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VOL. LXXXV

* REGULAR EDITION *

NO. 1499



ARCHITECTURE

ENGINEERING

DECORATION

238 TREMONT ST.

CONSTRUCTION

BOSTON MASS.

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NOTES AND CLIPPINGS.

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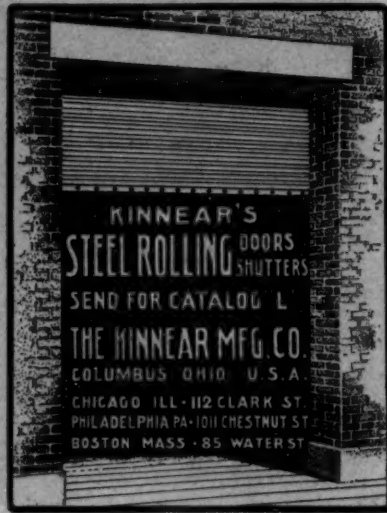
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A WEEKLY JOURNAL OF CONSTRUCTIVE AND DECORATIVE ART

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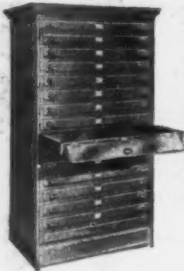
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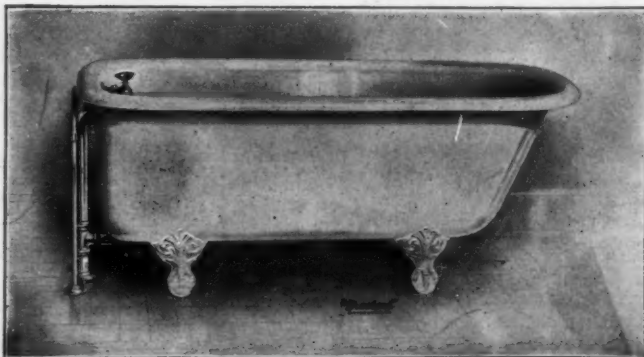
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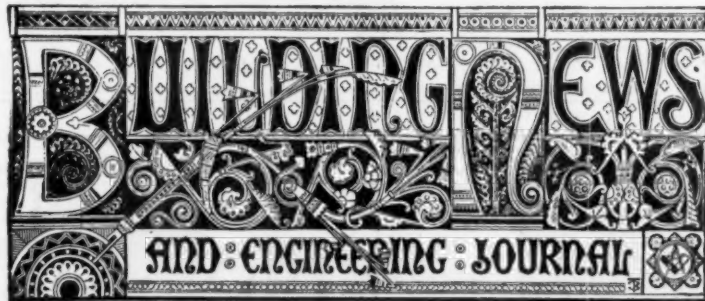
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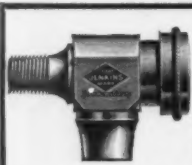
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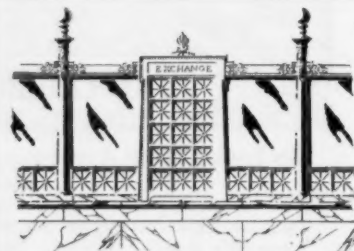
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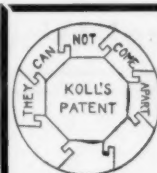
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See the first issue of the month for the following advertisements:—

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ADDRESSES WANTED.

We shall be obliged to anyone who can provide us with the present addresses of any of the subjoined parties.

American Architect Co.,
238 Tremont St., Boston.

Barlow, W. F., lately of Bar Harbor, Me.

Benkert, G. F., lately of 302 East Grace St., Richmond, Va.

Carpenter, R. W. E., lately of Pittsburgh, Pa.

Colbert, H. W., lately of Shawnee, Okla.

Cupperwell, E. W., lately of Union Stock Yards, Chicago, Ill.

Hayes, Jas. T., lately of Syracuse, N. Y.

McCarthy, P. A., lately of Indianapolis, Ind.

Maydwell & McClintock, lately of 22 Sheldon Block, El Paso, Tex.

Rice, Joe, lately of Beaumont, Tex.

Wilcox, F. O., lately of 614 Commercial St., New Orleans, La.

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NEW YORK.

Wolf, James, lately of 125 Broadway, New York, N. Y.

Ropes, George H., lately of Cleveland, O.

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SITUATION. — Architectural engineer (C. E.), young man, employed by leading New York firm of Architects in construction, supervision, plans, specifications, etc., open for engagements after September 15; All references; salary moderate; go anywhere. Address "Engineer," care American Architect. 1499

BUILDING INTELLIGENCE.

(Reported for the American Architect and Building News.)

(Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.)

ADVANCE RUMORS.

ATLANTA, GA.—It is reported that the Chandler Investment Company will erect a handsome 17-story office building here, costing \$600,000.

BALTIMORE, MD.—The Court-house Commissioner has approved the plans of Wyatt & Nolting, for repairs and alterations to the St. Paul St. front of the Court-house. The cost will be kept within the \$150,000 appropriation.

Plans have been drawn for a new building for the Maryland Hospital for the Insane at Spring Grove, near Catonsville.

BOSTON, MASS.—A lot of vacant land on Hemenway St. has been sold to a well-known business man, who will erect a house to contain all improvements, for his own occupancy.

Final papers have passed in the sale of the lot of vacant land situated on the Huntington Ave. entrance to the Back Bay Fens, and extending through to Hemenway St., Back Bay. The buyer, Frederick B. Carpenter, will improve with a handsome house, for occupancy.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

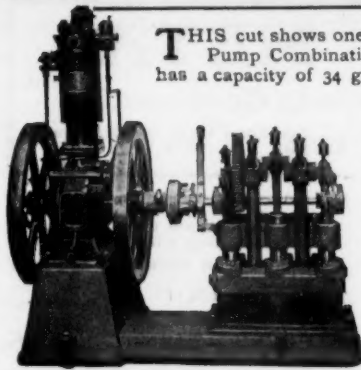
BRIGHTON, MASS.—Two more lots of vacant land in Brighton have been conveyed to a new owner, who will improve with a couple of houses for investment. The location is on Mapleton St., near the corner of Murdock St., and comprises 15,000 square feet. The grantor is Herbert M. Woodward, and the buyer Henry M. Rowen.

BROOKLYN, N. Y.—Plans have been filed for a three-story brick police station to be erected at Lawrence Ave. and 3d St., at a cost of \$85,000. Owner, City of New York; architect, W. Hull, 16 East 23d St., New York City.

CENTREVILLE, IA.—J. P. Eisentraut has drawn plans for a new \$40,000 edifice for the M. E. church.

CHARLESTOWN, MASS.—The contract for building the concrete entrances to the new dry dock at the Charlestown Navy Yard has been awarded by the Navy Department to Jones & Meehan, of Boston, and work has already been begun. Specifications are being made ready for building two wooden piers to extend out from this entrance to the harbor lines. They will cost about \$40,000.

COLUMBUS, O.—The Baltimore & Ohio R. R. Co. will soon have plans ready for



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BUILDING INTELLIGENCE

(Advance Rumors Continued.)

figures for a new freight depot, to be erected here; cost, \$300,000.

DORCHESTER, MASS.—T. L. Sturtevant will erect an automobile stable on Clayton St., near Park St. It will be constructed of brick and galvanized iron; will be 25x40 feet in size, one story high, with pitch roof.

A lot of vacant land on Tonawanda St., owned by the Curtis & Pope Lumber Company, has been sold to the Dorchester Centre syndicate, which will improve for investment.

A lot of vacant land on Evelyn St., near Blue Hill Ave., has been sold by George A. Noyes to Elizabeth S. Coleman, who will improve with a frame house.

Foundations are prepared for two frame apartments, to be erected in Bloomfield St., for K. S. De Witt. Each house will be 26x54 feet and two stories high.

EAST BOSTON, MASS.—Mr. Louis A. Ginsburg will begin work at once in improving the property recently purchased by him on Trenton St., near the square.

FAIR HAVEN, MASS.—Henry H. Rogers, the oil and copper king, has had plans prepared by Chas. A. Brigham, of Boston, for a large hotel to be erected in Fair Haven at a cost of \$100,000. Bids for the work are being received, but the site has not yet been decided upon.

HARTFORD, CONN.—Bids will soon be invited for the erection of a Polish parochial school and convent, to be built on Governor St., for St. Cyril & St. Methodius Roman Catholic Church. It will be two stories, 48x100 feet, of brick. John L. Foley, architect.

ITHACA, N. Y.—The Board of Supervisors have adopted the recommendations of the building committee that a new county building be erected in this city, at a cost not to exceed \$200,000.

JACKSONVILLE, FLA.—Plans have been drawn by W. B. Camp for a three-story and basement brick business block for Brinkley & Bains, to cost \$20,000. Plans are ready for estimates.

LAFAYETTE, GA.—Architects J. W. Golucke & Co., 408 Temple Court, Atlanta, have prepared plans for a fireproof jail, to be built at Lafayette. Cost, \$20,000.

LANCASTER, O.—Richards, McCarty & Bulford are to prepare the plans for a fine church, which is to be erected by the congregation of the First Methodist Episcopal

BUILDING INTELLIGENCE

(Advance Rumors Continued.)

Church. The exterior will be of stone and terra-cotta, with a red tile roofing. The interior finish will be hardwood.

LANDSOWNE, MASS.—The sale is reported by Edward T. Harrington & Co., of 22 lots of land at Landsowne.

LEXINGTON, MASS.—A lot of land situated on St. Margaret Ave. and York St., and containing 57,400 square feet, has been sold to W. N. Keller, who will improve by erecting a number of houses on both streets, for investment.

LOCUSTGROVE, GA.—J. W. Golucke & Co., 408 Temple Court, Atlanta, have prepared plans for a brick and stone school building for Locustgrove Institute; \$25,000.

LOS ANGELES, CAL.—A fireproof steel and cement building of eight stories and basement is to be built on the southeast corner of Fourth and Main Sts., by James R. Collins, on the property owned by Colonel James B. Lankershim, now occupied by an old frame structure.

MILWAUKEE, WIS.—Buemming & Dick's plans for the proposed \$130,000 North Side high school, to be erected at Twelfth and Centre Sts., have been selected by the statutory committee from among six competitors. The accepted plans provide for an imposing structure of gray mottled brick, with trimmings of Bedford stone, and the architecture is of pure classic design. Work will be begun on the structure as soon as possible, as the directors hope to have it ready for occupancy Sept. 1, 1905.

NEW HAVEN, CONN.—A permit has been issued for St. Francis' Orphan Asylum to build a four-story brick addition, 43x163 feet. Other improvements are also to be made, the entire work to cost \$45,000. Williams is the architect.

The local order of Elks has purchased the residence of Dr. Leonard Sanford at a cost of \$16,000, and will start at once preparing a \$40,000 clubhouse. The property has a frontage of 58½ feet and a depth of 165 feet. A large brick addition will be erected.

NEW YORK, N. Y.—Plans have been filed for a one-story granite limestone and brick chapel, to be erected for Columbia College on a plot 58x141, on the west side of Amsterdam Ave., near 116th St. It is to cost \$250,000.

Plans have been drawn by Arthur Arcander, 520 Willis Ave., for an academy for the Ursuline Convent. Brick, stone and



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BUILDING INTELLIGENCE

(Advance Rumors Continued.)

concrete, structural steel and iron, fire-proofing, tin roof, electric wiring and steam heat. Cost, \$40,000.

The corner-stone of the new Lambs' Club, at 128 and 130 West 44th St., was laid recently. The house will be six stories, and will cost \$180,000, exclusive of the land, which cost \$80,000.

Adelstein & Avrutine have sold to Joseph Greenstein and K. Hirsch the plot, 75x100.11, on 103d St., about 70 feet west of Madison Ave. The buyers will build two six-story flats on the property.

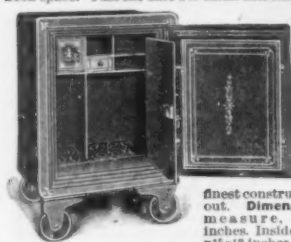
The Realty Amusement Company has sold to a Philadelphia syndicate, the former property of the First Church of Christ, Scientist. The buyers will erect a twelve-story apartment hotel on the site. The selling company acquired the property last December and had plans drawn for the remodelling of the structure into a music hall, but the plan was abandoned.

