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VOL. LXXXVI

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NO. 1502



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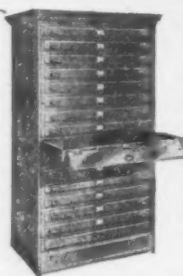
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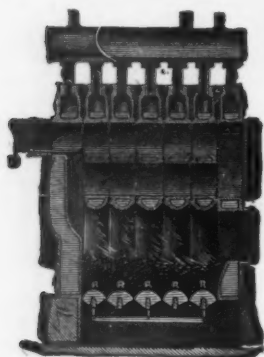
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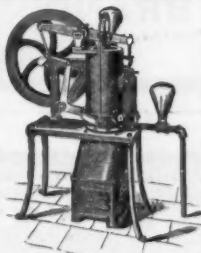
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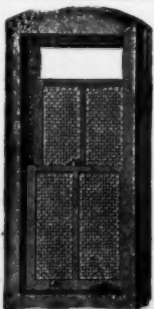
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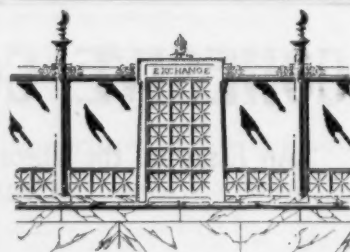
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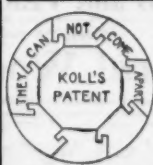
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

new structure will cover the site now occupied as Kinsley's restaurant.

Plans are under way for the First Congregational Church of Oak Park. It will be modeled after an octagonal church built at Milan, Italy, 400 A. D.

Frederick Schroeder will build an apartment building, 304 feet in Wellington St., 100 feet in North Halsted St. and 115 feet in North Clarke St. There will be forty-four apartments.

Bids have been advertised by the Board of Education for the James Monroe School, to be built at Schubert and Monticello Aves., at a cost of \$170,000.

The American Agricultural Packing Company will erect a plant of six buildings at the stock yards. A New York architect is making the plans.

CINCINNATI, O.—It is reported that St. Paul's Society is to erect a new cathedral house at 223 West 7th St.

Lee Crenshaw, 6th and Walnut Sts., has purchased property on Front St., 123x108 feet, on which a four-story hotel will be built.

The erection of a workmen's hotel at Baker Alley and Race St. is being talked of.

Architect C. M. Foster is at work on plans for extensive improvements which are to be made on buildings in Eden, Lincoln and Washington Parks. Address B. of P. S.

Architect S. S. Godley has plans for a \$70,000 plant for the Mihalovitch-Fletcher Distilling Company, for 520 East Pearl St.

The old cable power-house on Gilbert Ave. has been leased to Morris Strauss. Six more buildings will be built upon the lot and the whole used for a modern clothing establishment.

H. M. Meyer & Co., pork packers, have purchased a lot adjoining their plant, Central Ave. and Linn St., and will erect an addition.

John S. Hayes will build two office buildings on Johnson St., for commission men.

Busse & Borgmann have purchased a lot 40x135 feet, on which a morgue and chapel is to be built, at an aggregate cost of \$23,000.

The Cincinnati Traction Company will erect a \$20,000 brick and steel car barn on Kinney Ave., near Hunt St.

Rieg & Marty have plans for an apartment-house for Michael Crowley, to be built on Copeland Ave.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

A new parochial school, to cost \$24,000, is to be built by St. Patrick's Church, Cumminsville. Address Rev. J. F. Hickey.

The Church of the Blessed Sacrament will build a parochial school at the foot of Price Hill. Address Rev. F. X. Dutton.

The Walnut Hills Christian Church will build a large addition for Sunday school purposes. Address the pastor.

A flat building will be erected on Ashland Ave. by Miss L. L. Barlow. Philip Pfeiffer, architect.

Architect Philip Pfeiffer has plans for a flat for Broker Jacob Schottenfels, on Hearne Ave.

S. S. Godley has plans for a three-story flat, 90x100 feet, \$15,000, on Ridgeway Ave. Dr. Paul Scudder, owner.

Architect C. H. Fasse is drawing plans for a \$10,000 brick flat, 50x85 feet, for August Sunderbruck, for Charlton and Saunders Sts., Coryville.

Two flats, 50x137 feet, are to be built at Reading Road and Ridgeway Ave. (Avondale), by Attorney Ben. B. Dale. Address owner.

Cooper & Co. have plans for six residences in Avondale, to cost in the aggregate \$50,000. Contracts will be given on the whole.

X. B. Drexilius will build an \$8,000 residence of Colonial style on Madison Ave.

A four-story store and flat building, to cost \$13,000, will be built on McMillan St., by Chas. Nerpel.

Joseph Lammerding, owner, 3,903 State Ave., has plans for a 3½-story brick and stone flat building for 931 State Ave. A. Kunz, architect.

Plans are now under way by Cooper & Co. for five modern residences for Hyde Park.

CLEVELAND, O.—A long-term lease has been acquired, on the old Stillman property, for the purpose of erecting a large commercial structure on the site.

The old Union Club property is owned by the Citizens' Savings and Trust Company. It is reported that the company is having plans drawn for the developing of the property by the erection of a splendid ten-story mercantile structure.

Negotiations are under way for the sale of the large block of property at the corner of Superior and Erie Sts. Eastern in-

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

vestors are desirous of making the purchase with a view of erecting a splendid hotel on the site.

Work is progressing on the Rockefeller building, at the corner of Bank and Superior Sts. It is reported that following the completion of this building, several other structures of a like character will be erected in the immediate vicinity.

A new building will be erected on the south side of Euclid Ave., on the site of the old Cross homestead.

Mr. Arnold Brunner, of New York, consulting architect for the Cleveland Trust Company, will soon begin to inspect the plans which have been drawn for the building that is to be erected by the company at Euclid Ave. and Erie St., by five competing architects of national fame.

COLUMBIA, S. C.—The board of trustees of the Columbia Female College have accepted the plans and specifications for the new college buildings to be erected at Hyatt Park. Bids will be advertised for in a few days. Work will begin Dec. 1st. Cost, \$100,000. Architect, A. W. Todd. There will be four buildings, and they will be of brick, with South Carolina granite as trimming.

COVINGTON, KY.—The Stewart Iron Works is to build a large addition to its plant.

COVINGTON, LA.—Some prominent citizens of this place, together with hotel people in the Adirondacks, want to establish here a hotel for winter tourists. An option has been secured on one admirable site on the beautiful Bogue Falaya River, and if the plans of the promoters can be carried out, Covington will have one of the most up-to-date hotels of its class in the South.

DES MOINES, IA.—The Capital City Woolen Mills Company will erect a four-story addition to its plant. Cost \$35,000.

A site will be procured and work commenced on the new building next season for the First M. E. Society, provided a customer can be found for the present church property who will take it when the congregation is ready to take up quarters in the proposed new edifice. About \$60,000 has already been raised. The cost will be approximately \$125,000. Proudfoot & Bird will draw the plans.

The Forest Ave. Baptists are having plans prepared for the new church they propose erecting at Eleventh St. and Forest Ave. next season, at a cost of \$15,000. W. H. Barton is the architect.

EVANSTON, ILL.—Atchison & Edbrooke have designed a three-story apartment-house, to be built on Ridge Ave. Cost, \$75,000.

HIGHLANDS, KY.—Architect C. C. Weber, Cincinnati, has plans for a \$10,000 store and flat building for Ft. Thomas Ave., Highlands, Ky.

IOWA CITY, IA.—Proudfoot & Bird, Des Moines, have been selected as architects for the new Engineering and Science Hall, to be erected at the University this year. The building will cost about \$125,000.

LATONIA, KY.—Schofield & Rabe, Covington, have plans for a large flat building for R. S. Ferguson. Address architects.

LITTLE ROCK, ARK.—A company is being formed to erect a ten-story office building at Second and Centre Sts.

MADISON, WIS.—Plans for a new building for the Young Men's Christian Association, to be erected at the University of Wisconsin grounds, have been accepted. It is anticipated that about \$75,000 will be spent in the construction. The architect is E. T. Colton, of New York City. The building will be five-story, of brick and stone, and it is expected that ground will be broken very soon.

MALDEN, MASS.—At a meeting of the Common Council the committee on public construction recommended that two rooms be added to the Faulkner School building

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

and the building of an eight-room schoolhouse in Ward 7. These recommendations were referred to the finance committee. The order providing for a schoolhouse in Maplewood and the building of two portable schoolhouses, one in Faulkner and one in Maplewood, was referred to the same committee.

The purchase of a lot for a police station at the corner of Middlesex St. and Middlesex Ct. is contemplated.

NEWPORT, Ky.—Chas. Betz, Cincinnati, will erect a \$10,000 flat building on Sixth St. B. C. De Camp, architect.

PITTSBURGH, Pa.—A permit has been issued to Andrew Carnegie for the erection of a three-story steel and stone extension to the Public Library at Forbes and Mawhinney Sts., 14th Ward, to cost \$3,500,000. This is the largest building permit ever issued in Pittsburgh. The building will cover a lot 400x600 feet. The extreme height will be 130 feet.

A permit has been granted to Henry Phipps for an addition to the furniture store on Cecil Alley. Cost, \$30,000.

ROCHESTER, N. Y.—The building outlook in this city for 1905 is most promising.

SEA ISLE CITY, N. J.—B. P. Evans, Philadelphia, is taking estimates for a \$150,000 hotel, to be erected here.

SIOUX CITY, Ia.—It is announced that a store and office building, to cost \$100,000, will be erected at Sixth and Pierce Sts., next spring, instead of a \$20,000 building of small stores, as was at first planned.

ST. LOUIS, Mo.—Plans are being drawn by Weber & Groves, Stock Exchange building, for a seven-story apartment-house. The St. Louis Improvement Company will erect the new building on the half block, embracing the entire frontage on the west side of Grand Ave., between Russell and Castleman Aves. The cost will be in the neighborhood of \$600,000.

