire width of the building. This gives a broad shade, which always adds to the architectural effect, and an extra platform for the handling of baggage and parcels in times of excursions or periods of unusual travel.

It is always wise to locate the baggage end of the building toward the larger terminal of the road.

Many railroads prefer to set the station quite a distance from the track, with a broad overhanging roof. This type was first introduced as an architectural feature by Mr. Richardson in his smaller stations for the Boston & Albany road. The Chicago & North-Western Company, however, prefers to carry its shelter very near to the track line, so that people can get on and off the trains in time of storm without being bothered by umbrellas.

It is desirable that the sheds should be long enough to cover every car on the long passenger trains and be very broad and deep. A pleasing architectural effect is produced by making the piers to the shed on the side away from the track of brick or stone, which gives a cloistered effect to the buildings from a distance. On the track side it is essential to use small steel columns, so as to take up no unnecessary room for people getting on and off the trains. The most necessary thing, it seems to me, about a small station is to have plenty of sheds and plenty of platform.

In much recent work on the North-Western they have abolished grade crossings, putting up a fence between the tracks the entire length of the platform and building on the opposite side of the track from the main station, a small station containing a waiting-room, a baggage-room, with a broad, easy staircase to the subway. The two stations are connected underneath the tracks by ample subways, lined with dressed or enameled brick, lighted by electricity and kept clean and dry. This system avoids any possibility of accidents from people thoughtlessly crossing the tracks in front of trains, and is very desirable. The station at Lake Forest, Illinois, has such a subway.

Where lunchroom is needed, it is advisable to have it convenient to the general waiting-room, and yet as far away as possible, because of the odor of cooking and other disagreeable details. In Omaha, Nebraska, this is between the secondary and the main building, rather farther away than is general. This is done to accommodate a large traveling emigrant population.

A necessary feature of the large city stations is a middle concourse, or midway, between the station building and the tracks, which really forms a supplementary waiting-room, but is useful for handling suburban traffic, as in every case it has direct access to the street, and this prevents large numbers of people from passing through the station proper. The concourse should be large enough to handle the biggest crowds in times of excursions or conventions.

Another thing that is essential is plenty of cab space under cover. There is only one station in Chicago at present where you can drive into the station without getting wet in case of rain; that is the Grand Central Station, at the corner of Fifth avenue and Harrison street. In the West a good many roads are using umbrella sheds, constructed between the tracks. In cases of heavy storms the rain will beat under the roofs and wet people. It is claimed there is better ventilation in this plan. In the Minneapolis station we have a shed that is of very simple construction, which covers the entire body of tracks, but is open on three sides. There are no platforms on the extreme sides, which are occupied by tracks. The trains standing on those tracks protect the platforms from the storms.

The station at Omaha for the Union Pacific Company is of the side-house plan. In that city the Union Pacific station and the Burlington station are both approached most directly from the viaduct which connects two of the great hills of the city, but the tracks all enter at the river level. This makes quite an interesting problem, as what appears above the viaduct is merely a great vestibule, or portal, the waiting-room, lunch and baggage rooms and all offices being located at the track level. On one side of the entrance at the viaduct level is a grand staircase. On the other track are large elevators to carry people to the trains; also a small parcel-room is located up above for people who wish to leave parcels only for a few hours and do not care to descend to the larger parcel-rooms below.

In talking of station designs, it is hard to say what is generally liked; so many people have different ideas. Great arches and towers seem to be the prevalent fancy. I do not think either of them are absolutely necessary unless construction demands it.

Germany certainly leads the world both in plan and design of railway stations. Many large stations in our country seem to be attempts to reproduce monumental buildings, not designed originally for railway purposes. A great deal is sacrificed by doing this. In general a railway station should be as simple as it can be made. It should depend wholly upon its proportions and appropriateness for its beauty. The walls should be unusually thick in order to stand the jar of passing trains.

In suburban stations a great deal of attention is being paid to landscape effects. That these can be made very beautiful is shown by the suburban stations of the Boston & Albany and Pennsylvania roads. I do not, in general, recommend a flower-bed arrangement, as that has to be changed every year; but the power planting of ornamental shrubs is always wise, as they become each season more beautiful. The driveways or approaches to such suburban stations should be made unusually broad, to allow for the rapid passing of vehicles from different directions.

*Paper read before the Chicago Architectural Club and invited members of Illinois Chapter American Institute of Architects, at the Art Institute, Chicago, on January 20.

THE CHICAGO ARCHITECTURAL CLUB EXHIBITION.

THE fifteenth annual exhibition of the Chicago Architectural Club opened in the south galleries of the Art Institute on March 28, and occupies four rooms. This year there is presented a larger variety of work than usual, and this is divided so that each room presents some special feature in which some phase of building predominates.

The first room, for instance, is given to architecture in larger conceptions. Large buildings and large drawings, both in color and line. The second presents decorative effects, interior design, stained glass, etc., a pleasing medley of the detail of decoration and ornament. The third portrays by drawing and photograph that which is especially domestic in design, and the daintier studies of the ensemble of the home. The fourth is very general in its display, but there, too, domestic architecture is most in evidence. Here the pen-and-ink drawings of Ralph Adams Cram show splendid rendering, revealing experience and study. This is true also of the drawings in color in the first room, by an old draftsman, but comparatively new among exhibitors, Mr. Buck, who rendered several of the drawings exhibited by D. H. Burnham & Co., and others. While an architectural draftsman, Mr. Buck never forgets for an instant that he is primarily a painter, therefore are his drawings doubly charming and the most strikingly expressive among those exhibited.