Plans have been filed at the Building Department for the new building for the Columbia University School of Mines to be erected on Broadway, north of 116th St. It will be a four-story and basement structure. The façade will be of ornamental brick, with limestone trimmings. The cost of the building is estimated at \$250,000 by Architect Arnold W. Brunner.

NORFOLK, VA.—Architects Parker & Thomas, 429 North Calvert St., Baltimore, Md., have made plans for a 12-story bank and office building, 50x110 feet, to be erected at this place, for the National Bank of Commerce. Cost, about \$200,000.

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of cabinet work: One 6 x 4 1/2-inch iron cash box with high grade lock, with two flat keys; one 24 x 1 1/2-inch drawer with knob, two 2 1/2 x 1 1/2-inch pigeonholes; one 24 x 1 1/2-inch pigeonhole; one large book space, 14 1/2 x 9 1/2 inches; one small book space, 14 1/2 x 4 1/2 inches. A BIG BARGAIN FOR ANY STORE, OFFICE, FACTORY, SHOP OR HOTEL.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

OZONE PARK, L. I.—The Roman Catholics of Ozone Park have acquired a strip of land on Broadway, between McCormack and Wyckoff Aves., on which they will erect a church, priests' house and a seminary for young girls. The Rev. R. M. Le Clair, M. C. M., and Bishop McDonnell, of Ozone Park, have the matter in charge. It is said that as yet no plans or architect have been selected.

PHILADELPHIA, PA.—Plans are being prepared by J. Horace Cook, City-hall, for a manual-training school at Broad and Jackson Sts., for the city. It will be three stories, stone, brick, granite and structural steel, slag, slate and tin roofing. Cost, \$325,000.

Architect J. Horace Cook, City-hall, is preparing plans for a girls' commercial high school, at Broad and Green Sts. Three stories, stone, brick, granite and steel, slate and tin roofing, fireproof floors, steam heat and ventilating. Cost, \$350,000.

It is stated that appropriations have been granted and plans will soon be started by Architect Horace Cook, City-hall, for the following schools: Eleventh Ward, \$50,000; 7th Ward, \$60,000; 6th Ward, \$65,000; 3d and Pine Sts., \$40,000; 3d and Christian Sts., \$60,000; Wharton and Sheridan Sts., \$25,000; 24th Ward, \$55,000; 15th Ward, \$90,000; 18th Ward, \$50,000; Oak Lane, \$50,000; Phann and Decatur Sts., \$45,000; Hunting Park and Pulaski St., \$79,000; Front and Wolf Sts., \$70,000; Belmont Ave. and Monument Road, \$20,000; Emerald and Orleans Sts., \$75,000; 57th and Spruce Sts.,

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

\$70,000; 28th and Diamond Sts., \$60,000, and 11th and Venango Sts., \$60,000. They will be of various heights, have slate roofs, cement pavements, electric light, steam heat, hard plaster and all modern school conveniences.

ROXBURY, MASS.—Plans for the new school building to be erected in Perrin St. are being drawn by J. A. Schweinfurth, and will soon be ready for figures. The building will be constructed of brick and stone and will cost upwards of \$125,000.

Excavations are being made at Nos. 224 to 236 Blue Hill Ave., for a brick and frame block of stores to be erected for J. H. Mulhern. The new building will be located between Dewey and Woodcliff Sts., on the east side of the avenue.

John F. Kenney has sold a lot of land on Walden St., Roxbury, containing 3,564 square feet, to Bridget Magrath, who has had plans drawn for the erection of a three-apartment house thereon.

SALEM, ILL.—Plans have been drawn by J. W. Gaddis, Vincennes, Ind., for a bank building, to be erected at Salem. Cost, about \$15,000. Contracts to be let Sept. 14.

SALEM, MASS.—A large addition to the Broadley Leather Company's plant, in Mason St., and one for the Carr Leather Company, rear of Boston St., are to be erected by Pitman & Crown.

It is expected that the \$100,000 Kernwood bridge between Salem and Beverly will be built before January, as the County Commissioners have accepted the engineers' plans and are about ready to advertise for bids.

J. N. & V. S. Peterson have contracts for the new \$75,000 car barns of the Boston & Northern Railroad Company, to be erected on the old circus field, in Bridge St.

Dwelling houses are to be erected by Mrs. Emma S. Almy at 318 Lafayette St.,

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Wilkinson Bros. in Plymouth St., and Jacob Gould in Hawthorne St.

SAVANNAH, GA.—The Westminster Presbyterian Society will erect a handsome new church edifice, to cost \$50,000.

SOMERVILLE, MASS.—A lot of land on Curtis St. has been sold for the estate of John Medina. The purchaser buys for immediate improvement.

SOUTH BOSTON, MASS.—The new battery building to be erected in L St. and East First St., for the Edison Electric Illuminating Company, will be 55x28 feet, and constructed of expanded metal and plaster, with a tar and gravel roof and copper cornices.

WINONA LAKE, IND.—A. Osgood Holland, 680 Main St., Buffalo, N. Y., has prepared plans for a three-story hotel, 90x120 feet, to be built here for the Presbyterian Hotel Company. Cost, \$65,000. Address R. V. Hunter, Buffalo, or Dr. Scott, Winona Lake.

YORK, PA.—Hershey Bros., who conduct a large bakery, will enlarge their plant. They have purchased a tract of land from E. W. Spangler. They will erect a bakery 72x120 feet, and will need all modern machinery to equip the plant. Address A. S. Hershey.

COMPETITIONS.

COURTHOUSE.

[At Manitowoc, Wis.]

Competitive plans are wanted October 1, for erecting a courthouse, including plumbing, heating, and lighting; cost not to exceed \$150,000. C. A. GROFFMAN, Secretary of Building Committee.

1500

CHURCH.

[At Urbana, Ill.]

Plans are desired for a brick and stone church for the Parks Chapel Society of Urbana, Ill. Cost not to exceed \$25,000. For further information address REV. W. N. TOBY.

1499

PROPOSALS.

COURTHOUSE.

[At Hobart, Okla.]
Sealed proposals will be received by the Engineer, U. S. Geological Survey, Lawton, Okla., until October 10, for the erection of a courthouse at Hobart. Mauran, Russell & Garden, Architects, Chemical Building, St. Louis, Mo. 1500

BUILDINGS.

[At Alexandria, La.]
Sealed proposals will be received by W. W. Whittington, Jr., Secretary of Board of Administrators of the Louisiana Hospital for Insane, until September 24, for the construction of two 3-story brick main buildings, 36' x 180', and one three-story brick water-closet, 16' x 30'. Plans, etc., at office of Secretary. 1499

COURTHOUSE.

[At Wynne, Ark.]
Sealed proposals will be received by John Graham Chmn. Board of Building Commissioners, until September 27, for the erection of a county courthouse for Cross County, to be located here. Plans and specifications may be seen at office of Bank of Wynne, at Wynne, and at office of the Bruce Architectural Co., Birmingham, Ala. 1499

LIBRARY.

[At Yankton, S. Dak.]
Sealed proposals will be received by C. W. Lay, Secretary, until September 23, for the erection of a library building. Plans, etc., at office of Secretary, at Builders' Exchange, St. Paul, Minn., and at the office of Patton & Miller, Architects, Hartford Building, Chicago, Ill. 1499

ADDITION TO HOSPITAL.

[At Los Angeles, Cal.]
Sealed bids will be received by the Board of Supervisors of Los Angeles County until September 26, for the erection and completion of a 2-story brick addition to insane ward at the County Hospital, on Mission Road. Plans, etc., at office of undersigned and at office of Hudson & Munsell, Architects, 415 Stimson Block, C. G. Keyes, County Clerk and ex-officio Clerk of Board. 1499

COURTHOUSE.

[At Lawton, Okla.]
Sealed proposals will be received by the Engineer, U. S. Geological Survey, Lawton, Okla., until October 10, for erecting a courthouse here. Mauran, Russell & Garden, Architects, Chemical Building, St. Louis, Mo. 1500

COURTHOUSE.

[At Anadarko, Okla. T.]
Sealed proposals will be received by the Engineer, U. S. Geological Survey, Lawton, Okla. T., until October 10, for the erection of a courthouse at Anadarko. Mauran, Russell & Garden, Architects, Chemical Building, St. Louis, Mo. 1500

ENGINES.

[At West Point, N. Y.]
Sealed proposals will be received until October 6, for the construction and installation of Corliss Engines for electric lighting as per drawings and specifications in this office. Forms and specifications furnished upon application. Address QUARTERMASTER, U. S. M. A. 1500

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[At Washington, D. C.]
BOARD OF COMMISSIONERS, U. S. SOLDIERS' HOME; OFFICE OF CONSTRUCTING OFFICER, STANLEY BUILDING, SOLDIERS' HOME, WASHINGTON, D. C., September 8, 1904.
Sealed proposals will be received at this office until 11.30 A. M., on the 24th day of September, 1904, and then publicly opened, for the construction and installation of a hot water heating apparatus for the Administration building, and a hot water heating and ventilating apparatus for the addition to the Barnes Hospital, at the U. S. Soldiers' Home; in accordance with the plans and specifications, copies of which may be had at the office of the Constructing Officer, in the discretion of the undersigned. A deposit of \$25.00 required. JOHN W. SUMMERHAYES, Lt.-Col., U. S. A., Ret., Constructing Officer. 1499

Treasury Department, Office of the Supervising Architect, Washington, D. C., August 30, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 5th day of October, 1904, and then opened, for the construction (except heating apparatus) of the U. S. Post-office at Pekin, Illinois, in accordance with drawings and specifications, copies of which may be had at this office or at the office of the Postmaster at Pekin, Illinois, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1499

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 1, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 12th day of October, 1904, and then opened, for the construction (including plumbing, heating apparatus, electric wiring and conduits) of the U. S. Post-office at Fond du Lac, Wisconsin, in accordance with the drawings and specifications, copies of which may be had at this office or at the office of the Postmaster at Fond du Lac, Wisconsin, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1499

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 10, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 4th day of October, 1904, and then opened, for the construction of foundations of the U. S. Post-office at Kingston, N. Y., in accordance with the drawings and specification, copies of which may be had at this office, or at the office of the Postmaster at Kingston, N. Y., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1500

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THE AMERICAN ARCHITECT AND BUILDING NEWS

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SATURDAY, SEPTEMBER 17, 1904

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THE consequence of the suggested merger of the Massachusetts Institute of Technology with the Lawrence Scientific School of Harvard University is a determined effort on the part of the graduates and friends of the Institute of Technology who do not favor the idea to raise two funds, one for immediate current expenses and the other for a permanent endowment. Whatever may be the ultimate fate of the merger proposition—and it will probably have a negative result—there can be no doubt of the wisdom of the attempt to provide both of these funds, and there should not be any great difficulty in securing them. The Institute is unquestionably worthy of generous support, not only from its graduates but from the entire manufacturing interests of the country, which are benefiting by the heads and hands it has trained. There is not a railroad in the country, there is hardly a mine and there must be relatively few mills and factories which have not at one time or another employed Technology graduates, and they might properly be approached with a request to contribute to the endowment fund, and we believe that few of them would decline to make at least a modest contribution. If we assume that each of the five thousand Technology graduates worked in five different employs before reaching his present fixed position, and if each of those employers could be induced to contribute two hundred dollars, an endowment fund of five million dollars could be raised without burdening anyone greatly. Doubtless the present effort will meet with considerable, perhaps with fully effective, success, but it seems to us that, in view of the size of the task and the magnitude of the interests, it would be well to pay some trained organizer and persuasive pleader to adopt the role of *frere queteur* rather than to leave it to amateurs, such as the committee of class-secretaries.