WINSTED, Conn.—Rev. Michael Mann has received the plans for the new St. Joseph's Church, which is to be erected on Oak St., at an expense of \$50,000.

PROPOSALS.

BUILDING.

[At Columbus, O.]

Bids will be received October 19 by the Board of Trustees of the Ohio State University for furnishing material and erecting a building for Department of Chemistry at said university; probable cost, \$100,000. Peters, Burns & Pretzinger, Architects, Dayton. CARL E. STEER, Secretary. 1502

SERGEANT'S QUARTERS.

[At Ft. Totten, Willet's Point, N. Y.]

Bids will be received by Capt. Geo. H. McManus, Q. M., U. S. A., on October 16 for the construction, etc., of one set of hospital sergeant's quarters at this post. 1502

GARBAGE CREMATOR.

[At Ft. Sam Houston, Texas.]

OFFICE OF THE CONSTRUCTING QUARTERMASTER, FORT SAM HOUSTON, TEXAS.

Sealed proposals for the construction and erection of a Garbage Cremator, including building to enclose same, at Fort Sam Houston, Texas, will be received here until October 18. Information furnished on application. L. J. FLEMING, Constructing Quartermaster. 1502

REMODELLING JAIL.

[At Dublin, Ga.]

Bids will be received until October 15 for remodeling jail. WM. C. SOLOMON, Secretary, Board of County Commissioners. 1502

CEMENT FLOORS, GAS-PIPING, ETC.

[At Chattanooga, Tenn.]

OFFICE, CONSTRUCTING QUARTERMASTER, CHATTANOOGA, TENN.

Sealed proposals will be received here until October 15 for installing laundry tubs, cement floors and gas-piping and for altering chimneys in barack building at Chickamauga Park, Ga. Information furnished on application. H. W. FRENCH, Capt., Q. M. 1502

BUILDING.

[At Galt, Ont.]

Bids will be received until October 17 by Thos. Macrae, Secretary, Collegiate Institute Board, for erecting the proposed Collegiate Institute Building. Stewart & Witton, Architects, Hamilton. 1502

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PROPOSALS.

SCHOOL.

[At Lancaster, O.]

Bids will be received October 10 by the Board of Education for furnishing material and erecting a 1-story brick school. LOU E. EYMAN, Clerk. 1502

BUILDINGS.

[At Ft. Levett, Me.]

OFFICE, CONSTRUCTING QUARTERMASTER, 185 MIDDLE ST., PORTLAND, ME.

Sealed proposals, subject to the usual conditions, will be received at this office until October 14 for the construction of 17 public buildings and alterations to 1 stone cottage, including plumbing, heating and electric wiring, at Fort Levett (Cushing's Island), Me. Information, specifications and blanks on application at this office. Plans and specifications may be consulted at Office, Constructing Quartermaster, 170 Summer St., Boston, Mass., and Office, Depot Quartermaster, Army Building, New York City. CAPT. A. W. YATES, Quartermaster, U. S. A. 1502

BUILDINGS.

[At Washington, D. C.]

DEPARTMENT OF AGRICULTURE, OFFICE OF THE BUILDING COMMITTEE, WASHINGTON, D. C.

Sealed proposals will be received at this office until the tenth day of November for the general construction (except heating apparatus, elevators, electric wiring and conduit systems) of two laboratory buildings for the U. S. Department of Agriculture, Washington, D. C. In strict accordance with the drawings and specifications by Rankin, Kellogg & Crane, Architects, 1012 Walnut St., Philadelphia, Pa., copies of which may be had upon application to the Supervising Engineer, Capt. John Stephen Sewell, Corps of Engineers, U. S. Army, at the Department of Agriculture, Washington, D. C. B. T. GALLOWAY, Chairman. 1508

TWO BRICK BUILDINGS AND WATER AND SEWER SYSTEMS.

[At Wittenberg, Wis.]

DEPARTMENT OF THE INTERIOR, OFFICE OF INDIAN AFFAIRS, WASHINGTON, D. C.

Sealed proposals will be received at the Indian Office until October 25 for furnishing and delivering the necessary materials and labor required to construct and complete a brick school building and brick dormitory, both with plumbing, steam heat and acetylene gas piping or electric light wiring, and water and sewer systems with acetylene gas piping or electric light wiring for pump house, at the Wittenberg School, Wisconsin; in strict accordance with the plans, specifications and instructions to bidders. For further information, apply to Axel Jacobson, Superintendent, Indian School, Wittenberg, Wis. W. A. JONES, Commissioner. 1503

PROPOSALS.

STEWARDS' QUARTERS.

[At Ft. Mason, Cal.]

Bids are wanted October 17 for constructing a brick hospital stewards' quarters, including plumbing and wiring, at this post. WM. S. PATTERSON, Ch. Q. M. 1502

STATE ARMORY.

[At Flushing, N. Y.]

Sealed proposals for construction, heating, plumbing, electric-light wiring and fixtures and gas-piping, for a State Armory, at Flushing, N. Y., may be sent by mail or delivered in person up to the seventeenth day of October to the State Board of Armory Commissioners at the Capitol, Albany, N. Y. Drawings and specifications may be consulted and blank forms of proposals obtained at the armory of the Seventeenth Separate Company, Flushing, N. Y., or by application to G. L. Helms, State Architect, in the Capitol at Albany, N. Y. CHARLES F. ROE, Major General; NELSON H. HENRY, Adjutant General, Armory Commissioners. 1502

PAVING.

[At White Plains, N. Y.]

Sealed proposals will be received by the Town Board of White Plains, N. Y., at the office of the Supervisor until October 14 for grading, macadamizing and otherwise improving six miles of the highways of the town, viz.: Ridgeway, Haviland's Lane and the southerly portion of West St.; Rosendale Ave., Purdy Ave., Gedney Ave., Sound View Ave., Hartedale Ave. Specifications and forms can be obtained by addressing the undersigned, and plans can be seen at the office of the Town Clerk. FARINGTON M. THOMPSON, Supervisor; JAMES J. SHAW, Town Clerk, 185 Railroad Ave., White Plains, N. Y. 1502

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 29, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 9th day of November, 1904, and then opened, for the construction (except heating apparatus) of the U. S. Post-office at Flint, Michigan, in accordance with drawings and specifications, copies of which may be had at this office or at the office of the Postmaster at Flint, Michigan, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1503

Treasury Department, Office of the Supervising Architect, Washington, D. C., October 1, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 7th day of November, 1904, and then opened, for the construction (including heating apparatus, electric wiring and conduits), of the U. S. Post office at Lawrence, Kansas, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Lawrence, Kansas, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1503

PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., October 1, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 27th day of October, 1904, and then opened, for the low pressure steam heating apparatus, complete in place, for the U. S. Post-office and Court-house at Greenville, Tennessee, in accordance with drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Greenville, Tennessee, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1503

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 28, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 2d day of November, 1904, and then opened, for the construction (including plumbing, heating apparatus, electric conduits and wiring), of the U. S. Post-office at Oak Park, Illinois, in accordance with drawings and specifications, copies of which may be had at this office or at the office of the Postmaster at Oak Park, Illinois, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1503

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 28, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 1st day of November, 1904, and then opened, for the construction (including plumbing, heating apparatus, electric conduits and wiring), of the U. S. Post-office at Evanston, Illinois, in accordance with the drawings and specification, copies of which may be had at this office, or at the office of the Postmaster at Evanston, Illinois, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1503

Department of Agriculture, Office of the Building Committee, Washington, D. C., September 19, 1904. Sealed proposals will be received at this office until 2 o'clock P. M. on the 10th day of November, 1904 and then opened, for the general construction (except heating apparatus, elevators, electric wiring and conduit systems) of two laboratory buildings for the U. S. Department of Agriculture, Washington, D. C. In strict accordance with the drawings and specifications by Rankin, Kellogg & Crane, Architects, 1012 Walnut St., Philadelphia, Pa., copies of which may be had upon application to the Supervising Engineer, Capt. John Stephen Sewell, Corps of Engineers U. S. Army, at the Department of Agriculture, Washington, D. C. One set only of drawings and specifications will be sent to any one bidder, but additional sets may be purchased of the printers designated by the Department, at cost of product of same. All applications must be accompanied by a certified check for \$250.00, made payable to the Disbursing Clerk of the Department of Agriculture, which check will be retained until the return of all drawings and specifications, including those which may have been purchased from printers. B. T. GALLOWAY, Chairman. 1506

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 22, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 19th day of October, 1904, and then opened, for the installation of a hydraulic freight lift in the U. S. Custom-house building at St. Paul, Minn., in accordance with the drawings and specifications, copies of which may be obtained at this office, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1502

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 19, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 26th day of October, 1904, and then opened, for the construction (including plumbing, heating apparatus, electric conduits and wiring) of the U. S. Post-office at Rock Hill, South Carolina, in accordance with the drawings and specifications, copies of which may be had at this office or at the office of the Postmaster at Rock Hill, South Carolina, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1502

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 19, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 25th day of October, 1904, and then opened, for the construction (including plumbing, heating and ventilating, gas piping and electric wiring and conduits) of the U. S. Post-office and Court-house at Huntington, West Virginia, in accordance with drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Huntington, West Virginia, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1502

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 19, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 24th day of October, 1904, and then opened, for the construction of the U. S. Post-office and Court-house at Hammond, Indiana, in accordance with drawings and specification, copies of which may be had at this office, or at the office of the Postmaster at Hammond, Indiana, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1502

BRIDGE SUPERSTRUCTURE.

[At Boston, Mass.]

