

the formation and are numerous exposed at various localities on the north border of the Adirondacks in such situation as to indicate clearly their horizon. At Potsdam itself the section is complicated by faulting, and the horizon of the red sandstone there can not be demonstrated, though inferentially it is low in the formation. Along with the red there is much hard, glassy, brown sandstone, also containing fresh feldspars, but lacking the hematite coloration of the red beds. Above, the reds become striped and mottled with white, forming a species of passage beds to the middle division.

Van Ingen is the only observer who has undertaken to differentiate between the middle and upper portions of the Potsdam. He says:

The middle portion of the sandstone is made up of well sorted materials, of finer grain, compactly cemented, and of white, steel gray or yellowish color, with very little or no feldspathic content. The grains of sand are both angular and rounded, with the former predominating. The layers are more regular, though their surfaces are ripple-marked, and in section they are seen to be almost universally cross-bedded. Pebbles are found on the surfaces of some layers of the middle portion, but unlike those of the upper portion they seem to have been of soft mud derived by erosion of contemporaneous sediments, cast on the beach at times of rough water and flattened and squeezed out by the subsequent pressure and consolidation of the superimposed sand deposits.

The upper portion of the formation has frequent beds of irregular laminated sandstone, with partings of greenish arenaceous shale. The shale surfaces are covered with fucoids and worm trails. Pebbles of shale and dolomite, which were hardened before the time of their entombment, are found embedded in the sandstone layers, and their disintegration causes cavities to form in the layers containing them. The dolomite pebbles become more abundant toward the upper horizons. In the upper levels frequent beds are composed of nicely rounded grains of clear quartz with a little cement, that crumble to a sugary powder under the hammer. Rounded grains of quartz of a slightly larger size occasionally cover the upper surface of a layer of finer grained sandstone, and, being without cement, they stand out in relief above the surface with an appearance of having been sprinkled from a pepper pot.<sup>1</sup>

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<sup>1</sup>*Op. cit.* p.543-44.