

“The Building Stones of Indiana”

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North Vernon Blue Stone, Greensburg, or Flat Rock, Stone, and many others.)

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“We find in the report of the geological survey of Indiana for the year 1878, a useful chapter on the occurrence and physical properties of the building stones of that State, from which we are enabled to make the following summary.

“The State of Indiana is extremely rich in this essential material. The limestones, however, constitute by far the most characteristic and valuable building stones in the State. In the following we give a summary of the qualities of the more important of these.

“North Vernon Blue Stone. – This stone is a bluish-gray limestone, moderately close-grained, with slightly conchoidal fracture, lying in seams from one to two feet thick. The principal centers where it is quarried are at North Vernon and Deputy. The total exposure of the North Vernon blue stone is about 30 feet thick, and the bed covers an extended area in Jennings and Jefferson counties. Geologically, it belongs in the Hamilton division of the Devonian. Of the entire exposure, two or three layers are considered of first quality. This stone has long enjoyed a fine reputation for massive masonry, such as foundations for public buildings, bridge abutments, etc., where great strength and durability are essential requirements. Chemical analysis shows the stone to contain about 90 per cent of carbonate of lime, with about 2 per cent each of carbonate of magnesia and of alumina and silicates. Tests of crushing strength by Gen. Q. A. Gillmore gave 15,750 pounds to the square inch. One cubic foot weights 165 ½ pounds, and the ratio of absorption is 1 : 156 – that is, a cubic foot will absorb less than a pint of water.

“Greensburg, or Flat Rock, Stone. – This is a light-colored, close-grained, magnesian limestone, belonging, geologically, to the Niagara group, which underlies the Hamilton. It is extensively quarried at various localities in Dearborn county, but principally in the vicinity of Greensburg, on San Creek, and St. Paul, on Flat Rock Creek, in Decatur county. The crop is from 20 to 30 feet thick, the layers varying in thickness from 4 inches to 2 feet. Flagging may be obtained of this stone in flags 50 by 200 feet, and from 6 to 7 inches thick, without break or flaw, and which will not vary one inch in thickness over the entire surface. Stone 22 inches thick may be had of equal superficies, if it were possible to handle such masses. An analysis of samples from the Greensburg Stone Company’s quarries gave as its composition 74.2 per cent carbonate of lime, with approximately 74.2 per cent carbonate of lime, with approximately 10 per cent of carbonate of magnesia, 6 percent of insoluble silicates, 6 ½ per cent of oxide of iron and alumina, and about 2 percent of chlorides of the alkalis. Gen. Gilmore gives the weight of a cubic foot as 169.98 pounds; the crushing strength of one cubic inch as 16,875 pounds; and ratio of absorption, 1 : 117.

“Two samples of the same stone from Flat Rock Creek, near St. Paul, gave about 83 percent of carbonate of lime and 6 per cent of carbonate of magnesia. The weight of one cubic foot is 168.09 pounds; and ratio of absorption, 1 : 336.

“The last three stones referred to are magnesian, or dolomitic limestones. They represent a large class of building stones, quarried not only in Indiana, but also in the adjoining States of Ohio and Illinois, such as the Dayton stone of the former State, and the Joliet and Lamont of the latter. No building stones in the West have been more thoroughly tested, or are better known to architects and builders. Being more expensive to dress than the oolitic limestones (about to be spoken of), this stone has been chiefly used in Indiana for foundations and bridge abutments, for which purpose it is well adapted.

“Among the most valuable building stones of Indiana may be classed the so-called oolitic limestones. They are of sub-carboniferous age, and chemically almost pure carbonate of lime. The most noted building stone of this series is obtained from strata believed to be the equivalent of the rocks that outcrop at St. Louis, and that are called St. Louis limestone in the geological reports of Illinois. The crop of this stone may be followed from Montgomery county on the north to Harrison county on the south. The workable beds are from 10 to 100 feet in thickness. The color ranges from grayish-white and bluish-gray to chalk-white. The structure, as before said, is oolitic (so named from its resemblance to the roe of a fish). The rounded segregated particles of which it is composed are sometimes so small as to be unrecognizable to the unaided eye, and again so large as to be quite conspicuous. It may be quarried in blocks of any size and thickness that may be desired. Prof. Cox reports that he has seen block of it cut out by the steam channeler 6 ½ by 9 ½ inches in thickness and 42 feet long, and, at one of the Bedford quarries, a block of similar thickness and 66 feet long. At most of the localities where this stone is quarried, blocks of much greater length, thickness and width can be obtained if required; and, says Prof. Cox. ‘Cleopatra’s Needle might be duplicated, should a market be opened for monoliths of that character.’ Chemical analyses of this stone from widely separated localities yield from 96 to 98 per cent of carbonate of lime, showing it to be an almost chemically pure limestone, and of remarkably uniform composition.

“The following record of tests of strength, etc., made on various specimens of this stone by Gen. Gillmore, will be useful for comparison: Simpson & Archer’s stone, quarry located four miles east of Spencer, on the Indianapolis & Vincennes railroad; weight of a cubic foot, 140.03 pounds; crushing strength per cubic inch 7,500 pounds; ratio of absorption, 1 : 30.

“Dunn & Co.’s stone, quarry near Bloomington; weight per cubic foot, 137.24 pounds; crushing strength per cubic inch, 13,750 pounds; ratio of absorption, 1 : 43.

“Chicago & Bedford Stone Co.’s stone, quarry at Bedford; weight per cubic foot, 146.56 pounds; crushing strength per cubic inch, 11,750 pounds; ratio of absorption, 1 : 28.

“Stockslager’s stone, quarry in Harrison county; weight per cubic foot, 149.59 pounds; crushing strength per cubic foot, 149.59 pounds; crushing strength per cubic inch, 10,250 pounds; ratio of absorption, 1 : 27.

“The foregoing data represent very fairly the character of the oolitic limestone of the State. It is remarkably uniform in composition throughout the State, being a nearly pure carbonate of lime; its average density is about 150 pounds per cubic foot; and its ratio of absorption will average 1 : 30.

“Concerning this stone, Prof. Cox is authority for the statement that it exhibits along its outcrop a remarkable resistance to weathering, and presents a bold and well defined face along the valleys. As a durable building stone, it has withstood the ravages of time in buildings for upwards of fifty years, and still retains the hammer and chisel marks nearly as shaper as when first cut. The density, as shown above, exceeds that of the celebrated English Portland oolite. It possess, also, greater strength than this, and is less absorbent of water. The reliable sustaining weight of a square foot of English Portland stone is 82,000 pounds; that of the Indiana stone is 135,000 pounds.

“Another excellent limestone is that found at Putnamville, in Putnam county. It is a close-grained hard, siliceous limestone, occurring in layers varying from 5 to 22 inches in thickness. It contains about 66 per cent of carbonate of lime and 27 ½ per cent of insoluble silicates, and very little magnesia. It is a very strong and durable stone; weight per cubic foot, 166.36 pounds, with a crushing strength of 11,750 pounds per cubic inch, and ratio of absorption, 1 : 170.”

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Visit these links for further information on Indiana limestone:

The Indiana “Quarries” section of our web site, Stone Quarries and Beyond, which begins at the link below:

<http://quarriesandbeyond.org/states/in/indiana.html>

“Indiana Limestone,” on Wikipedia

http://en.wikipedia.org/wiki/Indiana_limestone