The City Engineer of Boston invites bids for steel superstructure of Atlantic Avenue Bridge, and giving bond of a Surety Company in \$100,000. Only bids obtained at his office, City Hall, filled out, signed by bidder and there left before 12 M. of Wednesday, October 12, with a certified check for \$1,000, payable to and to be the property of the City if the bid is not carried out, will then and there be publicly opened and read. The City Engineer reserves the right to reject any or all bids and to give preference to bidders paying the trade union's rates of wages. WILLIAM JACKSON, City Engineer. 1502

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THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. LXXXVI

SATURDAY, OCTOBER 8, 1904

No. 1502



SUMMARY:—

A New York Schoolhouse for Seventy-five Hundred Pupils. — How Modern Sanitary Precautions have increased the School Population. — Medical Inspection of Public School Children. — The International Engineering Congress at St. Louis this Week. — Chicago experiences Difficulty in securing an Architect to the Board of Education. — A Travelling crane wrecked by the Wind in Boston. — An Appeal for Funds for the Cathedral of St. John the Divine. — The Insurance Engineer.	9
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HERE is something appalling rather than startling in the report that a schoolhouse is about to be built on Grand Street, on the lower East Side, New York, to accommodate seventy-five hundred school children. The schoolhouses built in that city in recent years designed by Mr. C. B. J. Snyder, the official architect to the Department, have been of high merit, both as educational establishments and as architectural accomplishments, and there is every reason to believe that he will treat this large ten-story building as successfully and acceptably as the others. There is no question, then, but that, with a reasonable provision of elevators and escalators, there will be no greater amount of tardiness than in schoolhouses of smaller dimensions, and of course fireproofing methods of only the highest standard will be adopted. The puzzle that first presents itself is, where are these seven thousand-odd children to find space for their needed recreation during recess, when a two-acre lot affords none too much space for the use of an ordinary country school of only a hundred pupils? Even if some form of gymnasium or indoor play-room is provided, it could hardly accommodate more than five hundred at one time, and even if used in rotation it would hardly be possible during a single session for all of the pupils to pass through it, even without stopping there for exercise or recreation. Here in this one building are to be housed the equivalent of seven full regiments—with their bands—and anyone who has watched seven regiments, even when marching company front, in procession, knows that they can hardly pass a given point in less than an hour, and knowing this will realize how little chance the public will have to use the sidewalks in the neighborhood of the building when "school lets out." Proceeding in one direction and walking ten abreast, the pupils would form a solid column more than half a mile long, and if there is the usual amount of scuffling, skylarking and dashing out into the street to escape teasing or pursuit, it will require an extra force of

patrolmen to regulate the street traffic and make as sure as possible that some careless teamster or reckless automobilist does not turn each school day of the year into a day of mourning for some family.

THE school problem, a hard one everywhere, is found a particularly difficult one in New York, partly because of the scarcity of available sites, but more because of the nature of the population, which increases in a very irregular and indeterminate ratio, being affected by the influx of immigrants, a considerable portion of whom halt in the city for a longer or shorter time, and again by the fact that, while the rate of child-birth, on the East Side at least, remains pretty steadily at the maximum, there are certain developments of recent years which affect infant mortality, whose results are but now showing themselves in the school population; so that if the authorities are blamed for not providing enough "sittings" or building new schoolhouses fast enough, they have the excuse that to some extent the present conditions are not thoroughly comprehended. The operation of the *Tribune's* "Fresh-air Fund" and the benefits of the several recreation-piers of later establishment have preserved to school age many a little life that under former conditions would have been snuffed out. To these must be added the lives saved by the reforms in street-cleaning and sanitation begun by Colonel Waring, and the later and more direct influences that emanate from the present tenement-house inspection. What we may call the Waring salvage are now of school age, and their appearance at the school door is one of the new factors in the situation. From one cause or another of a sanitary nature there are many thousand more children in New York who reach school age than would have if the pre-Waring conditions had been continued.

STILL another agency is at work that has its effect on school population, though at the moment of its application it tends to reduce rather than increase it; but the reduction is merely temporary, while the ultimate effect tends to an increase. This agency is the regular medical inspection of school children under the system established by the Health Department in 1896. During the first year the system was in operation a little over seven thousand pupils were temporarily excluded from the schools because affected with contagious disease, while last year nearly forty-two thousand children were similarly excluded. The increase is to be accounted for partly by the greater number of school children, partly by the employment of a larger and more efficient body of inspectors, but largely by the inclusion of granulated eyelids in the list of contagious diseases. It is by such enlightened paternalism that the lives of countless children in this great city are now saved each year, and as some of these agencies are but now having their full effect, it is small wonder that the authorities, who are guided largely by data collected under different conditions, have found the accommodations they have provided too scanty to fill the requirements.

A VICTIM of the fashion that has been in vogue for some time has at length lifted up his voice in public protest against the modern system of holding scientific and educational congresses, of one kind or another, in connection with and as one of the attracting "features" of international fairs. He feels that he may make his protest with a better grace than some others, seeing that he was congratulated by some of his fellow-victims because he had had a larger audience than any of them had had to listen to the paper he had crossed the ocean to read before his "section;" but as this audience had numbered only twenty-five, when he would easily have attracted five hundred at any place where he had not to undergo the competition of the attractions in the "Pike," he evidently did not feel that the congratulations offered him were very well based. It will take more than one protest to bring about a change in the current system of holding these nearly fruitless exhibition congresses. Meanwhile we can only hope that the International Engineering Congress that is held at St. Louis this week may draw a better attendance than if held during the heated season, though it is not likely to have as large audiences as it deserves. The Congress, which sits for six days, is divided into eight Sections, which are expected to listen to, digest and discuss a total of one hundred and four papers, and possibly more. The number of papers presented to each Section varies from three—which, strangely enough, is all that are to be read before the Electrical Section—to the twenty-five that are to be read before the Section of Waterways. Why waterways should be so much more prolific a subject than electricity we do not understand, but that Section not only secures the largest number of papers, but they are presented by a more polyglot body of contributors, as their authors, other than American, are English, Dutch, French, Danish, Japanese, Swiss, Canadian and Argentine.

A VERY extraordinary story comes from Chicago to the effect that the Board of Education of that city being in need of an official architect made it known that they would be glad to have architects present themselves for examination, and, as there seems to be a salary of seven thousand dollars attached to the place, they doubtless expected that many aspirants would apply. Finding, however, that only four architects practising in Chicago presented themselves to attempt the examination, while no aspirants from other places appeared on the day named, the Board of Education decided not to hold the examination, but to postpone it and re-advertise for the sake of securing, if possible, a greater number of competitors from whom to make their selection. As we do not know the nature of their original advertisement, we do not know whether the four gentlemen who did present themselves have a chance to bring suit for breach of contract. Doubtless they are looking out for their own interests and fully understand that when seven thousand dollars per year is a third term, the ratio one to four is a stronger one than one to, say, a hundred.

A CURIOUS accident happened in Boston last week which shows that ships and balloons are not the only vehicles which it might be well to equip with anchors. During the noon-hour, Friday, a sharp squall struck the travelling-crane over the new coal-pocket at

the Charlestown Navy-yard and set the heavy structure, with its hundred-foot tower, boiler-house, engine-room and seventy-foot boom, in motion along its three hundred and fifty feet of track, laid at a height of seventy feet from the ground. The engineer tried to check the movement by applying the brake, but the brake-bar broke, and he and the fireman then tried to stop the progress by placing chunks of wood on the track; but nothing could stop the ponderous structure under the impulse of the gale, and when it reached the end of the track it pitched off onto the ground below, a total wreck. Fortunately, as the workmen were away at dinner, no lives were lost. As it is said that similar accidents have recently befallen travelling-cranes belonging to the Government at San Francisco and at Frenchmen's Bay, it seems a little as if the modern substitution of steam for sail power had allowed naval engineers to forget that there was such a thing as wind-pressure to be reckoned with.

JUST as the modern theory is shaping itself that the best sort of man to fill the presidential chair of a university is not a scholar or necessarily even an educator, but a good administrator and man of affairs, so, we believe, it has long been recognized that a really successful bishop must be a good man of business, and particularly must be one who knows how to extract from the pockets of the elect the funds needed for carrying on the affairs of the Church. He must know not only what pockets to attack, but when to attack them. In this light there can be no doubt that the affairs of the Episcopal Diocese of New York are in good hands, for an appeal is making just now for the contribution of one million—or more—dollars in order that the work on the Cathedral of St. John the Divine may be proceeded with, and the timeliness of the appeal is made apparent by its pointing out that the presence in this country of the Archbishop of Canterbury, Primate of England, had "kindled enthusiasm" and that a contribution of funds for the cathedral would be a "proper memorial of his visit." If there be a bit of Barnumism mixed with Jenkinism in this appeal, never mind; it is good business. We all want to see the building make better progress, for even the initiated feel that matters have been lingering along a little too much in a mediæval spirit which is quite at variance with modern methods.

A VERY much agitated correspondent writes from Baltimore to *Fire and Water Engineering* to learn "who is this new-found individual?"—the insurance engineer, and proceeds to make fun of him and his new calling because one of these upstarts advocates the use of wire-glass as a fire-resisting material for the protection of window-openings. The Baltimorean resents this recommendation because, as he writes, "everyone knows that windows of warehouses ought to be protected by iron outside shutters." We do not know whether this sage assertion is made by an architect or by the agent of an iron window-shutter manufacturer, but we are quite sure that if he would visit the engineering experiment stations in Boston or Chicago he could learn something he does not now know about wire-glass and iron window-shutters, and at the same time could gather a glimmering of the probable future usefulness to the community of those who have enrolled themselves in the new calling.

ENGLISH ARCHITECTURE OF THE FIFTEENTH CENTURY.¹—I.

THE phase of Gothic architecture which had its beginning in the latter half of the fourteenth century, reaching its full development in the fifteenth, continuing into the sixteenth, and in some places into the seventeenth century, is the culmination of the style which had been gradually evolved out of the Romanesque during the three preceding centuries.

Perpendicular work is worthy of special study for several reasons. First, there is its exclusively national character, which distinguishes it from its forerunners. Norman, Transitional, Early Gothic, and Decorated are found on the Continent, and it was not till the latter part of the fourteenth century that the development took place which gave us a style entirely our own. Although it has certain features in common with the Flamboyant of the Continent, the general effect of the two styles is very different, the English work being much more reserved.