Wilson Eyre, architect and artist, presents some most original conceptions. Whatever one may think of his style, he must stand in admiration of the extraordinary rendering of his drawings. It is gratifying to see how preëminently domestic architecture stands forth, showing that the young architects are solving the problem and solving it well. How different this is to that of

a few years ago, when too often the architect sat in his office and designed a house and even designated how it should be painted, without ever seeing the place where it was to be built; when châteaus were planted on twenty-five foot lots, and brown-stone fronts grew luxuriously on mountain sides. This exhibition shows unmistakably that the architect has become a reasoning being, and studies his site and design accordingly.

Among the exhibits is noticed our old friend — the Despardelle dream — that has appeared from time to time in exhibitions during the last decade. Without asserting that it is original in its design, it is nevertheless original in its conception. A great obelisk, that is if an obelisk can be composed of many pieces, at the roots of which are many minor or baby obelisks sprouting forth, it has been suggested as a monument to the States at Washington, the World's Fair at Chicago and other purposes, and it should be built as a curiosity if nothing more. The drawings take up considerable space that might have been used otherwise to advantage. As has been said in this sketch of first-night impressions, the general arrangement of the exhibition is particularly pleasing. One important feature is that it is made by itself. Architecture has a broad enough base to stand upon, and such displays are too commonly made conjointly with the allied arts, and in such cases, it is sad to relate, but a fact, that the dear, appreciative public enthuse over the oils and look upon the architectural drawings merely as space-fillers. On the whole the exhibition is exceedingly creditable, and shows an *esprit de corps* that denotes a marked advance in the work of the club.

The catalogue, which was compiled and edited by George R. Dean, deserves mention and special praise for the manner in which that gentleman has recognized its purpose, and brought into skilful use, and in a practical way, all that an artist in types or harmonious arrangement could admire.

WASHINGTON ARCHITECTURAL CLUB EXHIBITION.

THE Washington Architectural Club has just closed the most important and attractive exhibition in its history. It was held jointly with that of the Society of Washington Artists, and was strong enough to attract, even with the magnificent showing made by the latter society.

"In considering the exhibition from a strictly architectural point of view," says Mr. James Henry Moser, the well-known art critic, in a Washington paper, "it will perhaps be well first to take up the work of the architectural schools represented. Drawings are contributed by the architectural departments of the University of Pennsylvania, Cornell University and the Columbian University, of this city. Hung with them, and considered in connection with them, are several scholarship drawings, which are of particular interest. Notably, a design for a Presbyterian church, with dome (Nos. 199 and 200), by Edward Necarsulmer, on which he was awarded the McKim Traveling Scholarship for 1902. Another project of much interest is that of Paul A. Davis, third (Nos. 88 and 89), representing the work of the Ecole des Beaux-Arts, Mr. Davis having been a student in the atelier of M. Pascal. Mr. Theodore W. Pietsch contributes a photograph of his drawing for a crematory (No. 247), for which he received a diploma from the French Government while a student at the Ecole. Of the work in the American schools a drawing that at once attracts attention for its excellence of design and delicacy of treatment, is that of a summer theater and casino, by Herman Dercum, exhibited by Cornell. The drawings sent by the University of Pennsylvania cover a wide range, and show designs for various materials of use in interior decorations and furnishings, as well as strictly architectural problems. The work contributed by Columbian University is, perhaps, of a more strictly practical character, embracing, as it does, a number of designs for hotels or apartment houses of much excellence.

"Among the drawings of contemplated and executed work those for the new memorial bridge over the Potomac, by Burr and Casey, are probably of greatest interest to Washingtonians. Of the three schemes exhibited, No. 3 seems most satisfactory. The towers in scale particularly come in well with the bridge proper, and the use of the longer shore spans is much more pleasing to the eye than the short ones used on the accepted scheme shown by the photograph.

"The municipal hospital competition is represented by drawings from Washington Hull, of New York, and C. B. Keferstein, Fuller & Pietsch, and George O. Tottetn, of Washington, all of which show a careful study of the natural conditions existing on the site, though none of the elevations is particularly striking in its architectural treatment. Another similar group by J. H. Friedlander, for a national home for disabled volunteer soldiers, is very interesting, and particularly so in its harmonious adaptation to its surroundings as indicated by the very clever bird's-eye view.

"Two very beautiful drawings, both in design and rendering, are the elevations for a house for Andrew Carnegie, by Howard, Caldwell & Morgan, while the group of drawings by the late L. Henry Morgan, of that firm, who was in a way a Washingtonian, is particularly interesting as representing the work of one of the most promising of the younger New York men. Among these, the James A. Burden house is conspicuous as an example of what is best in modern urban house design.

"The design of Howells & Stokes for the New York Historical Society building is a notable example of the tendency now exhibited in this country toward the adoption of what is sometimes referred to as a national style.

"Ernest Flagg's elevation and perspective of the proposed naval arch are striking drawings from the pictorial point of view, but one can not but feel that much of their interest is due to the clever rendering of Hughson Hawley. The breaking of an entablature into an arch, and the working of partial columns on the corners of a pier are not architectural motives that can be safely employed.

"Two drawings of the bridge now being constructed over the Charles river, between Boston and Cambridge, exhibited by Wheelwright & Haven, of Boston, are not only good in themselves, but are of interest here as showing what has already been accomplished in this country in the way of monumental bridge designing.