EVERYONE knows that there is no institution of learning that pretends to keep up with the advance of knowledge which can support itself on its income from tuition-fees, so it is not surprising that the annual cost of instructing each pupil at the Institute of Technology exceeds by about one hundred and fifty dollars the amount he himself pays for tuition. This is not so unusual a condition as to excite surprise. But it is astonishing, in view of the vast importance of the work it has accomplished, to learn that the Institute's funded property is only about eighteen hundred thousand dollars and that of this amount only one million dollars is unincumbered with specific conditions so that its income can be used for general running expenses. It speaks volumes for the financial ability of the management that the deficit for the past year was not more than thirty-seven thousand dollars.

DR. GEORGE T. MOORE, of the Department of Agriculture, has become a benefactor of water-companies and their customers through proving by a long series of experiments that water made unpotable by the presence of algæ can be made safely potable by moderate doses of sulphite of copper applied at the reservoir or well. There seems to be no question about the efficacy and safety of using sulphate of copper for this purpose, but whether it will be equally safe to use the salt in stronger doses, as Dr. Moore recommends, for the destruction of typhoid bacilli is a matter upon which, just now, the medical profession and Boards of Health are seriously at odds. Dr. Moore's experiments have proved that water infested with typhoid-fever bacilli can be made potable, so far as the further harmfulness of the bacilli is concerned, by a slightly stronger dose of the salt than is needed to kill the algæ, and he is positive that the presence of the salt in such small quantities cannot be prejudicial to the consumer's health. In fact sulphate of copper is used by physicians in cases of intestinal disorders, and the Chinese use copper kettles to keep off the "cholera devil." At the same time it is an almost universal kitchen myth that copper cooking-utensils, once the tinning is worn off, must be discarded, and yet, when one thinks about it, one must realize that ships' "coppers" are not likely to be retinned frequently, and that sailors are not the less healthy for having their food cooked in copper vessels pure and simple. If Dr. Moore has really discovered a bactericide that can be used safely, the long and costly suit of St. Louis against the Chicago Drainage Canal can be dropped where it is without reaching a decision.

THE New York Superintendent of Buildings is urging the Board of Aldermen to adopt the clause he offers in amendment of that section of the Building Code that affects elevators, and we hope the amendment may be adopted. The registration and licensing of elevator-runners, one of the ends aimed at, can certainly do no harm and probably will lead to the rejection of obviously irresponsible persons, although we believe that it is rarely that the elevator-runner is

the responsible cause of an accident. A much more important provision is the placing of freight-elevators, as well as passenger-elevators as now, under the supervision of the Building Department, not only as regards installation, but as regards operation, inspection and alteration. The new section would be improved by containing a requirement that each freight-elevator should carry a notice declaring with what load it may safely be burdened, as well as the warning, actually provided for, that persons ride on freight-elevators at their own proper risk. The present very general practice of leaving freight-elevators to be operated by any casual teamster or expressman who has need of them is distinctly dangerous, is the cause of many accidents and ought to be prohibited. Besides, the opportunity is always offered to the passing hoodlum to reach in to the open shaft and set the elevator in motion, regardless of consequences.

FAIRMOUNT PARK, Philadelphia, is one of the successful great parks of the country, and, though at present rather far from the dwelling place of the masses to be of the greatest popular use, is accessible to all who can spare the price of a trolley ride. The engineer or landscape architect who laid out the park, Mr. Emil Mahlon, died late in August at the age of fifty-three. As his name indicates, Mr. Mahlon was a German, and was trained at the Polytechnic School in Dresden. For many years he was employed as topographical draughtsman in the Hydrographic Office of the Navy Department, in fact most of his life work was done in that office, although for several years he was in charge of the park system of Louisville, Ky. Another landscape architect, Mr. Aneurin Jones, a Welshman by birth, has also died recently at the age of eighty. At various times he was in charge of Central Park, New York, and Prospect Park, Brooklyn, and each time had to be retired because of public clamor at his doings in office. He had a penchant for opening up vistas, and in so doing cut down many fine trees; but this does not prove that he was wrong, for a similar public clamor assailed Mr. Olmsted a few years before his death in consequence of his authorizing a pretty serious thinning out of trees in Central Park, the judiciousness of which measure is now apparent. Mr. Jones may have been equally right in opening up his vistas even with the sacrifice of fine trees, but there certainly was no wisdom in his issuing an order that artists should not be allowed to sketch and paint in the parks because they "trampled down the grass."

WHOSE who took part in the agitation to preserve the Palisades from destruction by quarrymen seeking road-material and aggregate for concrete take much satisfaction in now and then hearing rumors of what is actually being accomplished by the Interstate Park Commission in charge of the operation. The Commission has disbursed nearly three hundred and fifty thousand dollars and has yet more to pay in securing title to the one hundred and seventy-five thousand acres of land that are to constitute the Interstate Park, stretching along the brow of the Palisades for fourteen miles and overlooking the Hudson River below. Like the International Park at Niagara, it is

the intention to treat this as a natural park, and beyond the construction of a boulevard running from one end of it to the other, the engineers and landscape architects will do little that will interfere with the present natural features.

BUSINESS MEN are rather given to holding in light esteem the "references" furnished by clergymen that may be offered by seekers for employment, partly because they do not greatly value a clergyman's knowledge of what constitutes desirable qualities in business life and partly because they know that clergymen are rather prone to "draw it strong" and say rather more than ought properly to be said. Apparently Signor Biondi's lawyer holds the clerical opinion in higher esteem, as he is said to have procured from Cardinal Satolli an opinion to the effect that the "Saturnalia" is of sufficiently good moral character to be seen in company with the "Bacchante" and divers nymphs, satyrs and nudities on daily show at the Metropolitan Museum of Art. Naturally this statement has excited other reverend gentlemen, who probably know as much about morals but less about art than does the Italian Cardinal, to take the other side and combine in protestation against the public exhibition of the group. Meanwhile the Museum seems to have been brought into a truly unfortunate position, for not only it must defend, or compromise, the sculptor's suit, but actually at the moment may be called upon by the Government to pay the bond, already technically forfeited, which it gave when it secured the group at the close of the Buffalo exhibition.

LIKE other, like too many other, colleges, Washington University, at St. Louis, has its department of architecture, and though at the end of its second year it has only five students enrolled in the department, it promises to accomplish the ends which its projectors had in view. But besides this, it seems to be accomplishing in an incidental way a wider work of even greater value than that for which it was specifically organized. To establish an educational department implies the extending of an invitation to young people to come and take advantage of its opportunities, and this in turn implies the probability that a certain number will accept the invitation who would be more successful in life if they had not been induced by the invitation to embark on a career for which they were really unsuited, a career which they would never have thought of undertaking had it not been for the invitation. To give educational aid, on the other hand, to those who have already embarked on a career and feel the need of such aid is quite another, and, we feel, a really more useful undertaking, and this work the new department of architecture at St. Louis is accomplishing, and is setting an example that is well worthy of imitation. For the benefit of draughtsmen working daily in offices, it has opened an evening class in design under the charge of Mr. Louis C. Spiering, a graduate of the École des Beaux-Arts, which has proved very popular and seems to be doing good work. We believe that this is the first instance of a college department undertaking, in an organic way, a work for outsiders which is usually left to the uncertain care of the architectural clubs and draughtsmen's societies.

THE ART OF THE FRENCH RENAISSANCE.¹

THE sixteenth century is perhaps the most attractive period in the whole of French history; and a complete account of the art of the French Renaissance might naturally be looked for from French historians. Much excellent work has indeed been done by archaeologists since the middle of the last century; but, as one of the ablest and latest of French writers remarks, the history of this period has yet to be written. Its study is in fact attended by peculiar difficulties. There are lamentable gaps in the evidence. France has suffered from wanton destruction far more than England. With the exception of Nonesuch, and a few other mansions that can be counted on one's fingers, nearly all our great historical houses of the sixteenth and seventeenth centuries have survived to the present day; but in France probably half of the finest examples have either disappeared altogether, or have sunk to base uses which, more or less completely, obscure their original purpose.

The chief architectural effort of the Renaissance in France was concentrated on house-building; and great houses, as belonging to the privileged classes, were the first to suffer from the French revolutionaries. What is far less intelligible, however, is the callous indifference shown by the French aristocracy themselves long before the Revolution. They do not appear to have attached the slightest importance to their hereditary dwelling-places. It was not merely that they pulled them down or "cut them about" to make way for modern improvements, but that they were strangely ready to sacrifice any one of them that showed a reasonable prospect of conversion into cash. A prince of the great house of Condé destroyed, in 1799, the Chateau of Fère-en-Tardenois, probably an early work of Bullant's. In 1780-82 the same nobleman had the entrance to Écouen pulled down, and sold the Chateau de Creil for old materials in order to save the cost of maintenance. So early as 1719 the Regent ordered the destruction of the Chapel of the Valois as the cheapest way of finishing it off. The demolition of the Chateau de St. Maur, one of de l'Orme's principal works, was also due to the Condé family; and, though the Chateau de Madrid was in fact destroyed during the French Revolution, Louis XVI had actually ordered the sale of it for old materials in 1778, together with the Chateaux of Blois, Vincennes, and La Muette.

Another cause that contributed to the ruin of many of these palaces was the curious improvidence of the royal builders. They seemed to build for the sake of building, without care either for completion or maintenance. Francis I ordered a palace, or a hunting-box on a scarcely inferior scale, wherever his fancy took him, but he seems to have lost his interest in the building before the roof was on; and du Cerceau remarks that his buildings were often left to perish for want of a slater to patch the roofs. Catherine de' Medici was possessed by the same mania for building on an impossible scale. The Chapel of the Valois, in some ways the most monumental effort of French architecture of the sixteenth century, was never completed. After barely starting the Tuileries, she dashed off into the costly undertaking of the Hôtel de Soissons; but neither building was finished when she died. The Tuileries was destroyed by the Commune; and the only vestige of the Hôtel de Soissons is Jean Bullant's forlorn-looking column attached to the wall of the Halle aux Blés.

After Catherine's death there was a lull for a time. The work that followed in the first half of the seventeenth century was admirable in quality, rather than abundant in quantity. France was holding its breath for the colossal enterprise of Louis XIV. If the country had suffered from the caprice and uncertainty of Francis, it suffered no less from the inexhaustible vanity of the "Roi Soleil"; and there was added to the national burdens the monstrous cost of Versailles. This seems to have terminated the royal efforts at building; and a hundred years later the French Revolution made a clean sweep of everything that it did not need for itself.

Had it not been for Alexandre Lenoir we should be even worse off than we are. When the French Revolution was at its height, Lenoir went about searching for such fragments of sixteenth century art as might have survived the storm, paying here, entreating there, doing a work of inestimable value to future generations. From an architect named Jullien he bought, for 440 francs, the column to Henry III, now at St. Denis. He saved the frontispiece of Anet and the gateway of Gaillon, now in the École des Beaux-Arts; the fragments of the screen of St. Germain l'Auxerrois; the altar of Écouen, now at Chantilly; what

was left of the fountain of Diana at Anet, and other priceless fragments. Lenoir stored his salvage in a museum now occupied by the École des Beaux-Arts in the Rue des Petits Augustins; and from this museum the sculpture was subsequently transferred to the Louvre, and in certain cases to its legitimate owners. It is true that Lenoir put his fragments together in a fashion that somewhat resembles Wyatt's treatment of the tombs at Salisbury; nevertheless his name should be gratefully remembered as that of the man who had the courage to preserve these links with the past at a time of the most terrific iconoclasm the world has ever seen. In the galleries of the Hôtel Carnavalet there is a portrait of Lenoir, a shrewd, kindly face in suggestive proximity to the ill-omened countenances of Danton, Marat and Robespierre.

An unfortunate phase followed the first Empire. Napoleon I wrote his hand in very legible letters on certain of the royal palaces; but, when the Bourbons returned, their object was to revive the associations of the old régime; and with this idea they embarked on a wholesale course of restoration, with the most unhappy results. The methods of French architects when engaged in restorations are painfully familiar. Their principal object seems to be to transform the growth of centuries into a brand-new building of the style and character of what the architect arbitrarily selects as the original design. Viollet-le-Duc's work at Pierrefonds and elsewhere shows the extreme point of futility to which this theatrical instinct can be carried. Much of Fontainebleau is unreadable on account of the restoration made by M. Alaux to the taste of Louis Philippe. St. Germain-en-Laye is still in the hands of the architect; and it has now been denuded of any artistic and historical interest that might have survived from an unfortunate past.