It is very interesting to trace the first beginnings of the style. These, indeed, in some cases are very far back; as, for instance, in the east window of Evington Church, Leicester, circa Edward I, the characteristics of Perpendicular are shown. In the east window of Eggleston Abbey [Fig. 1], dating about 1220, the mullions are carried straight up to the arch. These, however, are more what might be called anticipations; the real development is seen in the later examples of Flowing Deco-

The Transition style between the Decorated and Perpendicular is a well-marked one, possessing certain features common to both, as the segmental arch and acute gablet of the Decorated, with the vertical tracery bar and low-pitched gable of the Perpendicular. The small chapel in the centre arch of the west front of Peterborough Cathedral and Merton College Chapel, Oxford, are examples; the Bishop's throne at Durham is another.

MOULDINGS.

The fully developed Perpendicular is distinguished by several characteristics peculiar to itself. First, the mouldings are no longer worked on receding orders and stopped on caps at the springing of arches, but are now worked on the chamfer plane, and in most cases only certain members rest on caps, and the others continue down the piers or jambs.

These mouldings are often of great vigor and beauty. They consist of combinations of the following members: (1) the hollow; (2) the boutell; (3) the ogee; (4) the double ressaut or double ogee; (5) the wave; (6) the casement or wide hollow.

CAPITALS.

The upper portion of the capitals and the lower parts of the bases are always octagonal. There is great elegance about both these features; the capitals are frequently enriched with either battlements or cresting on the abacus; the bell may be either plain or foliated.

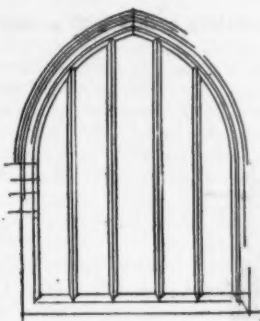


FIG. 1.
EAST WINDOW, EGGLESTON ABBEY.

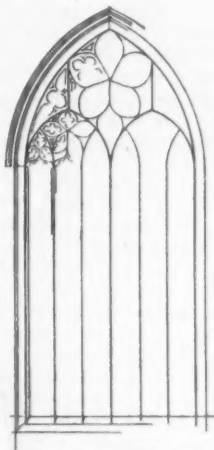


FIG. 2.—NORTH TRANSEPT,
DURHAM.

ENGLISH ARCHITECTURE OF THE FIFTEENTH CENTURY

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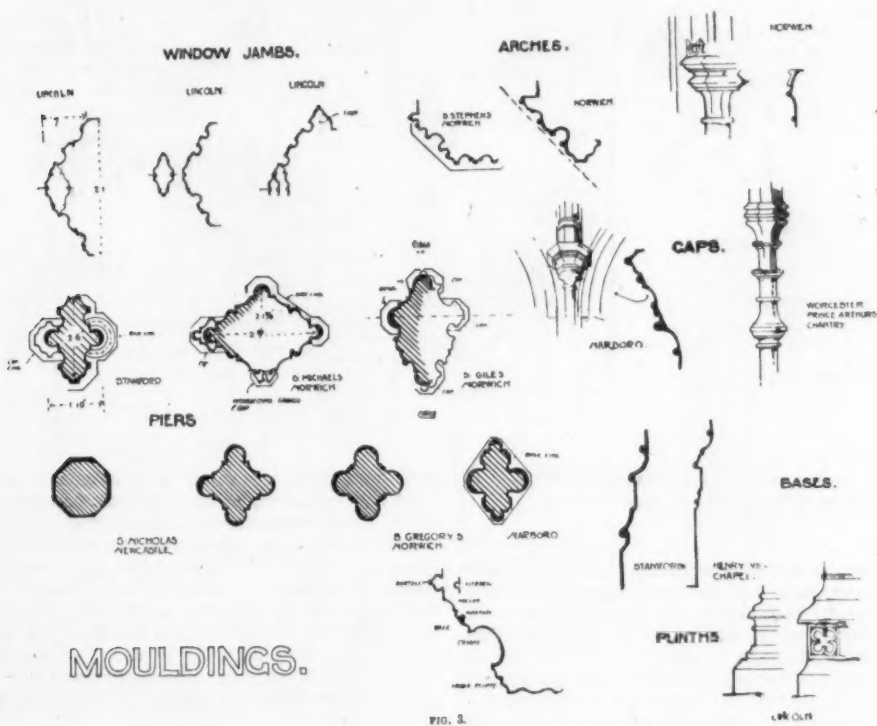


FIG. 3.

rated tracery. At Durham Cathedral the large window of the north transept [Fig. 2] and the west window illustrate the gradual introduction of the vertical bar which later became the distinguishing mark of the style.

In Somerset the capital of a clustered shaft is often treated as one, a wreath of foliage running right round; but the general practice was to use capitals sparingly on shafts separated by hollows or groups of mouldings. In some cases the capitals are

¹ A paper, by W. H. Wood (Newcastle-on-Tyne), read before the Northern Architectural Association, February 10, 1904.

very small, as in the cloisters at Worcester and the chancel arcade of St. Mary's, Lowgate, Hull. In other instances they are very tall, as on the chantry of Prince Arthur in Worcester Castle and the porch of Lavenham Church.

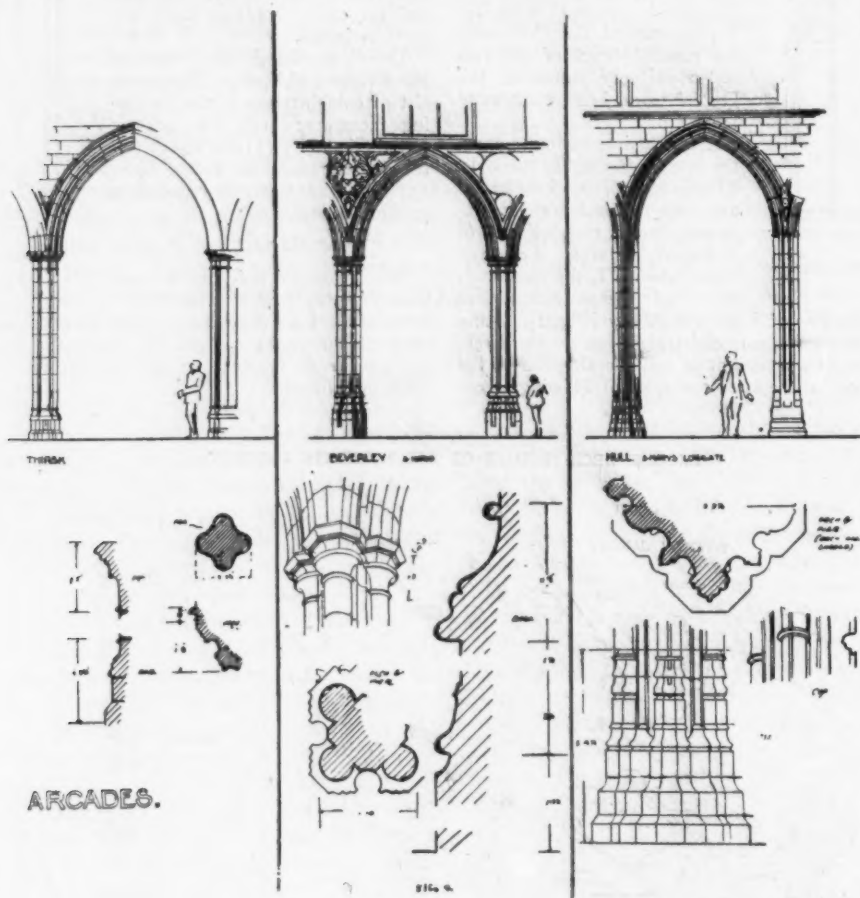
BASES.

The bases are much higher than in the preceding style; in piers this was done to raise them above the level of the fixed seats with which churches were being furnished at this time. They usually commence with an astragal and bell, with or without other members below; and this part is generally circular, resting on an octagonal plinth, often of several stages. In piers with shafts the bases of the shafts are frequently at a different level from that of the main pier. External bases to buildings are of the same profile, but often have bands of quatrefoils or other

doors and windows, and only late in the style for pier arches. Four-centered arches vary a good deal in shape, depending upon the relative position of the centres for the large and small curves. The pier arches at Winchester are only apparently four-centered, being really three-centered, the lower curves being struck from one centre: a form suggested by the arches of the Norman building, which was being then transformed into a Perpendicular one. The general rule for four-centered arches is to divide the space into four equal parts, striking the small curves with one part as radius, through these centres produce lines down below the springing to a distance equal to the space, and from these points strike the large curves.

DOORWAYS.

Doorways have commonly four-centered arches with a square



ARCADES.

ornament, producing a very rich effect. Sometimes the base is stepped up and carried round a door like a label.

PIERS.

Piers are often either formed of four shafts separated by four large hollows, or are octagonal; in the latter case the caps are sometimes omitted, and the arch-moulds die into the shaft, as in the cathedral; an arrangement which Professor Willis rather unhappily terms the "discontinuous impost." Piers are often mullion-shaped, the long axis being north and south, and consist of shafts and groups of mouldings. They are sometimes arranged with the minor axis not in the centre of the major axis. Piers are sometimes panelled, the panels generally being continued into the arch without a cap. This, on a large scale, produces a remarkably fine effect, as at Sherborne Minster.

ARCHES.

One of the most marked changes was in the introduction of the four-centered arch: an immense improvement upon the segmental round or segmental pointed. They are generally used first in

label over them, instead of a hood-mould, the spandrels being filled in with tracery or carving, coats-of-arms being often introduced. Some examples are of great beauty and richness. Where a hood-mould is used, following the line of the arch, it is sometimes carried up in an ogee outline and terminated in a finial or niche; or it may be carried up as a straight-sided gable, as in the magnificent north porch of Beverley Minster. Doorways in this style are sometimes wonderfully rich with carving and niches, now, alas! generally empty. The west doorway of Bridlington is a fine example. The doors themselves are often covered with the most elaborate tracery, as at Thirsk, St. Albans Abbey, etc.