"The display made by James Knox Taylor, the Supervising Architect of the Treasury Department, is very interesting, and shows conclusively that Government architecture is now of a very different character from that produced before the reorganization of the Government office by Mr. Taylor. The designs here shown are scholarly in their treatment, and have a dignity that at once marks them as buildings for the use of public officers. The exhibition of working drawings and full-size details, while not, perhaps, of interest to the general public, is welcomed by the architect and student as giving them an opportunity of studying the relation between the design as first conceived and shown in perspective, and as later developed. As examples of the workings of the Tarsney Act, the designs of the Baltimore customhouse, by Hornblower & Marshall, and of the Indianapolis courthouse and postoffice, are also of interest. The former, a very dignified and refined design, is shown by a simply rendered but effective perspective drawing. The latter is remarkable in showing so little change from the original design in the working drawings, the original sketch elevation being a very satisfactory treatment of a difficult subject.

"The examples of domestic architecture are too numerous to take up individually, but mention must be made of a very charming colonial front by Waddy B. Wood, for Captain Jewell, a very satisfactory adaptation of that style to city conditions. Another colonial design, that for a town hall at Lenox, Massachusetts, by George C. Harding, is also worthy of mention. William C. Hayes, of Philadelphia, contributes an interesting cottage, rendered in water-color, that is particularly homelike in its suggested comfort.

"The Chapman Decorative Company, of Philadelphia, shows some interior studies that are delightful in color and design, the latter being particularly praiseworthy in its architectural purity.

"There are only two examples of architectural modeling displayed, one a dainty model by L. Amaties, of this city, of the caryatides designed by him for the Pan-American Exposition, and the other a part model of a mantel to be installed in the United States postoffice and courthouse at San Francisco. This latter is modeled by J. Franklin Whitman, of Philadelphia, from designs by James Knox Taylor, the Supervising Architect of the Treasury, and while in the main good, is marred by lack of expression in the face on the side pier, and by the excessive overhang and size of the cornice."

There is much in this exhibition that is painter-like and artistic, entirely aside from the architectural interest. Of these, mention should be made of twenty-five small water-colors by Mr. Walter Paris. These are sunny and skilful little studies of quaint English architecture.

PAINTS IN ARCHITECTURE.

ZINC PAINTS FOR EXTERIOR USE.

IT is surprising how little attention some architects have paid to this subject. I know one architect of extensive practice — to cite a single instance — who, though he insists upon the use of zinc for interiors, appeared, when I asked him the question, never to have thought of trying it on exteriors; though when we got down to facts, I was pretty well convinced that plenty of it had been used on his work without his knowledge. It was like the case, in Molière, of the character who had been talking prose all his life without ever suspecting it. This gentleman had been using excellent zinc paints, under various titles, for years without knowing it.

Such lack of knowledge, under present conditions, is neither creditable nor profitable. Paint manufacturers and zinc oxide manufacturers all over the world roundly assert that a liberal proportion of zinc white is essential to the beauty and durability of paints, exterior as well as interior. It is worth some trouble on the part of architects to ascertain whether this is true and to what extent it is true.

On small jobs, to be sure, it is not always practicable to control the painter, and what he asserts to be satisfactory within the meaning of the specifications must generally be accepted; but on important contracts this is not the case. Here it is possible to insist on analysis at the expense of the contractor, and to place on the latter the burden of proof that the paint used is composed of a mixture, by mechanical grinding, of zinc white and the other ingredients in pure linseed oil.

On a recent large greenhouse where I was asked to recommend the materials, I advised red lead priming (because the owner preferred it); second coat, pure zinc and oil, with one pint of turpentine to the gallon; third coat, the same, with one-half pint of turpentine to the gallon. The owner will see that the specifications are followed, and I expect better results than could be obtained

with any other white paint under similar conditions. Plenty of time to dry will be given between coats, and the work will be done in June.

A few jobs like this, carefully supervised and closely watched, would fix the status of zinc white under all practical conditions.

CHARLES JOURDAIN.

OUR ILLUSTRATIONS.

School Building.

Residence, Los Angeles.

Store Building, St. Louis, Missouri.

Residence for Henry Fisher, Redlands, California.

Telephone Building, San Francisco, California. Mr. Stysche, architect.

Residence for E. W. Gilmore, Los Angeles, California. Edw. Neisser, architect.

Stock Exchange Building, St. Louis, Missouri. Weber & Groves, architects.

Residence for David R. Forgan, Evanston, Illinois. H. B. Wheelock, architect, Chicago.

Residence for Albert C. Burrage, Redlands, California. Charles Brigham, architect, Boston, Massachusetts.

Interior View, Residence for Mrs. C. S. Hill, Redlands, California. Dennis & Farwell, architects, Los Angeles, California.

Photogravure Plate: W. S. Forbes Apartment Building, Chicago. H. L. Ottenheimer, architect.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

Residence, San Francisco.

Residence, Buffalo, New York. Green & Wicks, architects.

Residence, Binghamton, New York. C. E. Vosburry, architect.

Residence for George E. West, Chicago. Wilson & Marshall, architects.

Residence of James L. Flood, San Francisco, California. J. E. Krafft, architect.

View in Iroquois Hotel, Buffalo, New York. Esenwein & Johnson, architects.

Hayward Building, San Francisco, California. G. W. Percy and Henry H. Myers, architects.

Correction: The Apartment Building at Evanston published in January number and credited to Myron H. Hunt was the work of John D. Atchison, architect.

NEW PUBLICATIONS.

ARCHITECTURAL ENGINEERING, WITH ESPECIAL REFERENCE to High Building Construction. By Joseph Kendal Freitag. Second edition. New York: John Wiley & Sons, 1901. $3.50.

