

State Department of Geology and Mineral Industries

1069 State Office Building
Portland 1, Oregon

PARRETT MT. DIATOMITE

~~NEW DIATOMITE DEPOSIT IN THE PORTLAND AREA~~

Washington

Location: W $\frac{1}{2}$ sec. 3, T. 3 S., R. 1 W., Washington County. The area lies on the lower slopes of Parrett Mountain, a southeasterly extension of the Chehalem Hills. Diatomite occurs in a swale at an elevation of about 150 feet above sea level approximately 2 miles southeast of Sherwood.

Owner: E. J. Chan, Route 3, Box 17, Sherwood, Oregon.

Geology: The deposit appears to be part of a Pleistocene or Recent lake filling in an unnamed swale that runs south and slightly east into the Willamette River about 3 $\frac{1}{2}$ miles away. The bedrock cropping out on both sides of the swale is Columbia River Basalt, which appears to dip gently northeastward from the crest of Parrett Mountain.

The topography consists of low, rounded hills underlain by basalt, and the diatomite is only exposed in the bottom land as a contaminant in the surface soil. The areal extent of the deposit cannot, therefore, be determined except by putting down auger holes or digging ditches, but the general outline of the basalt-rimmed swale would give a close approximation. According to Mr. Chan, a water well 15 feet deep penetrated at least a 10- to 12-foot section of diatomite before bottoming in gravel. The location of the well is near the edge of the swale, and it is possible that the diatomite is thicker in the central portion of the old lake.

Nature of the deposit: Most of the diatomite examined came from just beneath the surface soil. This material is damp, contains a large amount of vegetable material, and is medium to dark gray in color. An air-dried diatomaceous sample obtained by Mr. Chan from a 2- to 3-foot hole near the

center of the swale was almost pure white in color. Aside from a thin soil cover, most of the diatomite appears to be right at the surface with little or no overburden.

Several samples were examined under the microscope and all appeared to be of about the same composition. This deposit contains the greatest variety of diatoms of any location I have sampled in Oregon. The predominant type is the rodlike Melosira, and although highly fragmented, there appears to be at least two or three species of this genus in the sample. Other varieties tentatively identified under the microscope are as follows: Synedra (up to as much as 0.4 mm in length), Fragilaria, Cymbella, Epithemia, Coscinodiscus, and an unidentified acicular species. A few fragments having a smooth tooth-like tubular shape appear to be sponge spicules.

The amount of clay-glass contaminant in the samples is quite low, no more than 10-15 percent, most of which is in the form of volcanic glass. The diatoms are highly fragmented for the most part and, except for a few large specimens of Synedra noted above, average less than .02 mm in size.

The deposit has one major drawback; the diatomite lies below the water table, which is at or near the surface for most of the year. As almost all diatomite must be calcined before it can be sold, the cost of heat treatment on this material would be quite high. Diatomite has very good insulating properties, and air drying usually affects only a narrow rim on the exposed surfaces. If this deposit were in eastern Oregon, it is possible the swale could be drained and the diatomite dried out to a certain extent over a period of several years, but the climate in western Oregon does not lend itself to this type of operation.

The best features of this deposit are its proximity to Portland (less than 20 miles) and the relative "cleanness" of the material. It is possible it could be used locally as a filler in paints or asphalt where preliminary calcination would not be necessary, and its economic potential would depend in large part on the development of such a local market.

Report by: R. E. Corcoran
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