WINDOWS.

But it is in the windows that the leading characteristic of verticality is most manifest. The mullions no longer stop at the springing of the arch, but run on until stopped by the arch itself. The variations of Perpendicular tracery are innumerable, and the possible combinations endless. A few of the principal types may be described. There is, first, the simple, where the mullions run

straight up and the head is subdivided into "batement" lights by other vertical bars. Secondly, the compound, where the window is divided by arched bars into smaller windows. Some compound windows are of enormous size, as the east window of York and the east window of Gloucester. Thirdly, the transomed, where the lights are crossed by transoms, either plain, embattled, or with cresting, with or without tracery below, and crossing either in a straight line or at different levels. They are frequently introduced in the tracery itself. The most beautiful form is the traceried transom, often with inverted cusped arches.

Transoms give great strength to the mullions, and in very large windows are a necessity unless buttressed mullions are used or double tracery; even in this case they often occur, being then richly vaulted underneath, as in the east transepts of York, and forming a pathway connecting the triforia, as in the north transept window at Durham.

In many cases, especially where four-centered arches are used, the tracery commences below the springing line with the most happy effect. Often the traceries of the different lights begin at varying levels, the centre light being kept high to give more room for the principal subject in the painted glass.

I have referred to buttressed mullions; these are used occasionally in very large windows to strengthen the principal mullions, as in the west window of Gloucester. Sometimes statues in canopied mitres occur on the mullions, as in the west windows of the aisles of Bath Abbey. The square-headed window was a great favorite both in ecclesiastical and domestic work, and is capable of great variety of treatment.

The wide-mullioned windows of houses and other buildings of this period are often of great size. Another feature of special beauty is the oriel and bay window. These are often most elaborately panelled, with enriched cornices and panelled or pierced parapets. There is no doubt that the square-headed mullioned window is a most satisfactory feature both from a practical and from an æsthetic point of view; this is shown by the persistency with which it has continued in use up to the present time.

One peculiarity of Perpendicular windows worth mention is that in many cases the glass plane is in the centre of the wall, and the section of the jamb and arch is the same inside and out, as at St. George's Chapel, Windsor.

PANELLING.

With regard to the enrichment of buildings of this period we find that wall arcading and diapering have been superseded by panelling: a system of decoration which we find carried out in the most complete manner in Henry VII's Chapel at Westminster. Panelling is often of the most surprising delicacy and richness, at other times displaying strength and vigor. There is nothing that gives such an effect of loftiness as these strong vertical lines of wall panelling, as we find it used in the most elaborate buildings, giving an effect of dignity and richness not to be obtained by any other method. Sir Charles Barry was well aware of this fact when he designed his great masterpiece, the Houses of Parliament.

In some buildings the windows are merely formed by piercing portions of the panelling which covers the wall. In the flint dis-

tricts the panelling is formed of freestone mullions and tracery, not moulded, and filled in flush with dressed flints, as at Southwold.

VAULTING.

It is in the vaulting that we find the crowning glory of the style. With the beginning of the new style there appears the fan vault, a system entirely different constructionally from the vaulting previously in use. Hitherto, after the Norman period, vaulting had been formed by arches dividing the space to be covered into compartments and supporting a thin shell of stone; but in fan vaulting, in its simple form, constructional arches are dispensed with; a conoid of stone of uniform thickness springs from the vaulting shaft, and the surface of the conoid is decorated by radiating tracery ribs intersected by horizontal bands of tracery—a form of decoration at once the most beautiful and logical, a

vaulting shaft, with its spreading ribs rising from it, rivalling the grace of the palm tree with its spreading fronds. The spaces between the conoids, or, more correctly, between the uppermost horizontal bands, are either decorated with tracery or pendants, which latter give the most surprising grace to the vault. These merely ornamental pendants are not to be confused with the constructional pendants which really carry a portion of the vaulting, as in the roof of the Old Divinity Schools at Oxford and that of Henry VII's Chapel. This latter is perhaps the most beautiful roof which

the genius and skill of man has ever erected—indeed, the chapel as a whole is one of the most beautiful edifices in the world. In this roof, the construction of which I show [Fig. 7], there are strong arches dividing the vaulting into oblong bays: one voussoir on each side is prolonged, ending in a pendant from which a conoid springs and meets the conoid springing from the wall, thus avoiding the awkwardness which otherwise occurs in an oblong bay by the conoids meeting so much sooner in one direction than in the other, as at King's College Chapel, Cambridge [Fig. 7]. The earliest example of fan vaulting is in the splendid cloisters at Gloucester.

Fan vaulting is an exclusively English invention, there being no examples outside this kingdom, and is one of which we may justly be proud. In it we have the perfection of the stone roof, which had all through the Middle Ages been regarded as the most dignified way of covering a building. The stone roof gave

a unity and completeness not obtainable by a wooden roof, and in later Gothic buildings the arrangement of the vault gave the key to the plan, the points of support and resistance all being arranged to suit it.

WOODEN ROOFS.

Wooden roofs were used for the great majority of buildings, and are of several types:—

(1) The hammer-beam; a form capable of the most elaborate treatment. In this system the tie-beam is cut away, a collar holding the principals together at the top, and these being prevented from spreading by bending by the increased depth given by the braces below. These roofs depend to a great extent for their

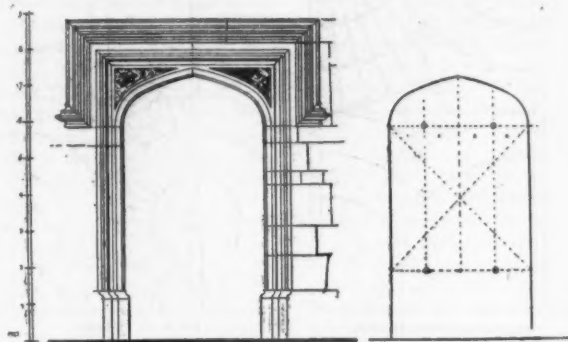
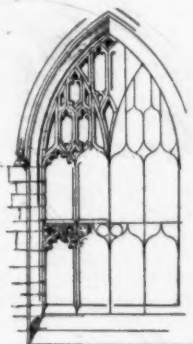


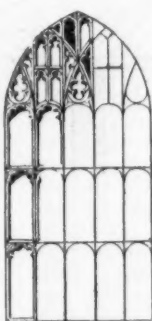
FIG. 8.—DOORWAY, CHRIST CHURCH, OXFORD.



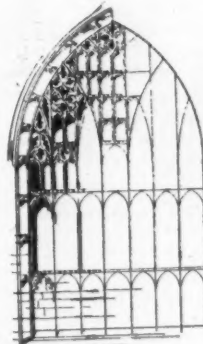
DRAYTON.



NORTH PETHERTON
SOMERSETSHIRE.



LOUGHBOROUGH.



SHREWSBURY.

stability on the oak pins, and in many cases where these have given way the roof has spread and pushed the walls out of plumb. The ends of the hammer-beams are frequently decorated with angels with outspread wings, as in some of the grand Norfolk churches.

(2) The arched-principal roof, the Westminster Hall example being the most elaborate. In principle this is similar to No. 1.

(3) The wagon roof, in which the construction of framed rafters is concealed by a wood or plaster ceiling in either arched or canted form and decorated by moulded ribs often with carved bosses at the intersections.

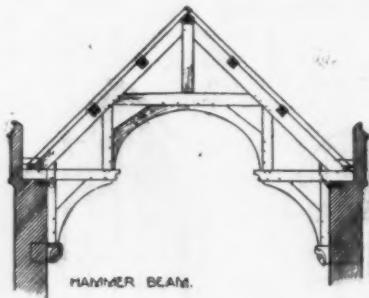
(4) The tie-beam roof, usually of low pitch and with considerable camber given to the sturdy tie-beam, which is assisted by curved wall struts. The tie-beam carries vertical struts which support the principals, the spaces between the struts being often enriched by tracery. The details of this kind of roofs are often very beautiful, and they are very sound constructionally, exerting no thrust and forming a very effective tie across the building.

ROOF PITCH.

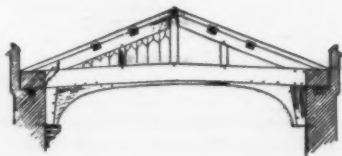
The pitch of the roof was lower than was generally the case in earlier work, and was usually concealed by a parapet often richly ornamented. In the battlements it is usual for the coping to mitre round the merlons, instead of being cut off square; this has a much better effect. There is a sturdiness and gravity about the low-pitched gable which has a charm of its own, and harmonizes with the four-centered window so often accompanying it; while the studied outlines of the buttresses, with their offsets arranged to give a somewhat parabolic outline, complete the effect of stability.

BUTTRESSES.

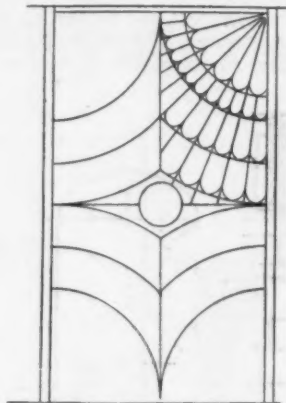
Buttresses may stop below the parapet, or have pinnacles standing above, or end with flat-topped caps to receive figures, as at the Beauchamp Chapel, Warwick; St. George's Chapel, Windsor; and the Lady Chapel at Peterborough, where the statues still remain. The slopes are frequently curved and the general outline curved, as in the magnificent buttresses added to support the Galilee Chapel at Durham. Buttresses, like other features, are often panelled, as at Lavenham, and frequently have niches for statues. Sometimes octagonal turrets are used in lieu of buttresses, as in the tower of St. John's, at Newcastle, and the cathedral, and at Henry VII's Chapel, where they terminate in cupolas. As the style advances these cupolas become more frequent and of larger size, and we must not overlook the fact that these, though only used as the terminations of turrets, are really domes invented quite independently of Classic tradition or Renaissance influence.