Thus, by the middle of the nineteenth century, however much interest was felt in the work of the earlier Renaissance in France, it was difficult to arrive at authentic historical facts. A good deal of plausible speculation was indulged in; large attributions to Italian artists were made; and the history of the period was written chiefly by guess-work. In 1842 Callet, an antiquary of some note, came across a MS. in the Bibliothèque Impériale, and published his new facts in an historical notice of the life and works of certain French architects; but, according to Berty, he drowned his facts in a deluge of his own invention, and his pamphlet is quite untrustworthy. The first serious effort toward an historical account of the French Renaissance was made by the Marquis Léon de Laborde in his *Renaissance des Arts à la Cour de France* (1852-55). M. Berry published in 1860 his *Grands Architectes Français de la Renaissance*, a rare and very useful little book, now out of print. Meanwhile, elaborately illustrated monographs, such as M. Pfñor's works on Anet and Fontainebleau, Reveil's *Jean Goujon*, and others, appeared from time to time; but for the historical student the scientific study of this period dates from the issue in 1877-80 of the *Comptes des Bâtimens du Roi, 1528-1571, suivis de documents inédits sur les châteaux royaux et les beaux-arts au XVI siècle*.

The evidence presented by these records is unassailable. Together with such records as the *Comptes des dépenses du Chateau de Gaillon*, published by Deville in 1850, the works of du Cerceau and Philibert de l'Orme, and the comparative study of the buildings and monuments themselves, they form the chief materials available for the history of French art in the sixteenth century. The vague conjectures of earlier writers have given way to uncontroversial facts; but, as will appear, the history of the French Renaissance is not yet sufficiently advanced for a final and authoritative statement. Serious differences of opinion exist between French critics. M. Dimier and M. Palustre, for instance, take exactly opposite views of the same group of facts. Much has yet to be done in the way of sifting and interpreting the evidence; and the very abundance of the material collected by the able French writers who have studied it makes the study of this period somewhat bewildering.

Since 1877 the chief efforts of the foremost French scholars have been directed to checking off the historical monuments of the Renaissance by the evidence of such documents as the *Comptes des Bâtimens du Roi*. In 1879 M. Léon Palustre began the issue of his monumental work on the Renaissance in France. His scheme aimed at giving a complete account of the first hundred years, with illustrations drawn from every part of France. The first volume deals with the North and the Ile de France; Volume II, published in 1881, completed the Ile de France and Normandy; Volume III, issued in 1885, includes Brittany, Maine, Poitou, and Charente. At this point the work was broken off, and has not been resumed. That in a treatise of this magnitude there should be inaccuracies, and that some of

¹ Extract from a paper by Mr. Reginald Blomfield in the *Quarterly Review*.

the inferences drawn may be called in question, is inevitable. Yet, even in its unfinished state, the work remains a splendid undertaking. The vast area of research covered, the clearness with which M. Palustre marshalled his facts, and the acute and penetrating criticism brought to bear on the historical evidence, render his book a fine achievement of French scholarship on lines which have been singularly neglected by students in other countries.

In 1887 the Baron de Geymüller published his important work on the du Cerceau family, and in 1898, in German, his *"Architecture of the Renaissance in France."* In 1900 M. Dimier published his essay on the life and work of Primaticcio, a learned and valuable book, which goes far beyond the limits of a biography, for the writer has considered it his duty to deal with every branch of contemporary art in France. M. Dimier's graceful scholarship and the lucidity of his style make his *"Life of Primaticcio"* perhaps the most readable introduction to the study of the French Renaissance that has yet appeared. On the whole, and in a desultory sort of way, there is a good deal of sound historical work to show, and yet there is less than one would expect. In France, as in England, during the last fifty years, there have been two streams of thought, entirely out of relation to each other, and indeed flowing in opposite directions; while MM. Palustre, de Montaignon, Courajod, and de Geymüller were steadily devoting genuine research to the study of the Renaissance, the interest of the larger part of the average architectural public was arrested by the theories of M. Viollet-le-Duc, and by his marvellous faculty of building up the most convincing history on the smallest possible basis of evidence. Large theories seem to have an irresistible attraction for the French intelligence; and Viollet-le-Duc's mediaevalism, old-fashioned and absurdly insincere as it may seem to us now, attracted at the time a disproportionate amount of attention. There is evidence of a reaction from these histrionics; and the best French writers and their ablest artists are steadily recovering a great tradition which they ought never to have lost.

The study of architecture suffers much from the want of clear definitions. We talk of the Renaissance, but the Renaissance may mean very different things; and, when a writer says that the Renaissance in France dates from such and such a year, it is necessary to ask what he means by the word. From one point of view the presence of an Ionic capital in a Gothic screen would indicate the arrival of the Renaissance, and would carry the date back well into the fifteenth century; regarded from another point of view, that of an architect, such details would be mere accidents. The Renaissance cannot be said to have been introduced into a country until the designers and workmen of that country have grasped the constructive principles of Renaissance design—a stage of development which requires a generation, and cannot be limited to any particular year. This stage was not attained in France till nearly a hundred years after the first vague echo of the Italian Renaissance had found its way across the Alps.

Moreover, the French Renaissance differed widely from that of Italy. It is well known that the Italians never absolutely lost touch of the Roman tradition. Their Gothic was an exotic; they never mastered the principles of this architecture of thrust and counter-thrust; hence the inferiority of Italian Gothic to French. On the other hand, they preserved, in a rudimentary way, their instinct for the column and the lintel, for the dead-weight construction of the Romans; and, when the revival of letters recalled their attention to Classical civilization, this dormant instinct was reawakened; and the extraordinary achievements of the great Italians in Neo-classic architecture seem to have been largely due to this inherited instinct. Even in France the Classical instinct seems never to have wholly expired in those parts where Roman civilization had taken strongest hold. Some of the earliest examples of Renaissance design appear at Avignon and Marseilles; and, though allowance must be made for the papal residence at Avignon, and the proximity of Marseilles to Italy, there is an unexplained residuum in the strongly marked Roman character of this early work, for instance, in the entrance to the ruins of the Tour d'Aigues (Vaucluse), which bears a close resemblance to the remains of imperial Roman architecture. Scarcely two hundred years, in fact, elapsed between the last efforts of Romanesque in the south of France and the first attempt at Neo-classic. The old tradition must have been close at hand in the "subliminal consciousness" of the Provençal.

The state of things in other parts of France, at any rate in the Ile de France and in the centre, was different. Here there had existed for centuries an architecture which had attained to a perfection of form and a mastery of technique within its own inten-

tion unrivalled at any rate since the great days of Byzantium. In its later phases technical ability in building outlived its original inspiration. The masons who could build the winding staircases of Blois and Chambord could hardly have been inferior in skill to the Gothic masons from whom they inherited their craft. De l'Orme, in his *"Livre d'Architecture,"* dwells with much emphasis on the importance of the science of setting out masonry; he devotes to it a large part of his work, with many intricate diagrams, and enlarges abundantly on his own science. Yet he could hardly have taught anything in this regard to the masons of Blois. There was, in fact, on the one hand, a considerable amount of technical building skill available, and on the other hand, among laymen, and what may be called the building public, a comparatively high degree of civilization. The layman's ideas of refinement and his ideals in architecture were ahead of his powers of realization. The problem at the end of the fifteenth and beginning of the sixteenth century was to bring this building ability into line, to educate it into mastery of the new methods of expression, in other words, to teach it the architecture required by altered standards of knowledge and civilization. The process, therefore, was not that of the development of latent powers along lines only half forgotten, as in Italy, but of the transformation and diversion of existing powers from one channel into another; and the slowness of this process, the repeated failure of the mason to grasp the new intention, may possibly account for the impatience, the fury of building which seems to have possessed Francis I and most of the great noblemen of his court. Yet a hundred years were hardly enough to displace the traditions of centuries.

The first symptoms of change appeared in the latter part of the fifteenth century. René of Anjou introduced certain Italian artists who worked for him at Aix, Angers, and Bar-le-duc. The next considerable importation occurred after Charles VIII's Italian expedition of 1495. The names of Fra Giocondo, of il Boccador, of Bernardino di Brescia, of Paganino, and others, occur in a patent of payment of 1498. Paganino, who was afterward employed on the tomb of Charles VIII, and who is the "Master Pageny" of the monument of Henry VII, is found again at Gaillon, after 1501. Il Boccador gave designs for the old Hôtel de Ville at Paris which were never carried out; and Fra Giocondo was at one time credited with the designs of numerous buildings in France.

The culminating point of this earlier Renaissance, a Renaissance essentially of craftsmanship rather than of architecture, was reached at Gaillon, built for the great cardinal, George of Amboise, who lived so full a life that it was said that he barely left himself time to take to his bed and die. The glories of Gaillon are now represented by one poor fragment in the court of the école des Beaux-Arts. With all its sumptuous decoration, Gaillon was far behind contemporary Italian work. Architecturally it was a poor conception, such indeed as we should expect from the master masons who had lost their bearings, and whose principal function was to provide masonry for the Italian artists to decorate. All the sculpture and ornament were executed by the Italians. Paganino made the medallions of emperors; Antonio Juste of Florence carved the statues in the chapel and the bas-reliefs in the court; and Richard of Carpi, perhaps the first of the "menuisiers" of Carpi, inlaid the stalls with their beautiful *intarsia* work, now in the Abbey of St. Denis. The architect did not exist; and all that was expected of the builder was that he should put up walls that would stand and that would give plenty of space for the Italian artists to work on. Gaillon is typical of the great French house of the first quarter of the sixteenth century, such as Azay-le-Rideau, Villers-Cotterets, the older parts of Chenonceau, and the châteaux of the Loire valley. Beautiful as they are, these buildings are beautiful by their detail and decorations, by their "travaux de choix"; they make their appeal, not through subtlety in proportion, or the splendid audacity of simple mass, but through the exquisite delicacy of their surface ornament. Stripped of the latter, they are rather rudimentary efforts in architecture, little more than the routine work of masons, chancing more or less unconsciously into happy accidents of outline.

In France, as in England, the first fifty years of the Renaissance were occupied with experiments in the details of ornament; but the difference is that, whereas in England the Italian influence disappeared at the death of Henry VIII and was too weak to establish a permanent footing at the time, in France the development of architecture proceeded steadily to its full maturity, with the result that, historically, France got the start of England by some fifty to seventy years—a lead which that country has never lost. The man who contributed most to this result was Francis

I, an "amateur du premier rang," as M. Dimier calls him. Politically the Italian expeditions led to nothing but disaster for France; and severe remarks have been made by English historians touching the influence of the Italian Renaissance on French morality; but of the service that Italy rendered to France in the matter of culture there can be no sort of doubt. France learned from Italy, once for all, the lesson of humanism; and the readiest of French pupils was Francis himself. When Louis XII went into Italy he sacked and plundered, and returned unmoved by what he saw, to settle down in France as "the father of his people." But where his predecessors merely looked, Francis considered and learned. Moreover, throughout his life he had the rare advantage of the guidance of his sister, Margaret of Navarre, "la perle des Valois," one of the most attractive minds of the sixteenth century. Miss Sichel, in her thoughtful and sympathetic studies, has traced the influence of this rare spirit on the intellectual life of the time; and perhaps it would not be too much to say that what was best in the French Renaissance was due to the sympathy and intelligence of Margaret quite as much as to the direct initiation of her brother.