The first edition of this book was published some six years ago, which we reviewed at length at that time. It was especially valuable for giving information regarding the construction of high office buildings in Chicago, and was welcomed, as it appears now to be out of print.

This second edition is to a large extent a new book, and contains a description not only of Chicago buildings, but of many of those in New York city, etc. It is more than one-third larger, more copious, more instructive and contains many new details.

A large number of details are given by drawings, as well as words, and these are taken from actual construction and not merely from theory.

A chapter has been added on "Specifications and Inspection," which may be of service to the young architect or engineer. We especially commend the remarks about the value of good inspection from the beginning to the end of the work.

Our review of the first edition was favorable. We can only say that this edition is more useful and valuable than that, and deserves the attention of any one interested in such matters.

LIGHT, HEAT AND POWER IN BUILDINGS. By Alton T. Adams. New York: William T. Comstock, 1901.

The title of this work fairly expresses its object. It is a book intended mainly for engineers who have to do with buildings in the way of furnishing power, heat, etc. Although not intended especially for architects, yet it contains no small amount of information that will be of benefit to them, and will probably tend to improve their foresight and the needs of constructing a building so as to provide suitable accommodation for the needed boilers, pipes, machinery, etc. The character of the book can best be exhibited by making a few quotations therefrom:

> Light, heat and power supplies in buildings are too often treated as independent problems, heat being derived from one source, light from another, and mechanical power from a third. Another frequent practice is to combine the source of heat and power, and then derive light from an independent supply. Either of the plans just named is quite sure, under ordinary circumstances, to result in more than the necessary cost. The best solution of the problem, where light, heat and power are required in a building, is to so combine equipment that all three are generated in the same plant or by the same fuel. The advantage of the combined plant lies in the fact that a moderate addition to the equipment required for heating and a slight increase in the fuel it consumes will usually suffice for the production of all the power and light desired in an office or mercantile building.
>
> Buildings can be warmed by the combustion of coal in their local plants at fuel cost far below that incurred where heat is derived from the public supply of gas or electric energy. If mechanical power is wanted in a building to an extent that does not require more steam during the cold months than would be necessary for heating alone, both the power and heating may be had during these months with a small increase in the amount of fuel that would be consumed for heating. Only a small increase in the total steam and fuel consumed at a building during cold weather for heating is necessary if energy for electric light is taken from the same boilers. It follows from the foregoing that the most economical means to supply light, heat and power in many large buildings is a local plant of steam boilers, engines and dynamos.
>
> The cost of steam pipes and small engines connected at points where the power is wanted will not differ greatly in many cases from the cost of one or more larger engines of equal ultimate capacity, and the belts and shafting necessary to distribute the power. A large engine, dynamo, wiring and electric motors are quite sure, in most cases, to cost more than the same engine with the shafting and belting necessary for distribution. To fairly decide between these three methods of distribution, the efficiency, convenience and the objectionable features of each should be considered, as one or more of these items may much more than offset that of first cost. Where gas or electric energy from an outside source is to be distributed in a building for power purposes, gas pipes and engines must be paid for in one case and electric wiring and motors in the other.

It is a book that will be well to have on hand so as to answer some question that may arise in an architect's office.

MOSAICS.

MR. ROBERT LUCE, president of the Press Clipping Bureau, has been appointed house chairman of the Committee on Election Laws of the Massachusetts Legislature, which the newspapers of the State predict will perform, perhaps, the important task of the session in a reform of the caucus laws, involving the adoption in whole or in part of the Minnesota system of direct nomination and primary election.

IT is "important if true," if, as claimed in the announcement of the death of August Schoenborn, at Washington, that "he designed the dome of the Capitol." Mr. Schoenborn was a draftsman in the employ of Thomas U. Walter during Filmore's administration, when the wooden dome was replaced by the present iron one. The records show that Mr. Walter designed this, the greatest dome in the world, but there is considerable honor in having even made the tracings from the plans, or in working out the details for its erection.

THE bids for superstructure of the New York Customhouse, opened last month, may be of interest, as they show the wide range of figures on large structures in different materials. They are as follows: Hayes, National Park granite, $2,176,000; Hopper, $3,000,000; Rodgers, Deer Island granite, $2,030,000 and Clark Island granite, $2,092,000; Curtin & Co., Soan Sound granite, $2,227,776 and Blue Hill granite, $2,319,632; Norcross Brothers, Bradford granite, $2,284,000 and Georgia white marble, $2,384,000; Wells Brothers, Bedford Indiana limestone, $1,929,535; Griffiths, Soan Sound granite, $2,295,000; Pierce, Fox Island granite, $2,187,000, Stony Creek granite, $2,287,000 and $2,387,000. The contract was not awarded on these figures, but the contract for the foundations and first floor was secured by Mr. Pierce.

THE Northwest Steamship Company has been making rapid progress on the interior changes of its crack passenger boats Northwest and Northland. These changes, although the steamers have only been in commission four years, include new boilers of the Scotch marine type, also many changes of the interior fittings, the estimated cost to reach nearly half a million dollars. Contracts for the most of this work have been awarded. On each boat there will be duplicate generating sets for electric lighting, consisting of two horizontal tandem compound engines, made by the Buffalo Forge Company, direct connected with the General Electric Company marine type 75 K.-W. generators. The engines are of the Buffalo Forge Company latest type, and especially designed for this contract, the space available being limited. As the boats are to be put in commission at the near approach of lake navigation, the builders have agreed to deliver the engines in an extremely short time. These boats are being also fitted out with a complete set of the most improved ventilating apparatus for maintaining the air in all portions of the vessel uniformly cool and pure at all times. Six Buffalo steel plate fans, with direct-connected General Electric Company motors, will be installed in each steamer, with an elaborate network of galvanized iron ducts for delivering the air. This system will be, when completed, in perfect accord with the balance of the magnificent equipments of these splendid vessels.