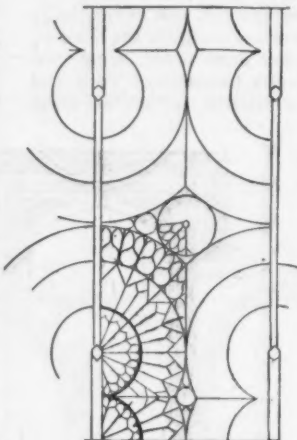
HAMMER BEAM.



TIE BEAM.



King's College Chapel, Cambridge.



Henry VII's Chapel.

FIG. 7.—DIAGRAMS OF VAULTING.

CHURCH PLANNING.

In the churches of the fifteenth century there is a distinctly different effect from those of earlier periods. The cruciform plan is now abandoned in favor of the parallelogram, and the structural division between nave and chancel is often omitted, the arcade and clerestory being continuous, and the ritual separation of the chancel being obtained by a screen and the frequently increased richness of the roof of the sanctuary.

CLERESTORIES.

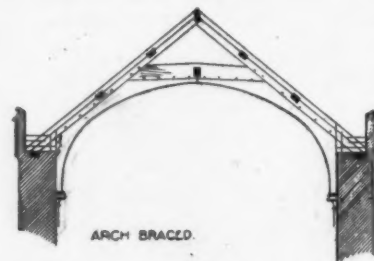
These continuous clerestories, of which there are such noble examples in the churches of Norfolk, give a lightness in complete contrast to the comparative darkness of the upper part of early churches only lighted by small and unimportant windows, as at Warmington. So beautiful were they felt to be that the majority of early churches had clerestories added in the fifteenth century. The aisle windows are now of greatly increased size, and occupy in many cases the entire space between the buttresses, which have to be increased in projection to give compensating strength. The buildings were now constructed on more scientific principles, and the arrangement of supports and the equilibrium of the structure more carefully considered, the necessary counterpoise to the thrust of the vault or roof being given in the most economical way without the use of vast masses of solid wall. In fact, the wall has become merely a filling, the piers, arches and buttresses forming the skeleton of the structure.

TOWERS.

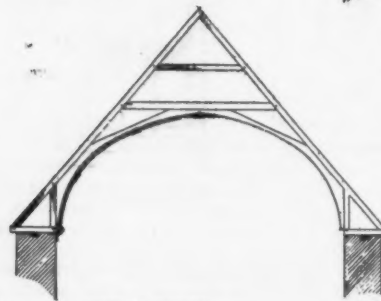
The towers of this century are without doubt the most beautiful of any period, those of Somerset being generally admitted to be the finest, the most admirable proportion and carefully studied outline being combined with exquisite detail. Among the finest is Taunton.

The great charm of these towers is in the arrangement of the buttress offsets so as to give an effect of entasis as well as of diminution, and this outline is obtained from every point of view. There is no doubt that these towers were drawn on the diagonal as well as front elevations, and not merely the latter, as is the practice of the modern architect, and so often with such very unhappy results. Fifteenth-century towers rarely have a vertical outline unless they have polygonal angle turrets, as at Sedgefield; the Magdalen tower, Oxford; and St. John's, Newcastle.

In cases where for economical reasons buttresses were dispensed with the towers diminish by offsets at the successive stories in a way at once simple and effective, as at St. Margaret's, Durham. The difference of effect produced by this curved tapering



ARCH BRACED.



TRUSSED RAFTER.

and the vertical outline of the earlier towers is well seen at Durham by comparing the outline of the fifteenth-century central tower with the Norman transitional western ones. These latter towers, by the way, owe a good deal of their effect to the imitation Perpendicular parapet and pinnacles with which they are now finished.

The octagonal lantern was an early feature that survived, and was treated with great success, as at Boston, All Saints' Pavement, York; and Coventry.

The great majority of towers of this date are flat-topped and terminated by a parapet which in plain examples is finished with a simple battlement. In more ornate work this parapet is ornamented with surface panelling, or it may be pierced, and usually has pinnacles at the angles. In many cases there are one or more intermediate pinnacles on the faces of the tower, and in elaborate specimens, as Taunton, the whole arrangement of parapet and pinnacles forms a glorious crown to the edifice. This example has hanging flying-buttresses springing from gargoyles on the main cornice and supporting the great angle pinnacles. The angle pinnacles are generally admirably proportioned with regard to the tower, and, as at Gloucester and Canterbury, are of most elegant outline. They may be placed either as the upward continuation of the angle buttresses, or may stand on the cornice without any connection with the buttresses below, as at York.

The general effect of these towers is most satisfying, and, however beautiful the spire of the early ones may be, there is a stately dignity about the square tower, with its coronet of parapet and pinnacles, which more than compensates for the loss of height.

(To be continued.)

VERDE ANTICO MARBLE.

THE ancients have left us such admirable traces of an artistic past that the efforts of the greater part of the present-day workers tends to the examination of these marvels of artistic work, and to the analysis of every detail, with the object of inspiring their own conceptions; but preserving, at the same time, a personal artistic ideal. Independently, however, of the work itself, and of the forms employed, the material used played an important part in the effect produced, and it is most probable that in this our contemporaries will find the secret of the immortality of the works of our predecessors. We have had occasion to remark this when dealing with the St. Remy Red and the Greek Cipolin. In this article it is our intention to deal solely with the re-discovery of the "Verde Antico"—the marble which was so highly prized by the Romans, and spoken of by the classical writers under the denomination of "Thessaly," from the name of the Greek province in which it was discovered. Certain other writers have called it "Lapis Atracius," it being supposed that the ancient city of Atrax was situated near to the quarries. The best antique description which has been given of this marble exists in the poem of Paul the Silent. He says: "The marble which is produced in the country of Atrax comes not from the hills or valleys, but from the plains. Its greens are soft as those of the seas, or as the tender light of the emerald, merging into a verdant green, with here and there a flake of snow, the whole producing a soft mixture, which yet possesses a brilliant depth."

It is supposed that this marble was the last that was exploited by the Byzantines, and it is certain that it was known before the Christian era. After the invasion and capture of Thessaly by the Turks, the quarries were abandoned. When they were re-exploited some years ago, the Greco-Turkish war again caused the stoppage of the work. The Turkish troops pillaged the quarries, and put an embargo upon all blocks and tools. The blocks which were found upon the quay at Volo were also seized. These blocks were intended for use in the Catholic Cathedral at Westminster, London; and it was only through the energetic intervention of the English Consul that the troops of the Sultan were compelled to give them up. Supposing, however, that there had been no Consul there to protect the property of his countrymen, there can be little doubt that the quarries would have been again abandoned, as at the time of the first invasion. About twenty-five years ago it was announced that the ancient Verde Antico quarries had been re-discovered in the Greek Island of Tenos, and a large quantity of marble was sold under that name. When Garnier was building the Paris Opera House new researches were made, but in vain. None of the other green marbles known resembled either in tone or texture the Verde Antico. This enters into the category of the Brecchias. It is composed of angular pieces of light and dark green, of serpentine, and spots of a white stone as pure in color as a statuary marble. The material which cements the whole together is of a

very dark green color, sprinkled with bluish specks. In dealing with the manner in which the quarries were discovered, Mr. W. Brindley writes: "Ten years ago I was visiting Constantinople for the purpose of studying the marbles in St. Sophia. When I arrived there I was greatly impressed by the real beauty and great variety of the Verde Antico, for there is not another city where this marble has been so largely used. It is not St. Sophia alone that contains it, but all the churches, sanctuaries and mosques have been decorated in some way or another with this stone; and even the immense sarcophagi have been made of it. The abundance of Verde Antico at Constantinople, and the absence of certain other marbles, which are found in great quantity at Rome, established my conviction that this marble should be found somewhere near the town. The very high price asked for small pieces unearthed at Rome decided me in continuing my researches." We may say here, in passing, that Signor Boni, the learned professor who was directing the excavations in the Roman Forum, was very much annoyed at the discovery of the Verde Antico quarries. During the course of the excavations numerous pieces of this marble were brought to light, and these were sold at a price averaging £200 per cubic yard. This augmented considerably the small amount put at the disposal of the *savant* for his scientific researches. Knowing that the marble in question would not be found in the Archipelago, it was decided to carry out the researches in the direction of the coasts of Thessaly, from the side especially where the City of Atrax had been; but the first results were *nil*, not even a limestone being found! This gave rise to a curious incident, which proves how much chance is the master of circumstances: "Returning to Larissa in a continuous downpour of rain, I noticed that the winding streets and alleys of the ancient Greek town were paved with Verde Antico, and that certain houses were built of it. Then I asked an old Turk from whence these stones were obtained, and he in answer told me that they were not extracted from quarries, but were collected from the worked fields on the plains." The rubbish had apparently been washed away by the water descending from the mountains. A French engineer made a prospect of this district for nearly two years, and finally discovered a quarry producing a stone corresponding exactly to the Verde Antico. Mr. Brindley returned again to Greece, and in the same region found quite a number of good quarries worth working. The traces of the ancient exploitation are very apparent. Moreover, it is quite evident that sawing by the aid of metallic blades was in use in these quarries, which were worked at the time of Justinian. The place where the columns for the Church of St. Sophia were extracted can also be seen; this takes the form of several circular excavations, having a diameter sufficiently large to permit the workmen working around the columns. These, cut in the solid rock, remained attached at the base, and were finally raised by the aid of ropes and winches. The work done under these conditions must have been colossal; the dimensions of the columns will give an idea of this; those on the ground floor at St. Sophia are 24 feet high, with a diameter of 3½ feet; the forty in the gallery are 20 feet high, with a diameter of 2½ feet. In addition to these special columns, the different museums and buildings in Europe contain over 500 monoliths of the same marble.