Yet no king ever played the royal patron on a more lavish scale than Francis I. In his control of church patronage he found a ready means of rewarding his favorite artists without the least inconvenience to himself. Primaticcio was made Abbé of St. Martin des Aires de Troyes; Pierre Lescot was a Canon of Notre Dame; and Philibert de l'Orme enjoyed the revenues of two or three abbeys in addition to a canonry at Notre Dame. From the first, Francis used every effort to induce Italian artists to settle in France. The Justes of Florence were already there, and busy at Tours. Solario, the pupil of Leonardo da Vinci, had been at work in 1508; and Francis persuaded the great master himself to settle in France. But Leonardo was very old, and the experiment was probably a failure. Nor was the King more fortunate with Andrea del Sarto. Then came the disastrous defeat of Pavia; and it was not till 1527 that Francis was able to resume his schemes with another great importation of Italian artists. Work was started at Fontainebleau with the famous "Devis" of 1528. Il Rosso came in 1531, and remained in control till his death in 1541 or 1542. Il Rosso was succeeded by Primaticcio, who, after routing Serlio and Cellini, became practically sole dictator of the arts at the court of France from 1541 till his death in 1570. The latter part of the reign of Francis I and the reign of Henry II form, in fact, a turning-point in the history of French art; and it is in regard to this period that the most serious differences of opinion exist among French scholars. What were the relations of the old master-builders to the new architects? What was the part played by the Italians, and by Primaticcio in particular, in the reformation of French art? What was Primaticcio's own position, and what were his relations to his colleagues? On these and similar questions French writers maintain quite contrary opinions with a learning and ability which is the more bewildering in that it appears to be equally shared by the rival camps.

THE UTILIZATION OF NIAGARA POWER.¹

IN spite of the possibilities for long-distance transmission use, I believe, nevertheless, that the bulk of Niagara power will always be used within a radius of a few miles of the Falls. It is cheap power that the manufacturers want, especially those of electro-chemical products, and the nearer they get to the Falls the cheaper will be the power.

Transmission of power for long distances is expensive at best. Take the case, for instance, of the Niagara-Buffalo transmission. The current, after it leaves the generators, is transformed to 22,000 volts by expensive step-up transformers, which not only waste some of the power, but must be operated and maintained, and interest must be paid upon their cost. From here the current traverses the transmission line over a private right-of-way. This also must be operated and maintained, and interest must be paid upon a large investment in line as well as for right-of-way. Furthermore, power is lost in the transmission. After reaching the city line of Buffalo, the current is again transformed for distribution throughout the city. This distribution is accomplished by means of an extensive system of underground cables. All this apparatus must have fixed interest charges paid upon it, and it requires a large force of experienced men for its operation. When, therefore, the statement is made that not over 10 per cent

is lost in transmitting power from Niagara to Buffalo, it does not mean that power will cost only 10 per cent more in Buffalo than at the Falls; for the difference will be much greater than this.

However, even with this transmission cost added, Niagara power is delivered in Buffalo to-day to customers more cheaply than they can produce it themselves by isolated plants. The saving in cost is not the only advantage. The elimination of the steam boiler and engine outfit in a factory by the use of Niagara power is a luxury and a convenience which has many incidental commercial advantages.

When the Niagara enterprise was first started there was a great deal of talk about operating all the factories in New York State by Niagara power. Such a possibility, under the present state of electrical science, is theoretical only; for electric power, transmitted to such distances by present methods, could not possibly compete with steam. In theory, Niagara power can be sent to San Francisco in any amount, but its cost, when it got there, would be prohibitive.

Another argument against transmitting Niagara power to a long distance from the Falls, is that it is not commercially necessary to do so. There will be probably a sufficient market for power within a 50-mile radius of the power-house to use up all the power which has thus far been developed, and it is likely to continue so. It is cheaper for the factories to locate near the Falls than to carry the power a long way to the factories.

One exception to this general tendency against the transmission of Niagara power to long distances is in the case of the steam railroads mentioned above. If they change over to the use of electric power, it is likely that they will use Niagara power within a circle of wide radius about the Falls, possibly 100 to 150 miles. In their case the conditions are peculiarly favorable for long-distance transmission. They will use power on a large scale, and will have their own private rights-of-way, without extra cost for the installation of their overhead circuits. Furthermore, they will have to compete electrically only with steam power as developed in the locomotive, which, as is well known, is a very expensive method of utilizing the energy of coal, as compared with a stationary engine.

At present the power distributed by the Niagara Falls Power Company might be divided into three classes.

First. The local service to electro-chemical and other industries within the city limits of Niagara Falls. This at present aggregates about 45,000 horse power, divided among thirty industries. The largest users are the electro-chemical plants, which require current either for electrolysis or for the production of the very high temperatures obtainable in the electric furnace by which the reactions in their processes are brought about.

Second. The Canadian service across the upper steel arch bridge to industries and electric railroads in Canada, reaching as far as St. Catharine's. This use is small at present, but it is the beginning of an industrial growth on the Canadian side of the river, which, in my opinion, will be very extensive in a few years. It now amounts to about 2,000 horse power.

Third. Long-distance service to Buffalo, Tonawanda, Lockport and Olcott, which now amounts to a total of about 30,000 horse power. In Buffalo approximately 24,000 horse power is used, divided among a very large number of customers, making use of the power for all kinds of purposes. This includes the power for operating the Buffalo street cars and the electric lights in the city.

In Tonawanda about 4,000 horse power is used for railway, lighting and miscellaneous power purposes.

In Lockport the use amounts to about 1,500 horse power for railway and miscellaneous purposes. Five hundred horse power is used at Olcott for operating one of the sub-stations of the International Railway Company. This station is 39 miles from the Falls, which is at present the longest distance to which Niagara power is transmitted. All the freight on the International Railroad, between Olcott and Tonawanda, is handled by Niagara power by means of electric locomotives.

It is hoped that this brief outline will give an idea of the present status of the Niagara Falls Power Company system. It represents, however, merely the beginning. In this country great cities have sprung up in certain localities for reasons far less important commercially than the conditions which exist on the Niagara frontier to-day. It is the centre of population of the continent, approximately a focus of all the great trunk-line railroads, and unlimited cheap power for manufacturing is available. It is also the eastern terminus of the Great Lakes' commerce. This latter,

¹ Extract from a paper by H. W. Buck, Electrical Engineer of the Niagara Falls Power Co., read before the Engineers' Society of Western New York and published in the *Journal of the Association of Engineering Societies*.

if the Niagara River is deepened, will be extended almost to the brink of the Falls themselves, affording 20 miles of sheltered dock front.

The day will come when we shall see a steamless city, reaching unbroken from Buffalo to the Falls, the industrial triumph of Niagara's power.

THE MANUFACTURE OF PEAT BRIQUETTES.

THE peat fuel industry has been left to a large extent to individual enterprise, mostly in rural districts of Germany, Netherlands, Scandinavia, Russia and Ireland, and any statistics that have been issued on the subject are untrustworthy. The use of peat as fuel in Germany dates back to the earliest history of the Teutonic tribes. The peat bogs cover very extensive areas in the northern temperate regions of Europe and America. The German peat area is estimated to be about 11,000 square miles; and peat is utilized for hygienic purposes, for manufacture into paper-stock, cardboard, felt, alcohol, etc., for burning in gas generator furnaces, and for manufacture into peat coke, peat slabs and carbonized briquettes. The manufacture of peat slabs has been practised in a crude way by peasants in the north of Germany and in Holland for more than a century, for the purpose of obtaining a cheaper and more efficient fuel than wood or cut peat. During the past fifty years this industry has been placed on a more intelligent basis, due chiefly to the solution of the problem of a cheap production on a large scale. At the present day machine peat is made which stands transportation and the influences of weather, and in many localities even competes with coal. According to a report by the American Institute of Mining Engineers, the method of making machine peat is entirely automatic, the machinery for cutting the peat, elevating it to the press, and conveying the slabs to the drying ground being mounted on a truck which travels into the bog sometimes under its own steam. This arrangement is made for a capacity of from 50 to 80 tons in 24 hours, and costs from £800 to £1,200 at the factory. The truck travels on rails, and the bog is gradually exhausted by cutting each new trench next to the one just completed. An excavating elevator drops the raw peat into the machine where it is disintegrated, kneaded, and forced through a mouthpiece in the form of an endless plastic band, upon a truck on which it is cut, by a series of adjustable knives, into any desired lengths. The pressure required is very slight, and, as no water escapes, the chemical composition of the raw material is unchanged. The volume of the peat is reduced about one-half, and the slabs, when thoroughly air-dried, weigh from 40 to 60 pounds per cubic foot. One man is employed for every two or two and a half tons of peat briquettes produced. While the raw peat contains as a rule between 80 and 90 per cent of moisture, the air-dried slabs have seldom more than from 15 to 25 per cent. To effect a more thorough drying, large hot-air chambers are used. The cost of making machine-peat in Germany is from three to four shillings per ton at the outset, which allows a considerable depreciation for the machinery. This figure is taken from the Schilt Works, near Oldenburg, and from the Ranbow Works, near Langen, on the Elbe. There is a peat bog at Magdeburg, which yields annually about £540 worth of machine peat per acre, while the cost of manufacture is but £180, thus leaving a profit of £360 per acre. The average depth of this bog is 40 feet. The experience gained with the use of press-peat as locomotive fuel in Bavaria, Austria, Sweden, Russia, and Ireland, is stated to be very satisfactory. The utilization of dried press-peat for gas-making and as a substitute for coal and charcoal is also stated to be satisfactory. The problem, to produce from a poor grade of fuel containing from 70 to 90 per cent of moisture a briquette which can compete with coal, or can make up deficiencies in the fuel supply, is a very serious one. Huge masses of raw material have to be handled and cleansed from foreign matter, and tons of water have to be expelled in order to obtain a limited quantity of valuable fuel. Many processes have been tried and abandoned, as they proved to be too expensive. A few plants in Germany and Holland are working on similar lines with brown coal, but a large portion of the water is expelled mechanically before drying by heat. Much labor and money have been expended in Germany on the development of the peat industry, and nearly all modern methods have originated in that country. Great efforts are being made to establish the manufacture of solid peat briquettes as a permanent commercial industry. In Holland there are many acres of peat bog excavation under cultivation, and supporting from 300 to 350 people per square mile. In some water-filled bog

trenches, fisheries are established on a large scale.—*Journal of the Society of Arts.*

THE ACTION OF LIGHTNING STROKES ON BUILDINGS.¹

IN a paper entitled "The Protection of Buildings from Lightning," which was read at the Glasgow meeting of the Association in 1901, the author mentioned the establishment of the Lightning Research Committee, organized jointly by the Royal Institute of British Architects and the Surveyors' Institution, who have since investigated a very large number of occurrences from the reports furnished by their observers. It was decided after the first year to confine the committee's investigations to buildings which were fitted with conductors, and, following this course, the reports on about forty protected buildings affected by lightning have been summarized by a sub-committee, and are having the attention of the General Committee, who will in due course issue a report.

The principal causes of the failure of the usual style of lightning rod as fitted on the buildings investigated appear to be due to the following: (1) Insufficient number of conductor and earth connections; (2) the absence of any system of connecting the metallic portions of the buildings to the lightning conductor, especially the interconnection of the finials, rain-water pipes and gutters. In the author's opinion the frequent damage by side-flash from the conductors might be lessened by running a horizontal conductor along the ridge, or along the parapets of all the roofs, somewhat after the method which is almost universally adopted in Central Europe.

The lightning strokes may be divided into three classes: (1) Those where the conductor conveyed a portion of the flash to earth, but the side-flash to other unearthened metallic conductors damaged the building; the practice of running the conductor round the projecting masonry, often taking sharp bends, doubtless facilitated the deviation of the current from its direct path to the earth. (2) In several observations a metallic roof of large area received the flash, consequently became highly charged, and the single conductor failed to convey the whole of the stroke, a portion of which took a circuitous path—for instance, through a speaking-tube and an electric-bell wire. (3) A flash struck the building at two points simultaneously, a lightning conductor taking one part of the stroke, but damage was caused by the other portion selecting an unprotected part of the roof.

Earth Connections.—With a few exceptions these had the defect common to nearly all earth-plates which are simply buried in the ground close to the foundations of a building, and owing to drainage soon became dry, consequently are of very high resistance. Architects, as a rule, object to sufficiently deep holes being made near a structure; consequently the permanently moist ground is not reached. The tubular earth designed by the author does away with this objection, and can be kept moist by leading a small tube to the nearest rain-water pipe.