A TEST of the Vulcanite fireproof floor system at Philadelphia, according to Hazard S. Richards, expert engineer, employed to report upon the test, was made by a furnace eleven feet wide, fourteen feet long and nine feet high from the top of the grate-bars to the ceiling. The section of floor tested formed the ceiling of the furnace. It was constructed of 10-inch I-beams spaced five feet from center to center, and consisted of concrete arches laid on plaster centers with wire lath and cement plaster protecting the lower flanges of the beams. The floor system was finished on top with the usual 3-inch by 4-inch wood sleepers, spaced sixteen inches, centers running at right angles to the beams and filled in with concrete. The structure of the furnace was built two years prior to the test. The maximum temperature reached in the test was 2,135° Fahr., when the water was turned on. The fire was started about 10:30 and terminated at 2 o'clock. Three-quarters of an hour after the fire was started the flames had worked through the ceiling and plaster centers and beat directly against the concrete arches and beam protection, which were still in a sound and perfect condition when the test terminated, and their behavior was satisfactory. The roof or ceiling had been loaded to a test of six hundred pounds to the square foot, and none of this had any apparent effect on the floor system. The test was arranged according to instructions from Chief Hill and Chief Engineer Clark, of the Bureau of Building Inspection, and was witnessed by a large number of experts.

"THE FEET OF THE YOUNG MEN."

[Dedicated to the memory of the late W. Hallett-Phillips.]

BY RUDYARD KIPLING.

[The northern borders of Canada, particularly that portion lying north of Ontario and Quebec, the Atlantic coast from Labrador to Maine, and the lake country bordering on Georgian Bay, with the primitively wild forests extending northward through Muskoka and Lake of Bays country to Hudson Bay, is essentially the country from which Kipling has evolved this series of inimitable word pictures of out-of-door recreation. Until a few years ago this entire wonderland of nature was unknown to

COMING INTO CAMP.

all except such indefatigable sportsmen as Mr. Kipling pictures, but recently it has been so thoroughly explored by the Grand Trunk Railway, whose various lines reach into every part of it, and so perfectly portrayed by the company's superb photographer, Mr. Swan, that it has become pictorially known throughout the world, and is pronounced by those who have sailed, hunted and fished its lakes, forests and streams to be the greatest recreation ground on earth.]

Now the Fourway lodge is opened; now the Hunting-winds are loose.
Now the Smokes of Spring go up to clear the brain;
Now the young men's hearts are troubled for the whisper of the Trues;
Now the Red Gods make their medicine again;
Who hath seen the beaver busied? Who hath watched the black-tail mating?
Who hath lain alone to hear the wild goose cry?
Who hath worked the chosen water where the ouananiche is waiting,
Or the sea-trout's jumping crazy for the fly?

He must go — go — go away from here,
On the other side the world he's overdue.
'Send your road is clear before you when the
old Spring-fret comes o'er you,
And the Red Gods call for you.

So for one the wet sail arching through the rainbow round the bow,
And for one the creak of snowshoes on the crust;
And for one the lakeside vigil, when the bull-moose leads the cow,
And for one the mule-train coughing the dust;
Who hath smelt wood-smoke at midnight?
Who hath heard the birch-log burning?
Who is quick to read the noises of the night?
Let him follow the others, for the young man's feet are turning
To the camps of proved desire and known delight!

Let him go — go — go away from here.

Do you know the blackened timber; do you know that racing stream,
With the raw, right-angled, log-jam at the end;
And the bar of sun-warmed shingle where a man may bask and dream,
To the click of shod canoe-poles round the bend?
It is there that we are going with our rods and reels and traces,
To a silent, smoky Indian that we know;
To a couch of new-pulled hemlock with the starlight on our faces,
For the Red Gods call us out, and we must go!

They must go — go — go away from here.

Do you know the shallow Baltic, where the seas are quick and short,
Where the bluff, lee-boarded fishing-luggers ride?
Do you know the joy of threshing leagues to leeward of your port
On a coast you've lost the chart of over side?
It is there that I am going, with an extra hand to bale her;
Just one single 'longshore loafer that I know.
He can take his chance of drowning while I sail and sail and sail her,
For the Red Gods call me out, and I must go!

He must go — go — go away from here.

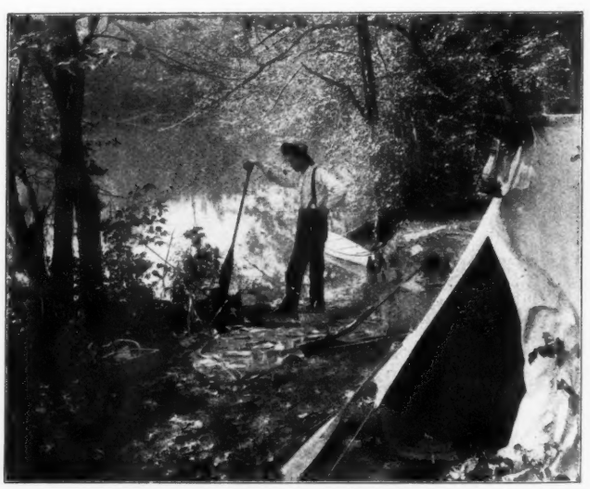
Do you know the pile-built village where the sago-dealers trade —
Do you know the reek of fish and wet bamboo?
Do you know the dripping silence of the orchid-scented glade
Where the blazoned bird-winged butterflies flap through?
It is there that I am going with my camphor, net and boxes,
To a gentle, yellow pirate that I know —
To my little wailing lemurs, to the palms and flying foxes,
For the Red Gods call me out and I must go!