Another quarry contains a large square block, which was evidently destined for use as a sarcophagus; it is still attached to the rock by its base. A very ancient legend relates that a Greek priest, finding himself in the quarry near to the sarcophagus with a countrywoman, cured her of blindness by washing her eyes with the stagnant water found in the cracks in earth around the sarcophagus. The result is a yearly pilgrimage. Each year, in the month of July, the faithful who are afflicted with eye complaints come to the quarry to be cured. But at this time of the year the heat is such that the holes containing the miraculous water are nearly always dry. In this case the manager of the quarry who wishes to keep intact the local customs has the holes filled with the water, which is brought to the quarry by mules for use with the saws. It is not quite certain, however, whether the cures are more or less numerous now than in past years. Constantinople contains three celebrated sarcophagi in Verde Antico—one facing the Pantocrator Church, the other two near to the Seraglio.

The quarries are situated at Casambala, about two miles to the northeast of Larissa, near to the road leading to the Tempe Valley. The village is called Marmariani; this name being given, without doubt, by the quarrymen to the place. The blocks are taken across the Tempe Valley by means of the famous military road cut in the rock by Lucius Cassius Longinus, pro-Consul in the year 127 B. C. The port of embarkation is Volo. The exact

time of the first discovery of the Verde Antico quarries can only be determined approximately; but as the Museum at Larissa contains a Greek Etoile of the Classic Period made from Verde Antico, and as this marble is also found in the palaces and baths of the Caesars at Rome, it may be concluded that the discovery was very ancient. From the time of the rebuilding of Constantinople, and the erection of the Byzantine churches, the Thessalian marble was the material most employed for architectural decoration, columns, monoliths, etc., it was preferred to the others on account of its beauty and solidity. In fact, this stone is so compact in texture and free from cracks that it will resist the highest pressure. From the most remote Christian period up to the present day the Church of St. Sophia, at Constantinople, has been considered as one of the most beautiful monuments in the world, thanks to the harmony of colors employed in its interior decoration—the Verde Antico being contrasted with Egyptian porphyry both in the columns and the wall decorations and other works. Some ancient writers pretend that the eight monolithic columns were taken from the Temple of Diana, at Ephesus; but however that may be, they came originally from the quarries of Thessaly. In addition to the churches and mosques in Constantinople, all those in Salonica, Jerusalem and Egypt contain large quantities of this green stone and all those who have visited Venice must remember the columns in the façade of the Church of St. Mark, so admirably described in "The Stones of Venice." One can admire the Verde Antico in nearly all the churches and palaces of Rome and other Italian cities. The greatest work which has been executed in this marble is the baldequin placed above the altar of St. Maria Maggiore, and supported by four columns in Egyptian porphyry. The Spanish Moors especially valued the Verde Antico, for they used it in the mosques at Cordova and in the Alcazar at Seville. In working on the wastes which covered the ruins of Carthage numerous pieces were unearthed, and L. Playfair, in his archaeological researches, discovered this marble in the Roman remains on the Island of Djerba (the Lotus-eaters). In short, this marble was used everywhere during the period of the Roman Empire. During the Renaissance attempts were made to re-discover the quarries, but they failed; and so, in order to procure this beautiful stone, ancient works were frequently destroyed. The family of the Medici, at Florence, employed the Verde Antico largely in the decoration of their palace.

The quarries belong now to an English company, and all the modern improvements which can be introduced into the works have been employed. This gives a very regular production, and so the large demands of the market are satisfied. The price of the stone is moderate, varying according to measurements, from £24 to £48 per cubic yard, f. o. b. in all European ports.—Translated from "Le Journal de la Marbrerie."



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

SEA-FRONT: HOUSE OF EBEN D. JORDAN, ESQ., MANCHESTER, MASS.
MESSRS. WHEELWRIGHT & HAVEN, ARCHITECTS, BOSTON, MASS.

LANDWARD FRONT OF THE SAME.

COURTYARD OF THE SAME.

MINOR BUILDINGS ON THE SAME ESTATE.

THE NEW RATHAUS, AIX-LA-CHAPPELLE, PRUSSIA, PROF. FRIEDRICH PUTZER, ARCHITECT.

THIS plate is copied from *Deutsche Bauzeitung*.

A GROUP OF GERMAN HOUSE DOORS.

THIS plate is copied from *Architektonische Rundschau*.

Additional Illustrations in the International Edition.

THE JAPANESE GARDEN: LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO.

COTTAGE ON BENTON ROAD, SOMERVILLE, MASS. MR. J. ST. CLAIR HARROLD, ARCHITECT.

DETAIL OF THE GIRALDA TOWER: SEVILLE CATHEDRAL.

ENTRANCE TO THE CABOT STREET BATH-HOUSE, BOSTON, MASS. MR. HERBERT D. HALE, ARCHITECT.



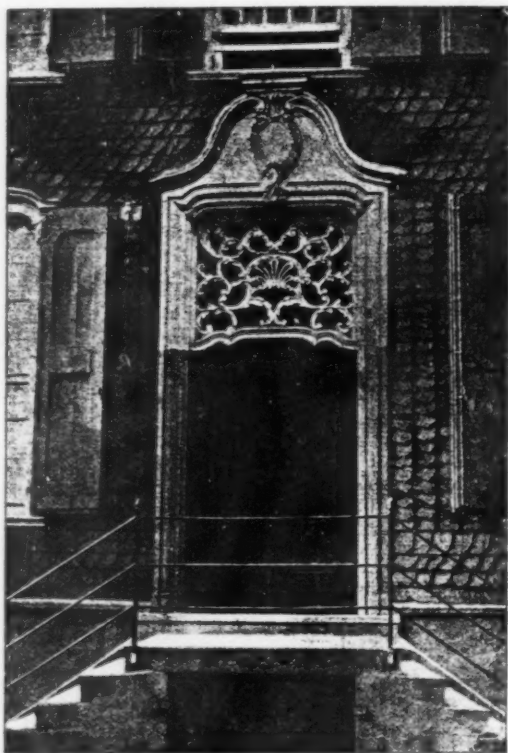
DIFFICULTIES ENCOUNTERED IN THE SIMPLON TUNNEL.—M. Sultz Ziegler, of Simplon tunnel fame, has been lecturing before the Swiss Society of Natural Sciences, on the progress of that great engineering work. He said that originally it was thought that the enterprise could be completed in five years and a half, and the northern half was finished two months within the estimated time limit. But unforeseen difficulties had delayed the work on the southern side. It was thought that the mountain was composed of vertical strata, but horizontal beds had been met with instead. These had involved enormous labor. Great rushes of water had likewise to be stopped. At one time the situation was really critical. The engineers came upon a bed of moving earth, nearly a third of a mile in length, which threatened to block the part of the tunnel already drilled. The pressure was so great that enormous wooden supports were broken, and in the end the tunnel had practically to be armor-plated, forty-four strong iron columns being employed to hold the roof up. Instead of making an estimated daily progress of eighteen feet, the tunnel grew less than a foot a day, and it was only after ten months of resolute and dangerous work that the difficulties were finally overcome. Since then rapid progress had been made, and at the commencement of August only four thousand five hundred and ninety-three feet remained to be pierced of the twelve miles and a quarter, which is the total length of the tunnel. If nothing happened, he hoped that early in October the workmen from the Swiss side would join hands with their comrades from Italy in the heart of the mountain.—*N. Y. Evening Post*.

COAL MINING WITH STEAM CARTRIDGES.—Shooting down coal by steam generated rapidly from a cartridge of water instead of powder is a new and interesting process described in a recent issue of *Electrical Mining*. A small vessel filled with water and connected by wires to a source of electrical energy is tamped into the drill hole in the usual way. When the current is turned on the water is rapidly heated and steam is generated until finally the pressure rises so high as to overcome the resistance of the coal and the desired fall results. It is claimed that the quantity of water may be made such as to provide for any required pressure, insuring a good blast under all conditions; that the coal falls in larger blocks and with less screenings than when shot down by powder and that comfort and safety are enhanced by the absence of powder smoke and the avoidance of dust explosions resulting from blown out powder shots.

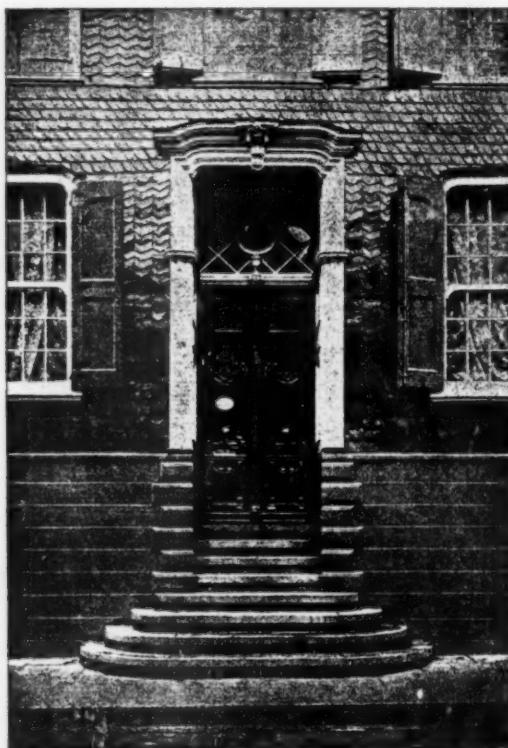
THE PORTE ST. MARTIN IN DISREPAIR.—The announcement that the Porte Saint-Martin in Paris is in a condition which excites some alarm should not surprise Parisians. It has been closed before now, as in 1819 and 1854, in order that repairs should be executed. The structure is two hundred and thirty years old. The Porte Saint-Denis was erected two years earlier from the design of Blondel; the Porte Saint-Martin was designed by his pupil, Pierre Bullet, but it has not the impressiveness of the earlier work. Both were put up for the glorification of Louis XIV. On one side of the Porte Saint-Martin there is an allegory which celebrates the capture of Besançon and the overthrow of the German, Spanish and Dutch armies. Another relief recalls the taking of Limburg. The king is represented in the character of Hercules, wearing a wig of grandiose proportions and leaning on a club. The two arches are prominent objects in the boulevard, but their utility as gates has come to an end. Saint Martin was a saint who at one time appears to have received much reverence in Paris. There was a Porte Saint-Martin in the lifetime of Dagobert, another was erected at a different spot under Philippe Augustus; it was removed to a new position under Charles V, and finally the gate was placed in the position occupied by Bullet's work. The changes suggest the variations in the boundaries of Paris.—*The Architect*.

