The Wisconsin Sandstones

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"We present herewith a summary of the report of Prof. Allan D. Conover, special agent of the United States census, on the sandstones of Wisconsin, as published in the volume of building stones lately issued from the Census Office.

"The great bed of Silurian rocks which almost complete encircles the Archæan area of northern central Wisconsin, had, previous to the last census year, furnished practically all of the building stone quarried within the State. Every one of the grand divisions of the belt furnishes in one or more localities material fit for ordinary building purposes, though stone suitable for the finer class of work is as yet quarried at but few places. Within the Silurian area, to which the more thickly settled portions of the State pretty closely correspond, except where a very deep covering of glacial drift exists, there are but few regions where rock fit for the most ordinary building purposes cannot be obtained everywhere within a few miles, and almost every large town or city has within its limits, or near by, quarries of sufficient capacity to supply its own most pressing needs for that sort of building material. But there were, previous to 1880, no localities (except at Bass Island in the Lake Superior region) where building stone had been quarried in any quantity for export beyond the State, and but a few where it had been quarried for other than a local market. There are indeed but few places where the Silurian formations yield large quantities of easily-obtainable stone of such character as to be in very general demand. The Niagara group furnishes several of these places in the vicinity of Milwaukee; the Trenton group, (Galena limestone), a number along the Lower Fox river, and Duck creek, in Outagamie and Brown counties; the St. Peter sandstone, a barely possible one at Red Rock, near Darlington, La Fayette county; the Lower Magnesian but one, at the Prairie du Chien quarries and in their immediate vicinity, Crawford county; and the Potsdam sandstone, in the Apostle Islands, and possibly along the coast of Bayfield and Douglas counties.

"The main body of Potsdam sandstone in southern Wisconsin is made of a medium-grained, somewhat rounded, siliceous sand, the particles cemented together either by a fine siliceous powder of the grains themselves, or by a coating of carbonaceous or ferruginous cement. Where the first is the cementing material the stone is exceedingly friable and useless as a building material, but where the cementing material is either of the other two, the rock is generally of a compact and durable character, and furnishes some excellent building stones. Sections of this formation in different parts of the State show a varying thickness, reaching as much as 700 feet in the central southern part. Of this the middle, and by far the greater part, is loose friable stone, much of it easily separated into sand by light blows. Exceptions to this occur in numerous places where the sandstone was deposited close to the Archæan area, as at the Stevens Point quarries and those near Grand Rapids, at which last place the stone is a very valuable one, and is referred by Prof. Irving to the middle portion of the Potsdam. Another exception of like character occurs along the quartzite ranges of the Baraboo region, where many facts go to show the probability of two separate sandstones laid down at different periods.

"Wherever, along the quartzite ranges of that region, the sandstone is found resting immediately upon the quartzite, it furnishes a medium-grained, compact, massive sandstone of great durability, which can be quarried in very large blocks, is of uniform texture throughout, free from flaws, and of colors from light straw and nearly white through various shades of light pink, the varying colors being due mainly to changes in the cementing material. The two large quarries of this sandstone at Ableman's have furnished a very large amount of stone for bridge and culvert purposes along the line of the Chicago and Northwestern railroad. The hardness of the stone and consequent difficulty of dressing have so far prevented its use for general building purposes. There is a large number of localities throughout the same region where this stone occurs, and everywhere presents the same character, and has in many places been quarried to some extent.

"The upper beds of the Potsdam also furnish in the southern part of the State two layers – one of sandstone, underlaid by the other, an impure dolomitic limestone – which immediately underlie the Lower Magnesian limestone and occur everywhere just below the base of that formation wherever the latter is exposed in the half circle in which it comes to the surface. These beds have been given the name of Madison sandstone and Mendota limestone.

"The Madison beds, wherever they occur, are rarely less than 35 feet thick, often more, and furnish frequently a slightly calcareous sandstone, which is generally a very good building stone, although never occurring in layers of a thickness suited for large ornamental stone. It is of various shades, from yellow to a light dull brown, and has been much quarried wherever found, because of the ease with which it can be shaped into appropriate forms. It gradually hardens and changes upon exposure to a rather dull yellowish-brown, and has been quite extensively used at Madison and in the surrounding country, and in many villages in the region where it occurs.