He must go — go — go away from here.

Do you know the world's white roof tree; do you know that windy rift,
Where the baffling mountain-eddies chop and change?
Do you know the long day's patience, belly-down on frozen drift,
While the head of heads is feeding out of range?
It is there that I am going, where the bowlders and the snow lie,
With a trusty nimble tracker that I know.
I have sworn an oath to keep it on the horns of Ovis Poli,
And the Red Gods call, and I must go!

He must go — go — go away from here,
On the other side the world he's overdue!
'Send your road is clear before you when the
old Spring-fret comes o'er you,
And the Red Gods call for you!

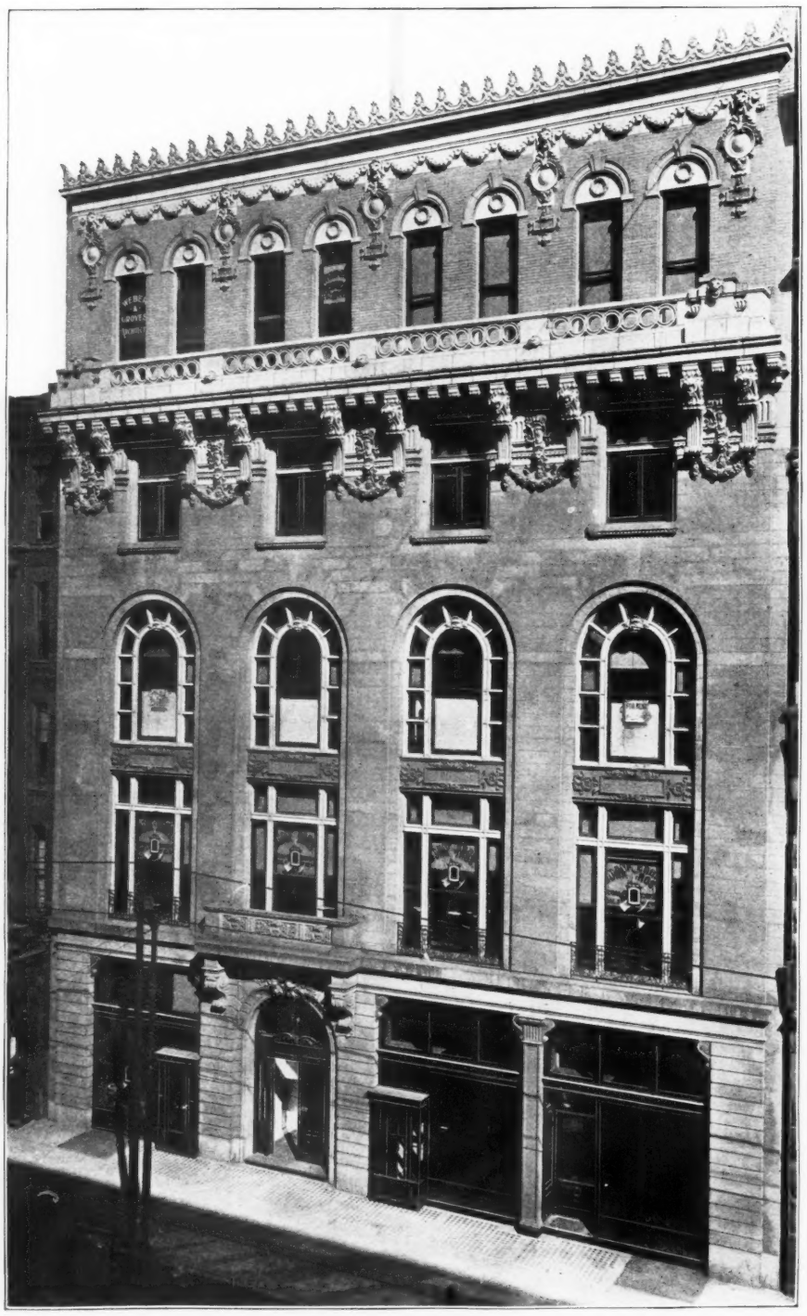
Now the Fourway Lodge is opened; now the Smokes of Council rise;
Pleasant Smoke ere yet 'twixt trail and trail they choose —
Now the girths and ropes are tested: now they pack their last supplies;
Now our young men go to dance before the Trues!
Who shall meet them at those altars; who shall light them to the shrine,
Velvet-footed who shall guide them to their goal?
Unto each the voice and vision; unto each his spoor and sign —
Lonely mountain in the northland, misty sweat-bath 'neath the line —
Are for each a man that knows his naked soul!
White or yellow, black or copper, he is waiting, as a lover;
Smoke of funnel, dust of hooves, or beat of train —
Where the high grass hides the horseman, or the glaring flats discover —



CAMPING ON LAKE COUCHICKING.

Where the steamer hails the landing or the surf boat brings the rover;
Where the rails run out in sand-drift. Quick, ah, heave the camp-kit over!
For the Red Gods make their medicine again.

And we go — go — go away from here!
On the other side the world we're overdue!
'Send your road is clear before you when the
old Spring-fret comes o'er you,
And the Red Gods call for you!



STOCK EXCHANGE BUILDING, ST. LOUIS, MO.