COLOSSAL STATUE OF BISMARCK AT HAMBURG.—The colossal statue of Bismarck which is being erected at Hamburg will not be unveiled before 1906. Its height is over 50 feet, and the sword on which the figure of the chancellor leans is 36 feet long.

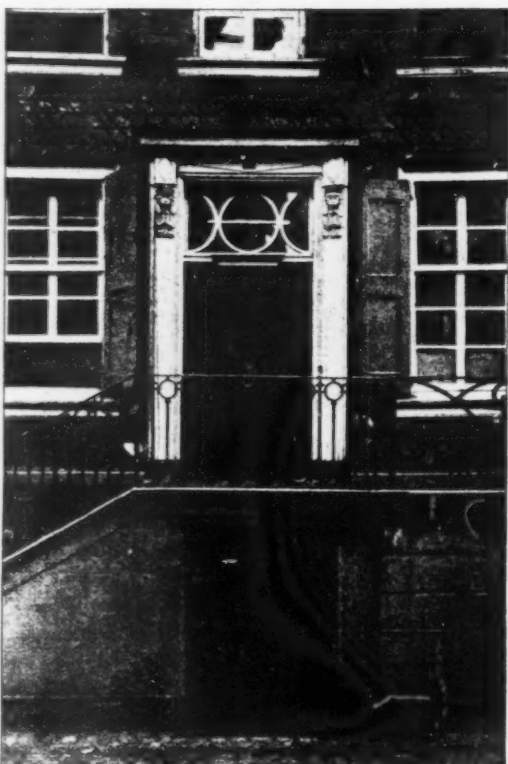
POPULAR ITALIAN HEROES.—Very amusing statistics were made not long ago by one who disapproved of the fever to raise a monument in every town to every man who was mentioned in connection with the unity of Italy. Out of an immense list I take those which stand at the head. Between monuments, busts and tablets, there were 175 to Garibaldi, 153 to Victor Emmanuel, 62 to Cavour, and 47 to Mazzini, while until now Dante has been ignored in Rome.—*Pall Mall Gazette*.



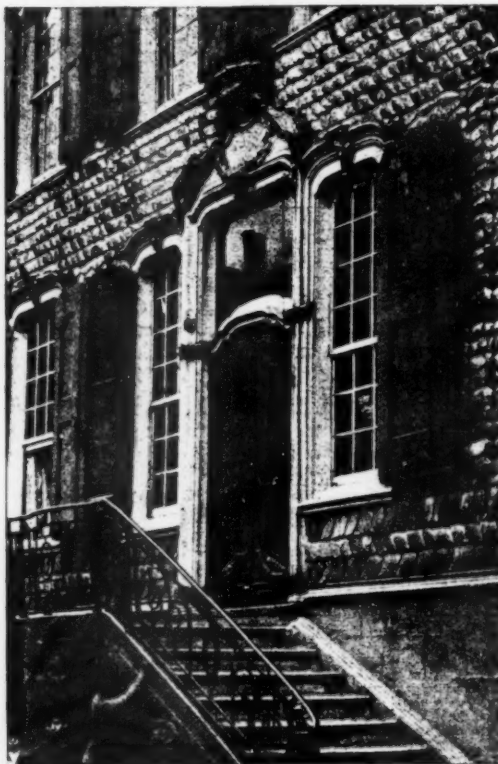
a. Haustüre in Barmen.



f. Haustüre in Elberfeld.



e. Haustüre in Elberfeld.



c. Haustüre in Barmen.

FROM ARCHITEKTONISCHE LUNDSCHAU.

HELIO TYPE CO., BOSTON.

GERMAN HOUSE DOOR.

The American Architect
Oct. 8, 1904.
No. 1502.



*The Landward Front: House of Eben D. Jordan, Esq., Manchester, Mass.
Wheelwright & Haven, Architects.*

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The American Architect
October 8, 1904
No. 1502



*Courtyard: Home of Eben D. Jordan Esq., Manchester, Mass.
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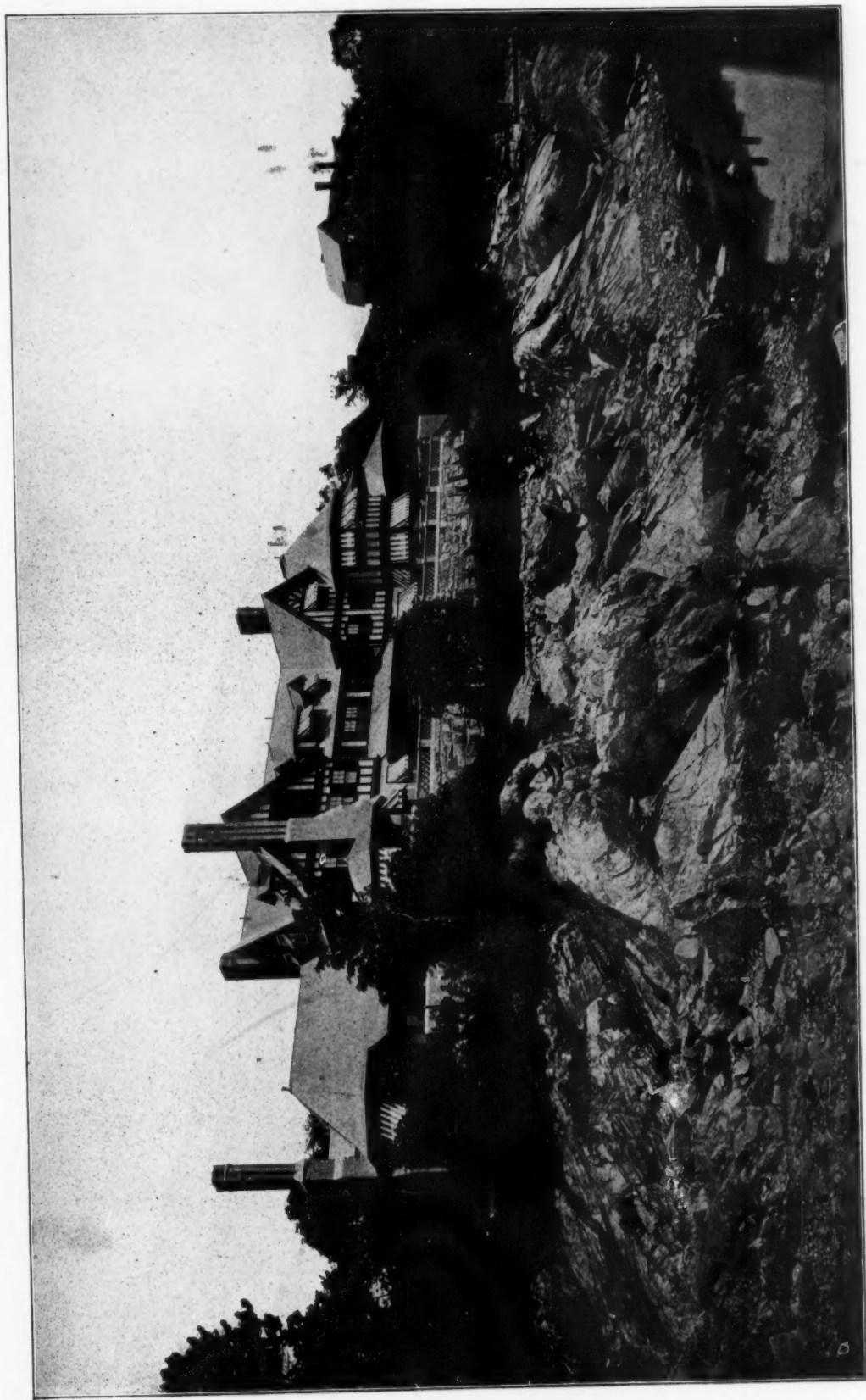


Gardener's Cottage.



Stable.

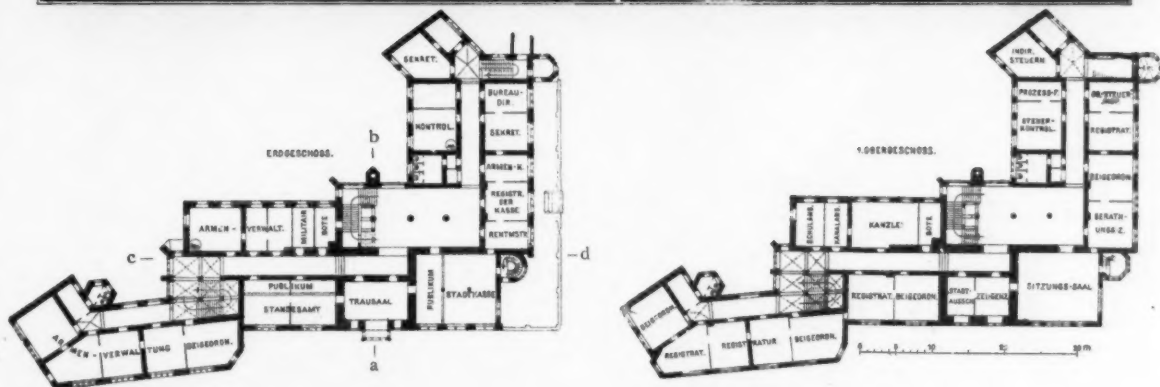
*Minor Buildings: Estate of E. D. Jordan, Esq., Manchester, Mass.
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*The Sea Front : House of Eben D. Jordan Esq., Manchester, Mass.
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The American Architect
October 8, 1904
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THE NEW RATHAUS, AIX-LA-CHAPELLE, PRUSSIA.
 PROF. FRIEDRICH PÜTZER, ARCHITECT.

FROM DEUTSCHE BAUZEITUNG

HELIO TYPE CO., BOSTON.

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