CONCRETIONS IN LAKE DEPOSITS AT ELYRIA, OHIO

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Excavations near the corner of Middle Avenue and Sixth Street, Elyria, made preparatory to the erection of heating plant extensions for the school buildings located there, have brought to light some calcareous sand and clay concretions in the making.

The pit is twelve or fourteen feet in depth. The section is as follows:

4. Filling, artificial, (clay, brick-bats, crockery, etc.), 2 ft.
3. Brown to yellow sands and clays.....8 ft.
2. Blue and blue-gray clays.....2 ft.
1. Blue sands.....1-2 ft.

Layer number one is micaceous sand and in parts argillaceous. It gives under the weight of horses and wagon and behaves much like quicksands. It seems to be full of water, but the water is not flowing through. Layer number two is dryer and is variable in thickness, the upper surface being quite uneven. In places the layers above seem to be pushed into it. In other parts a yellow stain seems to have penetrated the blue clays from some point or line of seepage, in concentric spheres or layers. Thus the yellow above and the blue below are mutually interpenetrating and uneven. It is along this uneven contact that the concretions occur. The circulating water responsible for the concretions seems to be moving through layer three and descending to number two.

Some of the concretions are small and of indefinite boundaries and shapes, some are larger and resemble in shape lemons, cocoanuts and even vases a foot high, with a diameter of three or four inches. Most concretions have a nucleus of some sort. In many of these there seems to be a twig or branch of wood, a quarter of an inch to an inch in diameter, which reaches the whole length of the structure. In most cases, this twig retains some of its woody structure and fiber. The clay and sand

surround the stem and the cementing has been done in concentric shells. Layers are thicker in the central part, which fact makes the concretion thicker in its equatorial zone. Only partial cementing has yet been effected, and acid tests indicate that the cement is calcium carbonate.

All the concretions were yellow or brown, although embedded in the blue clays. It is obvious that oxidized iron from the upper layers is penetrating the blue with the calcium carbonate and that both are being deposited, thus solidifying the clay and sand of the concretions. Yet the structure is still soft and can be easily cut with the finger nail. We have here a number of concretion shapes still in the process of making.

A few hundred yards north or down the slope lakeward from this deposit is the shore line of Lake Whittlesey, a precursor of the present Lake Erie; and some three miles south is the abandoned beach of the Maumee stage. This latter beach is known east of Elyria as Butternut Ridge, and the former is now occupied through the business section of town by Main Street. The clays and sands then are between the Maumee and Whittlesey beaches and therefore belong to the Maumee Lake stage. While Maumee Lake was held in on the north and east by ice and overflowed through the Fort Wayne, Indiana, outlet, its waves and currents built the Maumee beach around the Elyria embayment, and on its floor were laid the clays and sands found in the excavation. Hence the concretions can be correlated with the Maumee Lake stage and can be shown to be wholly post-glacial. Concretions have been completed in a time period equal to this, but those found at Elyria seem to be still in the process of growth and cementation.