Interconnection with the Metal Work of a Building.—Although the utility of the external metal was specially put forward in the report of the Lightning Rod Conference in 1882, their recommendation has been apparently disregarded in all the cases under review. The Cavendish Laboratory (No. 64) stroke, which was fortunately unattended with danger owing to the gas in the gas-pipe which formed the path of the current being turned off, would not have taken this circuitous path had the leaden roof been connected to the conductors, which ran down the tower only, also to the rain-water gutters and pipes, which should have been interconnected at the bottom and properly earthed. Again, at Bedford (No. 88) last year, St. Paul's Church was seriously damaged by the flash leaving the single conductor on the tower by the water on the roof and passing thence to earth by means of the rain-water pipes. In this case it is interesting to note that the lead pipes were not fused, but their round section was changed into an oval one; the iron water-pipes were broken. This incident and No. 68 (St. Pancras Church, Euston,) show clearly that the damage was due not to direct stroke, but by a portion of the flash leaving the main conductor and taking a circuitous path round the unconnected metal work outside and inside the buildings.

Observation No. 2: Kea Church, Truro.—The copper sheathing

¹ A paper, written for the British Association meeting at Cambridge, by Mr. Killingworth Hedges, M. Inst. C. E., Hon. Secretary Lightning Research Committee, Royal Institute of British Architects.

of the spire, owing to its great capacity, could not discharge through the one excellent conductor to earth, consequently the flash divided, part going by the conductor and part by the alternative path formed by the copper covering of the spire to a rain-water pipe, thence sparking through a parapet wall to lead, flashing down another pipe, and then along a very small copper wire used for training plants, to the main conductor. Similar effects were noted in Stoers Lighthouse (No. 54) and Devaar Lighthouse (No. 56), the divided flash in the former leaving the conductor for a telephone wire and in the latter for a speaking-tube. In these observations the conductors may be said to have acted to a certain extent, and if the structures had been entirely unprotected the damage would have been greater, but by proper attention to the necessities of each case, and increasing the number of the conductors, the risk would probably be nil, as there would be a definite path for the lightning to take.

Quite the most interesting case is that at Possingworth House (No. 67), struck in June and again in August, 1902, although the roof fairly bristled with air terminals, every chimney being protected, mostly with its own conductor and earth connection. It is probable that on the second occasion the flash divided, one part selecting a chimney stack, which it damaged, bending the air terminal to an angle of 45 degrees, while the other, neglecting the many points, fell on an unprotected statue much lower than the chimney and went to earth by the iron frame of a conservatory, showing the unreliability of a number of independent conductors which should have been interconnected by means of a horizontal wire led along the ridge; this would in all probability prevent any serious damage.

Sir Oliver Lodge has shown by an interesting experiment that a column of hot air is often selected by a flash although a lightning rod may be affixed to the side of the chimney. Most of our large stacks have a band of metal to which the air terminals are fitted, and from these two conductors should be led to earth. The method adopted in Germany appears to be simpler, and consists of a heavy iron frame rising to a sufficient height above the stack, and continued at the apex so as to form an aigrette. That lightning may prefer the smoke issuing from a chimney was shown by the stroke at the East London Water Works, Sunbury, last year, the flash doing some damage to the capping before it arrived at the standpipe inside, which was a perfect earth in that it was in direct connection with the company's mains.

The general conclusions arrived at by the author are that there is very little advantage in placing isolated rods on an ordinary building unless it has a high tower. A church, for instance, with a spire should have at least two conductors from top to earth. Even then, if any other part of the structure happens to be in the path of a discharge from a cloud to the ground, the stroke may disregard the protected towers or spire and fall on the building, choosing some lower point. If the suggestion put forward by Sir Oliver Lodge at the Bath meeting in 1888 were more closely followed, and the conductors so arranged that they form a protective network over all the roofs, a flash would in all probability be received by some portion of the system and pass without harm to the ground by one of the numerous earths to which the network would be connected.

The insurance offices appear to disregard the question of adequate protection, and are quite content if the single conductor which has not prevented serious damage, for instance, to a church is replaced, and, moreover, take no steps to have the earth connection tested periodically; also the few unconnected lightning rods erected on our national museums, picture-galleries, and other public buildings contrast most unfavorably with the more scientific methods adopted on the Continent, more especially in Germany, where in some districts the local authorities have issued rules as to the erection and testing of lightning conductors, to which the various public bodies have to conform, and in some cities householders are subject to penalties if the system is allowed to get out of order.



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

HOUSE OF PROF. MAX LITTMANN, ARCHITECT, MUNICH-BOGENHAUSEN, BAVARIA.

THIS plate is copied from *Deutsche Bauzeitung*.

"SCIENCE": MODEL FOR A GROUP FOR THE PALACE OF MANUFACTURES, LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO. MR. GEORGE E. BISSELL, SCULPTOR.

CITY HAY-SCALES, MUNICH, BAVARIA. HERR HARTWIG EGGERS, ARCHITECT.

THIS and the following plates are copied from *Architektonische Rundschau*.

CHURCH AT NABBURG, BAVARIA;—TOWN-WALL TOWER, QUEDLINBURG, SAXONY.

TOWER ON USELOM ISLAND, PRUSSIA;—THE CASTLE TOWER, ROCHSBURG, SAXONY.

OLD HOUSES, LUNEBURG, HANOVER.

THIS plate is copied from *Blätter für Architektur*.

Additional Illustrations in the International Edition.

OFFICIAL RESIDENCE OF THE PRESIDENT OF THE PARLIAMENT AND THE HOUSES OF PARLIAMENT, BERLIN, PRUSSIA. HERR PAUL WALLOT, ARCHITECT.

THIS plate is copied from *Blätter für Architektur*.

TRINITY COLLEGE CHAPEL, CAMBRIDGE, ENGLAND.

ELY CATHEDRAL, FROM THE SOUTHWEST.

THE WEST FRONT: CARLISLE CATHEDRAL.



DEEP ENGLISH MINES.—With increased and increasing demand for coal came the necessity for opening our lower seams, and deeper shafts meant heavier capital expenditures in colliery enterprise. It is worthy of remark how little the outside public realize of the great difficulties that often have to be overcome in sinking—such as passing through water-bearing strata or running sands—or of the enormous cost entailed by some colliery developments. As early as 1829 John Buddle, in giving evidence before the House of Lords, declared that the cost of sinking, even then, was frequently £10,000 to £15,000, and J. T. Taylor stated before a select committee on rating of mines in 1857 at Haswell colliery, in the County of Durham, £40,000 was expended in contending with a quicksand, and that the shaft had ultimately to be abandoned. At Murton colliery, a few miles distant from Haswell, £300,000 was expended in sinking; the quantity of water pumped during the operation of passing through the overlying magnesian limestone bed amounted to an average of 9,306 gallons a minute from a depth of 540 feet; and the three shafts ultimately reached the Hulton seam, at a depth of 1,488 feet from the surface, in April, 1843. Many deep and costly sinkings—several much deeper than in the last instance—have been put down since the Murton winning, but none, I believe, at a greater expenditure of capital, owing, doubtless, to the greatly improved methods now employed in carrying on such operations through watery strata—notably the Kind-Chaudron system, whereby the shaft is bored out and the side protected by metal cylinders lowered from the surface; and the Poetsch or Goberat methods, whereby the water is frozen in the "running" sand or the other water-bearing stratum, and the shaft sunk through the solid mass.—*Engineering Magazine*.

ALMA-TADEMA PICTURES BY THE DOZEN.—Now that Alma-Tadema's pictures fetch almost any price—one we remember to have fetched £6,000—it is interesting to recall that once upon a time they were ordered by the dozen—"like gloves," Lady Alma-Tadema is reported to have said. This was when Mr. Gambart, the great picture-dealer, was at the height of his career, and, coming to London, found himself at the door of a wrong studio—at any rate, not the studio he intended to reach—and was asked by its owner, young Alma-Tadema, to enter. "Did you paint that picture?" asked Gambart, pointing to the canvas on the easel. The painter admitted the offence. "Well, then," said Gambart, "let me have twenty-four of the sort at progressive prices for each half dozen." The delightful bargain was struck; and proved to be mutually so satisfactory that, on its completion, four years later, another twenty-four pictures were ordered, and in due time executed. A silver jug, bearing a flattering inscription, and given by the dealer to the artist to commemorate the completion of the contract, is among the most romantic of the many souvenirs in the Alma-Tadema treasure-house in St. John's-wood.—*London Chronicle*.

MOSAIC RELICS IN ABYSSINIA.—When a monarch is aware that his claims to illustrious ancestry are treated with incredulity and a foreigner appears upon the scene and places in his hands a document proving the truth of his assertions, he is naturally disposed to feel most kindly toward the individual in question and to overwhelm him with favors. This is precisely what Hugues le Roux, an exceedingly clever Frenchman, half journalist, half diplomat, has managed to accomplish in Abyssinia. The ruler of that country has always insisted, like his predecessors on the throne, that he is descended in a direct line from the Jewish King Solomon and from the Ethiopian Queen of Sheba, the founder of the reigning house of Abyssinia, Menelik by name, having been born to the Queen shortly after her return from her memorable visit to King Solomon at Jerusalem. Le Roux, after obtaining permission from the Negus to visit the islands of the sacred lake of Zonai, in the interior, discovered there in a semi-ruined monastery papyri dating back to the days of King Solomon and the Queen of Sheba which establish the truth of the relations of the Ethiopian Queen and King Solomon, and ascribe to him the paternity of Menelik, the son to whom she gave birth on her return home, and who founded the present line of rulers of Abyssinia. So delighted was the present Emperor Menelik with this discovery that he not only conferred upon Le Roux the Grand Cross of his Order of Solomon, of which King Edward is the only other Grand Cordon, but likewise gave him permission to continue the railroad line from its present terminus of Diridana to Addis Adeba, the capital of the empire, only stipulating that Le Roux shall obtain the approval of the English government to the scheme. For, although the railroad, which runs from the French seaport on the Red Sea coast, Djibuti, was built entirely with French capital, it has now passed to a great extent into the hands of English investors. Both France and England have been endeavoring for years, without success, to get Menelik to allow the railroad to be continued from Diridana to the capital, and Le Roux's victory has given as much satisfaction to France as to England, since it will virtually have the effect of opening up the Ethiopian empire to the trade of both countries. Of still greater interest from a scientific and archaeological point of view is the permission which Le Roux has obtained from the Negus to institute a thorough exploration of the islands of the sacred lake of Zonai. These islands, which, until the day when visited by Le Roux, had never been seen, save in the distance, by any white man, are dotted with ancient monasteries, most of them in ruins, and only a few of them inhabited by ignorant monks, who have no knowledge or power to comprehend the importance of the treasures within the walls of their abode. For it is known that at the time of the great Mahometan invasion, about four hundred years ago, all the sacred relics and the treasures of the nation, all the historical records, and, in fact, everything of value, was bundled off to the monasteries of the island of Zonai and concealed there in order to protect them from being carried off or destroyed by the Moslems. It is a matter of tradition in Abyssinia and of belief in the scientific world of Europe that the original Jewish Ark of the Covenant, containing the Mosaic stone tables of law, the seven-branched candlestick and all the other treasures of the Temple of Solomon, which disappeared from Jerusalem at the time of the so-called Jewish captivity, were dispatched by the Jewish high priests for safety to Abyssinia, where the Queen of Sheba had, after her return from Jerusalem, established the Jewish faith, which subsisted until Christianity was introduced into the country a few centuries after the birth of Christ. It is generally believed that the Ark of the Covenant, along with all the other relics contained in the Holy of Holies of the Temple of Solomon, will be found in some of these monastery islands of Lake Zonai. Whether these suppositions are well founded or not, there is no doubt that thorough and systematic exploration of the sacred islands of Lake Zonai will result in finds of extraordinary value and interest from scientific, archaeological and historical points of view, since, owing to the jealous care with which foreigners have been kept away from the islands, they are from the point of view of the explorer to all intents and purposes virgin soil.—*Marquise de Fontenoy in N. Y. Tribune.*

THE "HOT-AIR COMPANY" OF BALTIMORE.—"One of the new enterprises that will be carried out in Baltimore's burnt district," said a lawyer from that city last night, "is the establishment of a heating and refrigerating plant for the supply of these two commodities throughout the section. I believe that 90 per cent of the new buildings along its pipe line will take their heat from this concern instead of producing it through individual boilers. This is popularly known as 'The Hot-air Company.' It proposes to put in metres which will register the amount of condensation, so that the consumer will pay with considerable exactness for the amount of steam that he uses, and will thus be under the same motives to be reasonable and economical as if he were furnishing the coal himself. The incidental advantages of such a system are very great. The danger from fire will be much lessened, and the insurance companies will doubtless give lower rates on the buildings which are so equipped. The city will invite bids from this company for heating the City-hall and Court-house, and these will be compared with the approximate cost under the old system.

