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MERTON' CLAY DEPOSIT
PARISH OF QUEANBEYAN

by

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CHIEF GEOLOGIST

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During an inspection of limestone deposits at White Rocks on 2/11/50, samples of weathered granite were collected from a quarry on the eastern side of the Queanbeyan-Cooma road, about 150 yards south of the two-mile peg. This quarry is in the Queanbeyan Clay Deposit described by W.G. Woolnough in departmental reports dated 17/2/28 and 20/6/28.

If the rock can be economically crushed and worked, it may be suitable for the production of sewer-pipes and other impervious ware. Inferred reserves exceed 10,000 acre feet or 15,000,000 cubic yards.

Description of Samples.

Five grab-samples were taken from different parts of the quarry face to give a roughly representative bulk-sample. One specimen from the surface and one from deeper in the quarry were crushed and examined under the microscope. Both specimens are of granite consisting entirely of quartz and partly kaolinized albite feldspar, with no trace of mica or ferro-magnesian minerals. Both contain more albite than kaolin, and the specimen from deeper in the quarry is slightly more kaolinized than that from the surface and contains much larger quartz grains. These specimens are typical of the rock throughout the quarry - the only major variation is in the proportions and grain-size of quartz, feldspar, and kaolin. Woolnough suggested that the "clay" is stained with compounds of vanadium, but the only stains visible are limonitic stains near the surface of the quarry and faint green stains on joint-planes containing traces of iron, probably in the ferrous state, but no vanadium.

Reserves

The only available plan of the area is a general geological map of the Canberra-Tharwa Area prepared by G.E. McInnes. This shows that the granite outcrops over an area of about 300 acres. It strikes south-west, across the road, and forms a ridge which rises to 95 feet above the creek at the quarry. If, as suggested by Woolnough, the granite has a uniform composition, inferred reserves of granite similar to that in the quarry may exceed 10,000 acre feet or 15,000,000 cubic yards.

Uses.

The weathered granite may be suitable for the production of sewer-pipes and other impervious ware if it can be economically crushed and worked. Woolnough stated that Mr. Cooper, then Manager of the Canberra Brickworks, was carrying out practical tests on the material from the quarry, but the Bureau of Mineral Resources has no record of the results of these tests. It would therefore be advisable to have further tests carried out if the rock is suitable for crushing.

Information and tables given by Searle (Refractory Materials: Their Manufacture and Uses, C. Griffin and Co., Ltd, London, 1940) indicate that a mixture of quartz, feldspar, and kaolin, such as this granite, would give a dense vitreous body when fired somewhere between Seger Cone 1 (1150°C) and Cone 9 (1280°C); the best firing temperature would be dependent on the proportions of the minerals, the quality of the kaolin, and the fineness of grinding.

The granite exposed in the quarry is all slightly friable but not puggy, even after rain, so the fine-grained parts may be suitable for crushing in a hammer-mill. The coarse-grained granite, however, may not be suitable because its larger quartz grains would have to be crushed or separated in some way from partly crushed rock.