WEBER & GROVES, ARCHITECTS.

RESIDENCE FOR HENRY FISHER, REDLANDS, CAL.

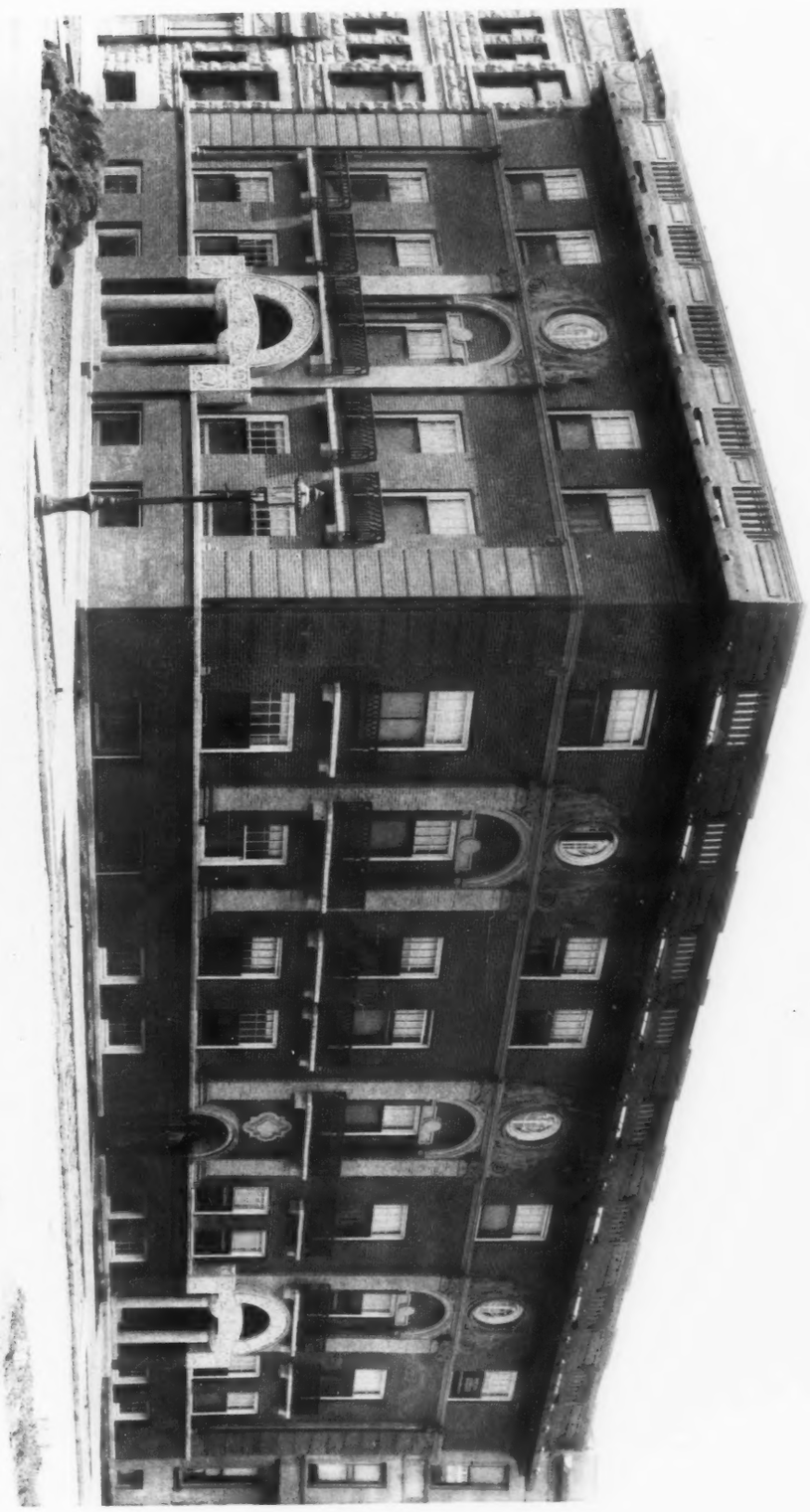
DENNIS & FARWELL, ARCHITECTS, LOS ANGELES.

INTERIOR VIEW, RESIDENCE FOR MRS. C. S. HILL, REDLANDS, CAL.

DENNIS & FARWELL, ARCHITECTS, LOS ANGELES.

RESIDENCE, LOS ANGELES, CAL.

STORE BUILDING, ST. LOUIS, MO.



W. S. FORBES APARTMENT BUILDING, CHICAGO.

H. L. OTTENHEIMER, ARCHITECT.

INLAND ARCHITECT PRESS.

NORMAL SCHOOL, BLOOMFIELD, N. J.