One considerable economy is in the cartage of coal. For this central plant it could all be unloaded direct from the cars or canal-boats. It often costs more to carry a ton of coal a very short distance behind a horse than several hundred miles behind a locomotive, and the transportation of the fuel is one of the large items in the price of heat. Professor Woodbridge, I understand, is already making a study of the Washington public buildings with a view to a similar undertaking. I look to see considerable development of this idea."—*N. Y. Evening Post.*

WAGES AND HOURS OF LABOR IN BUILDING TRADES.—In the July report of the United States Bureau of Labor, of the Department of Commerce and Labor, an elaborate statement is presented of the wages and hours of labor in the principal industries of the country. We give below an extract from the report, showing the comparative wages and hours of labor in the building trades for the years 1903 and 1890, together with the percentage of increase or decrease in 1903 as compared with 1890. This comparison will be of especial interest at the present time, when the subject of labor in the building trades is so much to the front. In the subjoined list the wages column represents cents per hour, and the hour column hours per week:—

	Wages—			Hours—		
	1903.	1890.	Increase. Per ct.	1903.	1890.	Decrease. Per ct.
Bricklayers	55	43	27	48	53	10
Carpenters	36	27	33	49	56	12
Cornice-makers	41	29	41	48	55	12
Gas-fitters	42	30	37	49	56	12
Hod-carriers	29	23	27	48	53	9
Inside wiremen.....	41	26	57	49	56	13
Laborers	17	15	11	56	59	5
Lathers	38	32	18	46	55	17
Painters	35	27	29	49	55	12
Paper-hangers	36	28	28	50	56	11
Plasterers	53	37	44	47	54	12
Plumbers	44	35	26	49	54	10
Roofers, gravel and tar	26	22	17	57	58	2
Roofers, slate and tile	42	33	27	49	54	10
Roofers, tin.....	35	27	26	50	56	10
Steam-fitters	43	32	33	48	55	13
Stone-masons	45	37	21	50	55	9
Stone-setters	50	40	26	49	54	9
Structural iron workers	41	25	66	51	57	10

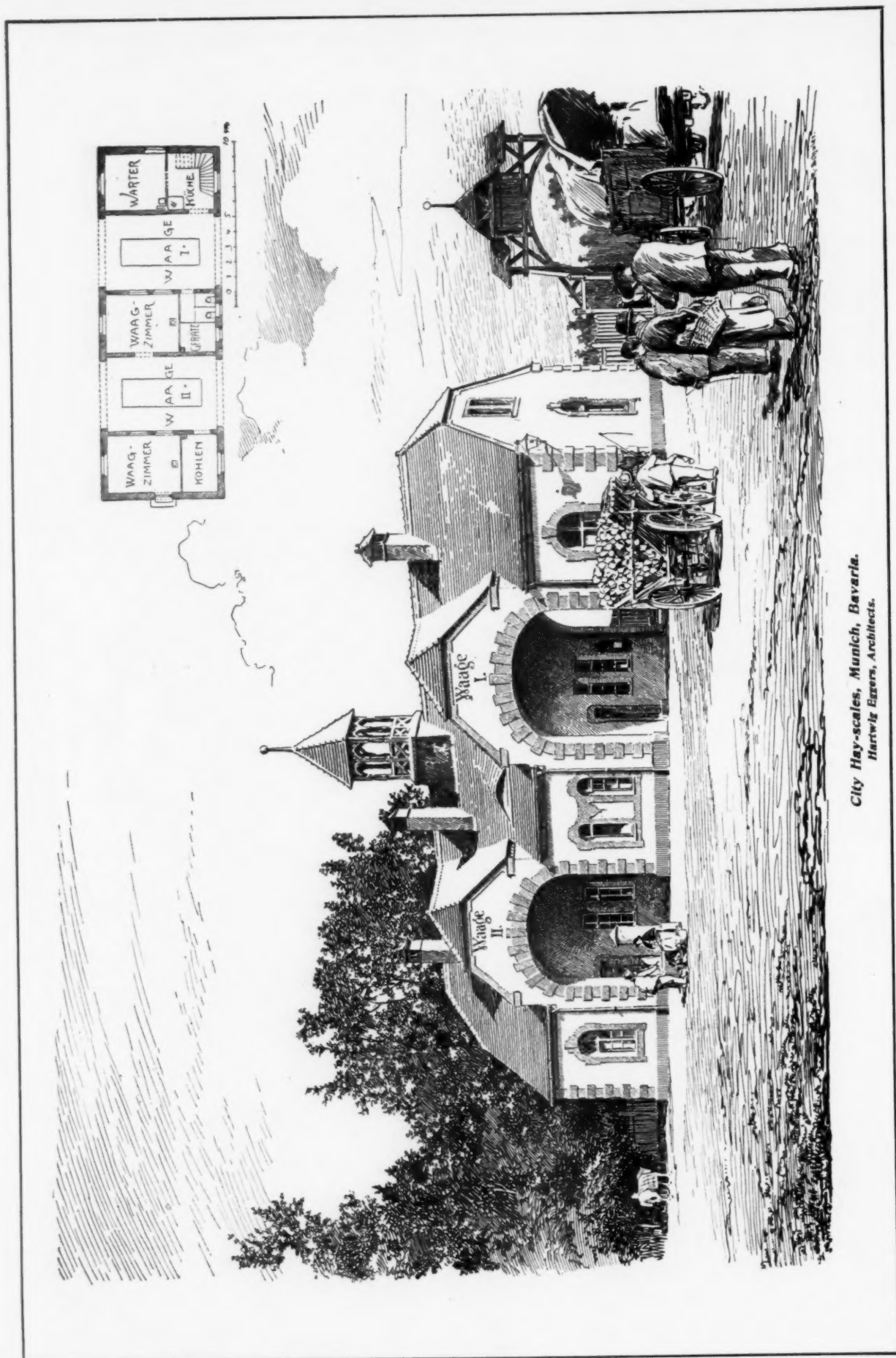
STREET-CAR AND MOTOR DUST.—With reference to remarks on the increase of street dust, in various towns, in articles in the papers, I fully concur in ascribing it to the action of the new cars and motors on the roads. These roads were not originally constructed for carrying mechanical vehicles, but only horse-drawn carriages, so that they will have, in due course, to be remodelled, and laid anew to meet the change in mode of conveyance. The wheels of cars and motors fulfil a double, and different function from those of a cart or carriage, as they have to bite the road hard, or dig into it for a *point d'appui*, as well as to support the machine. In a horse-cart or horse-carriage, the grip of the road is obtained by the four feet of the animal, and the wheel is left free to support the machine only, and so they have to roll smoothly over, and not grip the road as the motor-cars do. All four wheels of a motor are doing their weightiest to grip the road all round their tires, but the horse only grips it with two feet at a time, and this surface of contact is of only a small extent, and is as widely separated as the step. The motor wheel acts therefore as a grindstone, or marble cutter, and is driven by power machinery against the road, which it must eventually consume away, and disperse in gravel and dust. The wheels of a horse-carriage on the contrary act as conservative agents on roads, on the principle of the cricket or garden roller, when they are passive agents of the gardener, or ground-keeper, pushing or drawing them. The nuisance of the motor dust will therefore tend to increase, as those vehicles become more used, and the only remedy that would seem to apply to them is to make the roads of asphalt or concrete, so as to be impenetrable, or unimpressionable to the scraping action of the car.—*Wm. J. Black, F. R. C. S. E., in the Journal of the Society of Arts.*

THE ART DESTRUCTIVE AND THE ART PRESERVATIVE.—A trial was recently made in Austria to decide in how short a space of time living trees could be converted into newspapers. At Elsenthal, at 7:35 in the morning, three trees were sawn down; at 9:30 the wood, having been stripped of bark, cut up, and converted into pulp, became paper, and passed from the factory to the press, whence the first printed and folded copy was issued at 10 o'clock. So that in 145 minutes the trees had become newspapers.—*Exchange.*





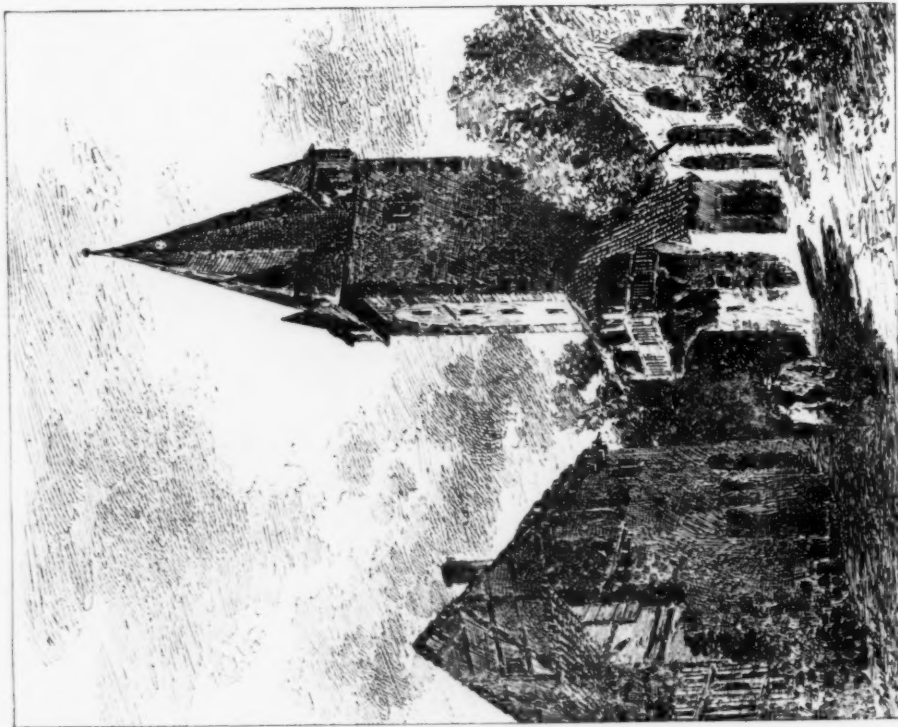
**"Science": Model for Group on the Palace of Manufactures: Louisiana Purchase
Exposition, St. Louis, Mo.
George E. Blissell, Sculptor.**



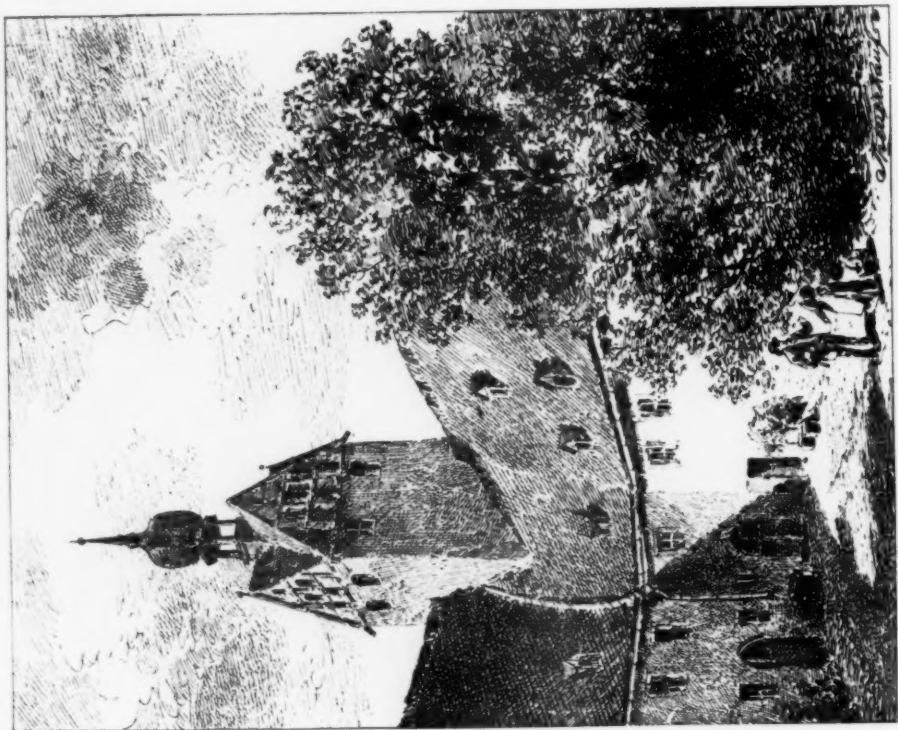
City Hay-scales, Munich, Bavaria.
Hartwig Eggers, Architects.

