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REPORT ON DIATOMITE FROM NETTLE CREEK, QUEENSLAND

by

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MINERAL RESOURCES SURVEY BRANCH.

REPORT ON DIATOMITE
FROM NETTLE CREEK, QUEENSLAND.

Report No. 1943/62.

Two samples of diatomite were recently received from the Broken Hill Pty. Co. Limited for microscopic examination. They were from Nettle Creek, 8 miles north-east of Mt. Garnet and near Innot Hot Springs.

The diatomite is of Recent origin. The diatom content is unlike that of other diatomites examined from Queensland, all of which are composed almost entirely of Melosira and are usually associated with volcanic rocks. Many of the diatoms present in the Nettle Creek material are similar to those recorded from swamp and lake deposits of similar age in Western Australia, but the diatomite itself is purer than the Western Australia material.

The diatomite from Nettle Creek is grey in colour, light in weight and consists of abundant well preserved diatoms. Similar diatoms are present in both samples but in Sample 1, there is a considerable amount of finely comminuted material, chiefly very fine fragments of diatoms. The diatom assemblage in both samples is dominated by two genera. One is Epithema, which, when complete, is broadly elliptical in shape, but which is commonly represented by a single crescent shaped valve. The other form is Diatomella, which is broadly rectangular in shape. Associated with these two genera are Diatoma, Cymbella, Navicula, Pinnularia, Amphora, Synedra and numerous sponge spicules. The variation in size and shape of the component diatoms and the abundance of the various genera indicate that the diatomite may prove to be of value for filtration purposes.

The results of the microscopic examination are given below. The species numbers given for certain diatoms refer to those figured in Miscellaneous Report, No.3, 1943.

Sample 1. The diatomite is grey in colour, and contains a small quantity of impure material as well as a large percentage of minute broken frustules of diatoms. Unbroken diatoms are well preserved. Sponge spicules measuring up to 120 microns in length are also present. Diatoms include abundant frustules of broadly elliptical Epithema, complete valves measuring from 70 to 90 microns in length and 20 to 25 microns in width, single valves measuring up to 90 microns in length; and of the broad rectangular shaped Diatomella, measuring from 10 to 22 microns in length and 10 microns in width. Other forms include the narrow rectangular shaped Diatoma, measuring 25 microns in length; a small species of the needle-like Synedra, varying from 25 to 45 microns in length; the stout ovate Diploneis (rare) with a length of 20 microns and width of 15 microns; the long stout Amphora, with a length of 60 to 90 microns, and the boat-shaped Cymbella (rare), with a length of 45 microns.

Sample 2. The diatomite is pale grey in colour and contains less impure material than Sample 1. Sponge spicules are fairly common, a thick variety measuring from 90 to 270 microns in length, and a fine form up to 400 microns in length.

Diatoms are abundant and well preserved, the most prominent genera being Epithema and Diatomella. Both complete and single valved specimens of Epithema are present. The length of the frustules vary, the single valves measuring from 45 to 130 microns in length. The greatest width of complete specimens is 25 microns, the length being similar to the single valves. The broad rectangular form Diatomella is very common and varies from 10 to 22 microns in

length and has a width of 10 microns. Two species of the needle-like Synedra are present. A short form has a length of 45 microns and the long one up to 300 microns. The narrow rectangular Diatoma is 22 microns in length. The boat-shaped Navicula and Cymbella are present but are not common. Cymbella sp.1 varies from 45 to 70 microns in length. Three species of Navicula have been recognised. Species 1 measures 45 microns in length; Species 3., 50 microns in length and species 4, 45 microns in length and 20 microns in width. Two species of Gomphonema are present, species 1. measuring 45 microns in length and species 2, which is fairly common, 30 microns in length. Two species of Amphora are recognised, one form, species 3, being from 60 to 90 microns in length and 20 microns in width and the other, species 5, 45 microns in length. Several broken frustules of the long ovate Pinnularia are present, only one complete frustule, measuring 110 microns in length, being recorded.

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