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THE GEOLOGY OF BURNHAM BROTHERS CLAY PROPERTY

by

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1929

*Misc
Clay Reports*

*50 Be...
5 mil*

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The purpose of this study was to determine the geology of the clay on this property in order that estimates might be made of the yardage of each type available.

Location

This property is south of South Milwaukee, and lies between the Chicago and Northwestern Railway and T.R.15 in the west half of the SE $\frac{1}{4}$ of section 14, T.8-R.22E.

Burham Brothers Pit

At the present time they are excavating clay from a relatively small opening, which, however, furnishes the most complete section available on the property. The section is as follows:

Surface Elevation - 100 feet above Lake Michigan

I. 1 foot- Sandy, gravelly, clay.

The elevation of the property varies slightly. This variation appears to be due in large measure to this sandy gravelly clay which varies in thickness from 1-12 feet.

II. 48 feet- Massive blue till with scattered pebbles. This clay breaks down as a unit and appears to be free from any structural features. All brick in the past has been made from this clay. Just to the north of the present workings is an older pit which has been worked to a depth of 25 feet over an area of at least four acres. From the exposures and glacial geology it seems likely that the character of this clay will continue relatively uniform over the property. There may be small local changes in the proportion of pebbles.

III. 1-2 feet- Sand. This seems to mark the transition between the blue till above and the lacustrine clay below. At the house across the road to the west a well 60 feet in depth goes down through clay to a sand bed from which water was obtained. This well has gone dry since the new brick pit has been deepened below the sand bed. This suggests strongly that the well went through blue till similar to the pit into a similar sand bed. Since the sand was water-bearing it seems likely that the impervious bed below the sand is the same lacustrine clay that we find in the pit. The thickness of this bed may vary somewhat throughout the property.

IV. 6 feet- Lacustrine Clay. While but six feet is now exposed the pit is at least six feet deeper and is still in this material, but the deeper material was under water. The present exposure shows
4" Reddish brown clay - elevation 50 feet.
1" Reddish gray silt
4" Reddish brown clay
1" sand

Below this level the clay beds are about 1 foot in thickness and separated by sand beds about 1/8 inch in thickness. The clay beds all contain considerable silt.

In this pit it appears that the top of the lacustrine deposit is at a relatively uniform height and the beds horizon al. So far as could be determined the lacustrine deposit is entirely free from pebbles.

Lake Bluff Section at Old Cahr

Brickyard in SW $\frac{1}{4}$ NW $\frac{1}{4}$ of section 13, T.5-R.22E. Surface elevation 66.14 above Lake.
2.79 feet pebbly yellow clay till
4 feet Stratified fine sand and silty clay. Elevation top 66.35
6 feet Contorted beds of silt and clay. This contortion is probably due to a readvance of the ice.

Below this it is difficult to get a section that is certainly undisturbed. About 25 feet above the lake is a clear cut exposure of horizontally bedded laminated fine sand and silt. Ten feet above the lake is an exposure of horizontally bedded silt. Below this is contorted laminated silts lying on the irregular surface of massive blue till containing cobbles up to 5 inches in diameter.

It is clear, that this section from 61.35 feet down to 10 feet above the lake is all a lacustrine deposit which is very similar to the lower clay in the new Burnham Pit. This gives a thickness of 51.35 feet of pebble free lacustrine silt and clay.

Basine section in NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 13, T.5-R. 22E.

4 feet-Boulder Clay

Contorted beds of coarse sand and clay resting on an irregular surface of lacustrine clay.

36 feet-Lacustrine clay. Blue laminated silt and clay from elevation 61 to 25 above the lake or a total thickness of 36 feet.

20 feet-Silt fairly horizon ally bedded with some pebbles.

5 feet-Blue boulder clay.

Summary

The three sections given above are from a triangle in which the first is about 6/10 of a mile from the second and third which are about 1/4 mile apart. It seems quite certain that these sections furnish a reasonable basis upon which to estimate the thickness and extent of the clay beds on Burnham Brothers property. Bed I has been described above. It seems certain that this will vary somewhat in thickness but will not be sufficiently thick to render the cost of stripping prohibitive. Bed II. This was deposited directly by melting ice. Since the topography is relatively flat, it seems quite certain that the top of this formation will not vary greatly in elevation. This bed does not appear in either of the lake sections. Since this blue till was deposited by ice that over-rode the lacustrine clay, it is to be expected that the lacustrine clay may have been removed to a greater depth in some places than in others.

We have found the elevation of the top of the lacustrine clay to be 50 feet, 51.35 feet and 51 feet above the lake, indicating a very striking uniformity in elevation. It seems quite safe to assume that the thickness of blue till over the part of the land to be worked is about 40 feet.

The thickness of the lacustrine deposit at the pit is not known. Near the old Gahr plant there is 51.35 feet. In the ravine section there is at least 35 feet. If we include the 20 foot silt bed there is 36 feet.

There is, of course, a chance that the boulder clay found at the base of the bluff may rise to higher elevation farther west, thus reducing the thickness of the lacustrine clay. There is also a chance that this boulder clay lies at a lower elevation thus making a greater thickness possible. It seems conservative to assume the 36 foot thickness on the Burnham property.