From *Architektonische Rundschau*.

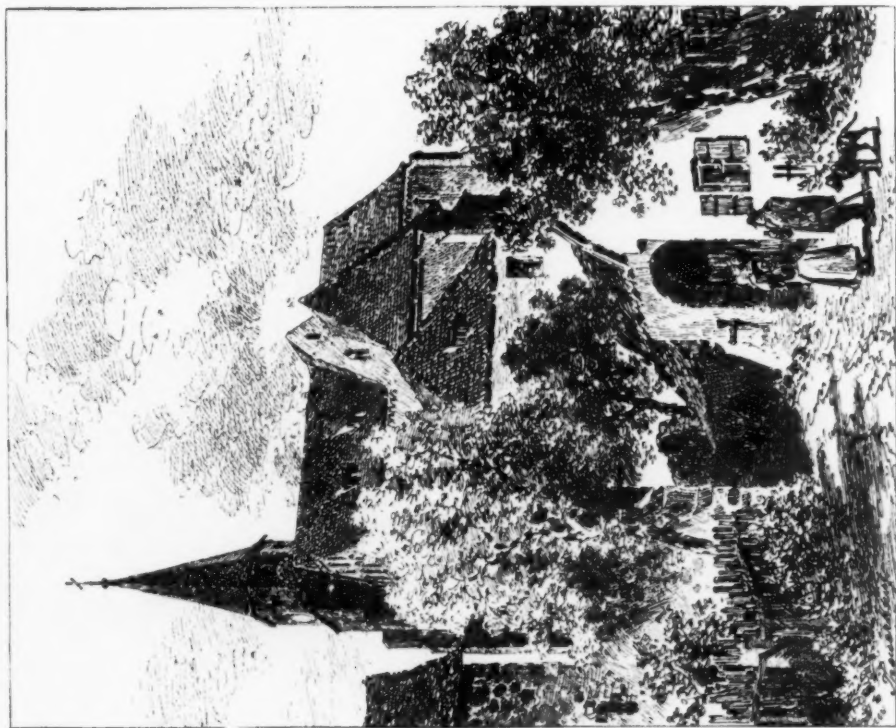
The American Architect
Sept. 17, 1904
No. 1499



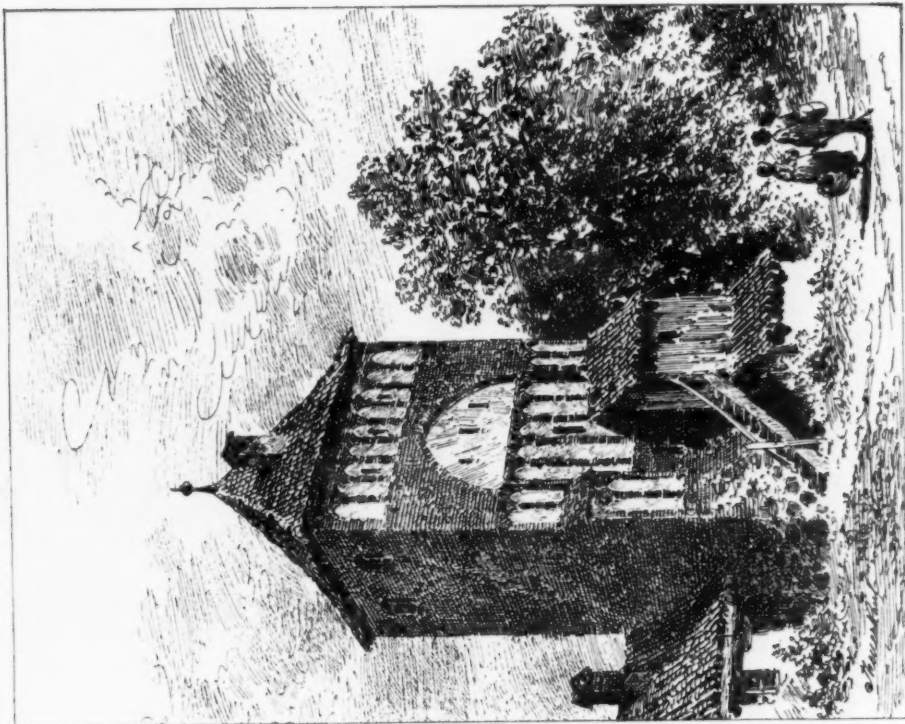
The Castle Tower, Rochsburg, Saxony.



Tower, on Usedom Island, Prussia.



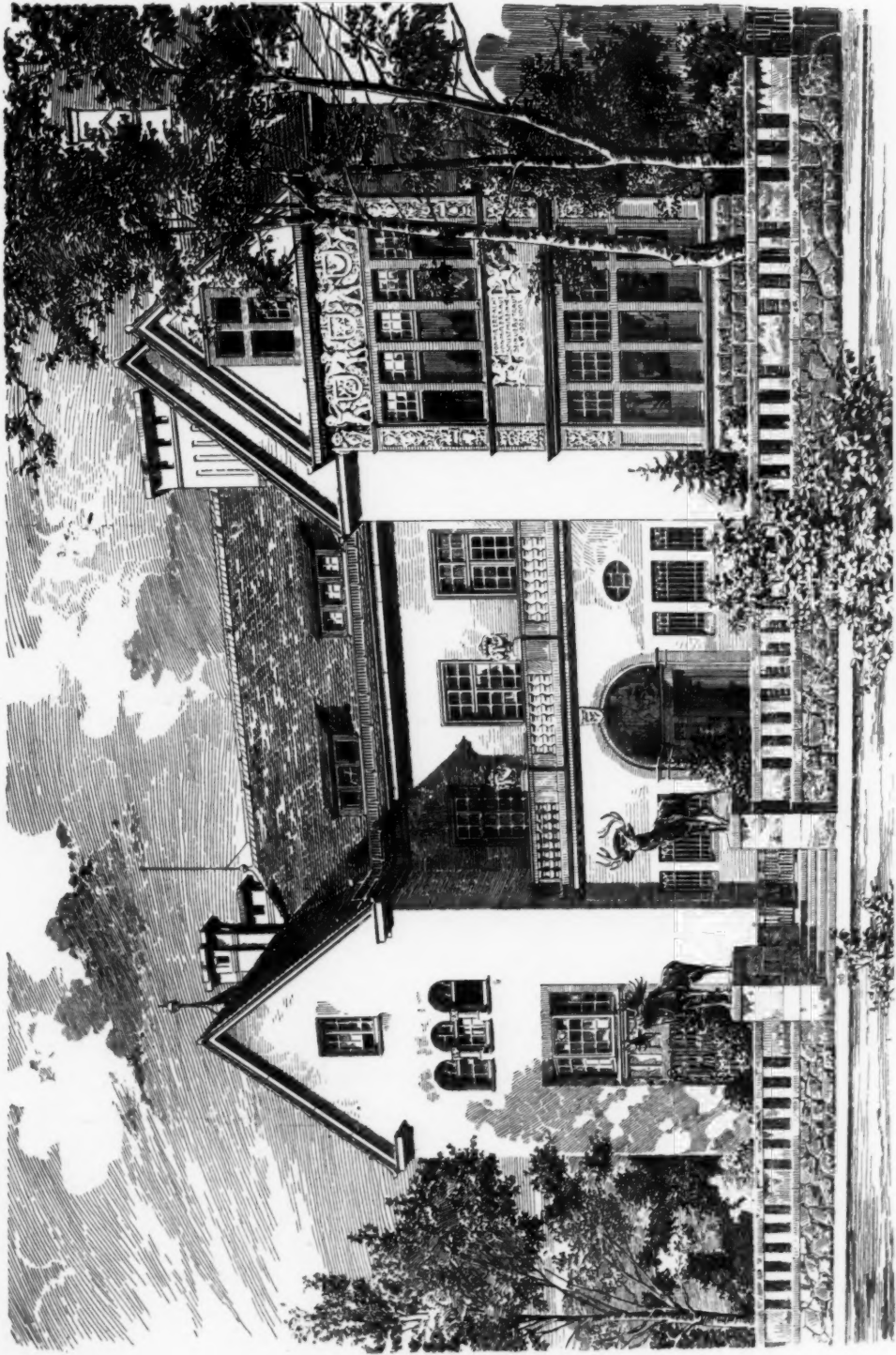
Church at Nabburg, Bavaria.



Town-wall Tower, Quedlinburg, Saxony.

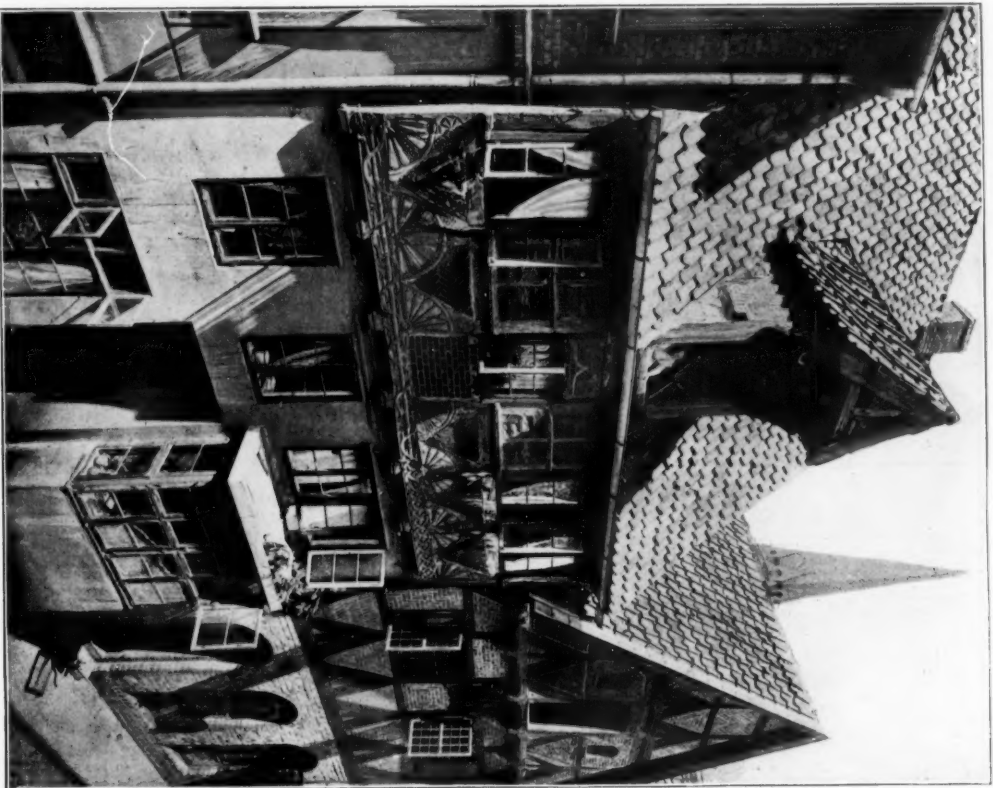
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House of Prof. Max Littner, Architect, Munich-Bogenhausen, Bavaria.

From Deutsche Bauzeitung.



[1576]

Old Houses, Lüneburg, Hanover.



[1630]