"The Potsdam sandstone of the region of Lake Superior is of a character somewhat distinct from that in southern Wisconsin. Where exposed in Wisconsin it is composed of siliceous grains, medium to somewhat coarse, held together by a cement usually either ferruginous or argillaceous in its character, and is generally stained from yellow to deep brown by the Ferruginous matter. It furnishes a very handsome building stone; and is quarried in masses of almost any required size. The chief difficulty of the stone as a fine building material arises from the fact that it contains, wherever yet quarried, numerous clay pockets which are liable to badly pit the finished surface. They are likely to be found anywhere in the stone when it is worked, and where ornamental relief work is being done the nearly-completed piece is often entirely spoiled by opening into one of these pockets, or the completed piece is badly defaced by the subsequent breaking away of a thin skin of sandstone and the dropping out of the clay. The difficulties which arise in this way can, of course, be partly overcome by having all the cutting, shaping and finishing done at the quarries, thus saving the cost of transportation of the useless pieces. This characteristic of the stone has proved a great drawback to its general use. Many exposures from which the stone could be readily quarried and shipped directly upon vessels are found on the islands of the Apostle group, and some are found along the coast of Bayfield and Douglas counties.

"At Bass Island (Apostle Islands) a large quarry was opened in this sandstone, and was extensively worked during the first three or four years of the last decade. Quite heavy stripping of clay is required, and below this there is exposed a quarry face of 26 feet of good stone; below

this the stone is inferior. In this depth there are three layers, which in places unite. The joints are inclined about 60º and are spaced about 50 feet apart. Between these and within the beds the stone is uniform in texture and color, and without seams or cracks. It is of very much the same grade as the Marquette stone, but free from its variations of color. The quarry has been abandoned for several years, and was not worked during the census year.

"The St. Peter sandstone consists almost everywhere of somewhat rounded siliceous grains, sometimes entirely uncemented, forming beds of very pure sand, and sometimes cemented to a quite hard and durable stone, which is everywhere, however, very much cut up by irregular seams or joints, themselves filled with arenaceous material dividing the rock into angular fragments. The material of these seams, however, sometimes cements the fragments well together. The rock is used to some extent as a building stone in the town of Portland, Jefferson county, and in the southwestern part of the State, but only for cellar wall purposes. At Red Rock, in the valley of the Pecatonica, in Southern Iowa county, near Darlington, there is a remarkable exposure, of this rock, which appears to have been an upheaval. The stone can be obtained in blocks as large as 6-foot cubes, apparently without flaws. It is, however, much cut up by the fine irregular seams alluded to above, and it seems doubtful whether the desirable deep tint of brown is the color of more than a small portion. The stone in the railroad cut approaches a brick-red in color, and this grades to a deeper color, nearly brown at the quarry spot, beyond which it gradually passes into a grayish-pink. It is in general appearance much the handsomest building stone found in that part of the State, but some considerable stripping of worthless stone is required."

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The Wisconsin state section of our web site, Stone Quarries and Beyond, is not online yet. Below are some online links in case you would like to read about the Wisconsin Quarries.
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"**Quarrying Industry in Wisconsin**," presented by the Wisconsin Historical Society in the Dictionary of Wisconsin History
http://www.wisconsinhistory.org/dictionary/index.asp?action=view&term_id=11558&term_type_id=3&term_type_text=things

Krukowski Quarry, a sandstone quarry near Mosinee, Wisconsin, on Wikipedia
http://en.wikipedia.org/wiki/Krukowski_Quarry

Basswood Island, on Wikipedia. "…It was also the site of a quarry run by the Bass Island Brownstone Company which operated from 1868 into the 1890s…."
http://en.wikipedia.org/wiki/Basswood_Island

Bass Island Brownstone Company Quarry, located "...also known as the Basswood Island Quarry, on Basswood Island in Lake Superior was operational from 1868 to 1893....," on Wikipedia
http://en.wikipedia.org/wiki/Bass_Island_Brownstone_Company_Quarry