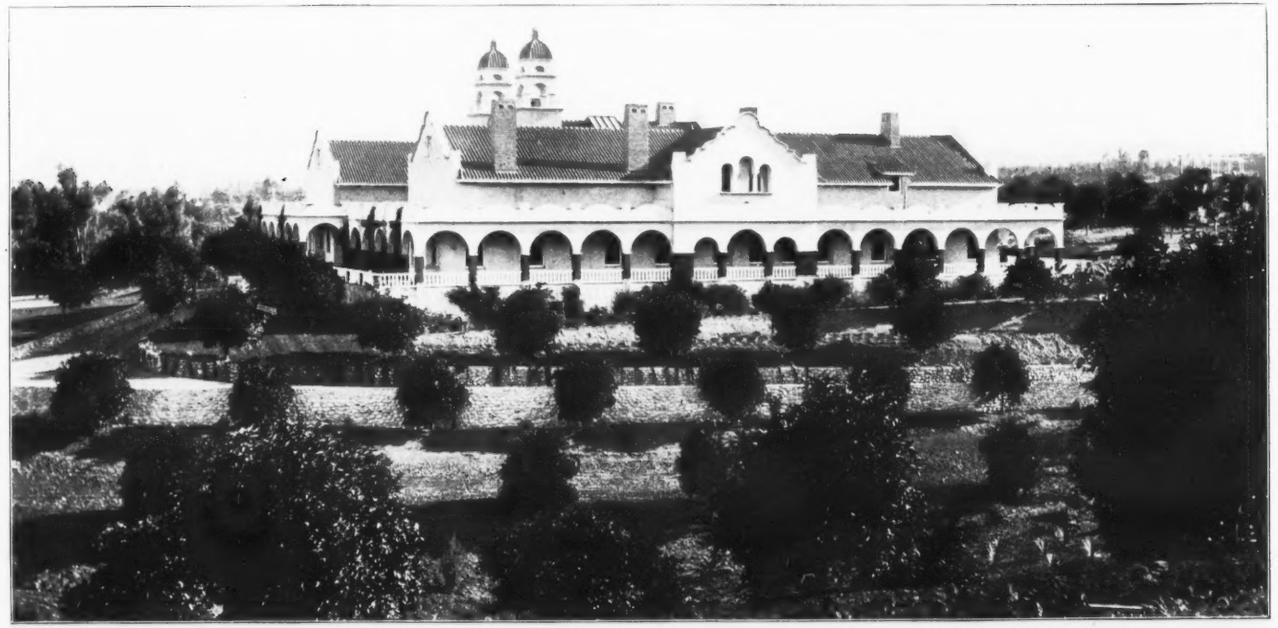
CHAS. JONES, ARCHITECT, NEW YORK.

RESIDENCE FOR E. W. GILMORE, LOS ANGELES, CAL.

EDW. NEISSER, ARCHITECT.

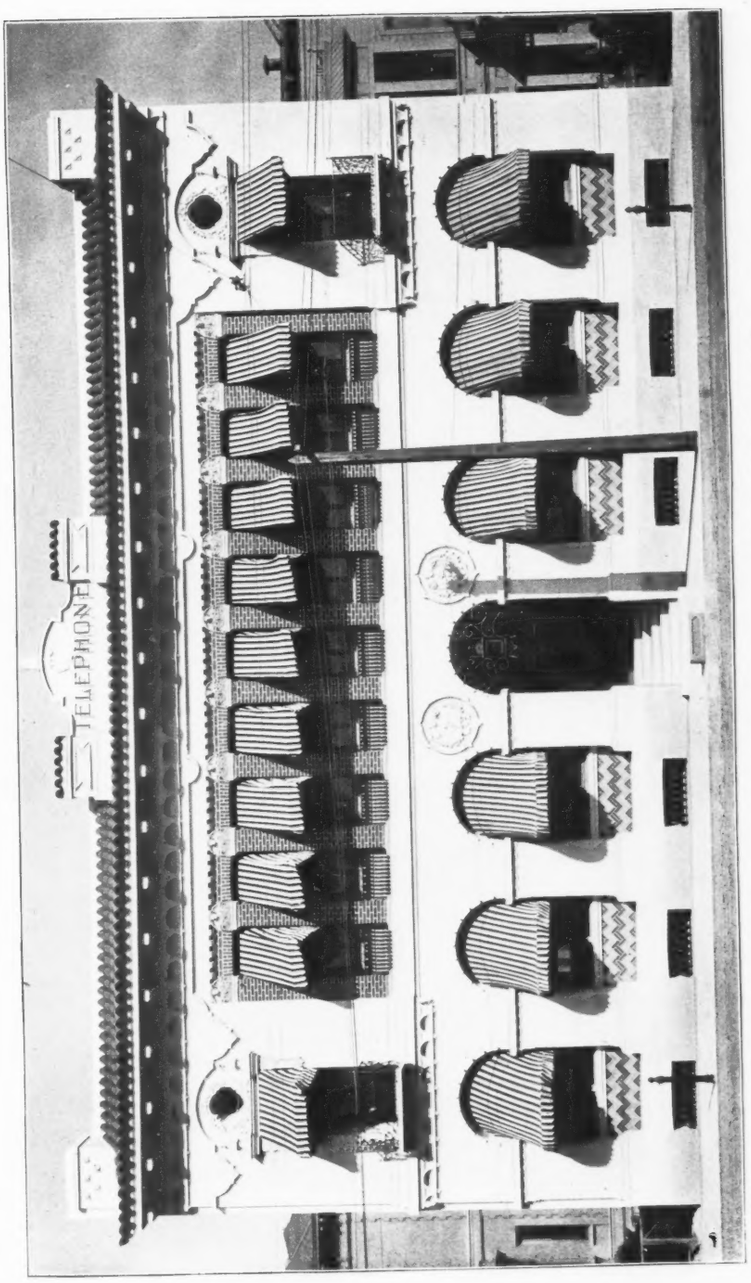
RESIDENCE FOR DAVID R. FORGAN, EVANSTON, ILL.

H. B. WHEELOCK, ARCHITECT, CHICAGO.



RESIDENCE FOR ALBERT C. BURRAGE, REDLANDS, CAL.

CHAS. BRIGHAM, ARCHITECT, BOSTON, MASS.



TELEPHONE BUILDING, SAN FRANCISCO, CAL.

MR. STYSCHE, ARCHITECT.