

UNPUBLISHED REPORT 1963/10

**Descriptions of samples from a percussion drill hole
at Dowsings Point**

by G. B. Everard

The following is an account of the deposit penetrated by the percussion drill at Dowsings Point, with some speculation as to its origin.

Prince of Wales Bay Borehole

100'

Mainly rounded fragments of tuff. In the fines: pyroxenes discoloured by green chloritic stains, cleavage flakes of feldspar showing twinning, and olivine. Much carbonate and green chloritic material. Angular and rounded fragments of quartz, zircon and garnet.

110'

Rounded fragments of tuff, fresh or showing only surface weathering, fragments of quartz, feldspar and olivine and much carbonate. In the fine material the same minerals prevail as at 100' with the addition of a little biotite.

120'

Loosely consolidated sand consisting of sub-rounded and sub-angular fragments of tuff up to 2 or 3 mm across and smaller fragments of quartz, feldspar, pyroxene etc.

The finer fraction consists of feldspars and ferromagnesium fragments coated with chlorite.

130'

Fragments of fine grained white siliceous rock, tuff and pyritic nodules and other weathered fragments.

The finer fragments include pyroxenes, feldspars and chloritic material and carbonate, together with an occasional grain of quartz.

140'

At this level pieces of tuff, inches in length, were obtained. The rock consists of sub-angular to sub-rounded fragments of volcanic rock, carbonate, feldspar, olivine, pyroxene and quartz, together with fragments of sedimentary rock such as shale and siltstone. The purely volcanic material consists of a dark glass with vesicles filled with zeolites which are sometimes replaced by carbonates. Some of the glass contains phenocrysts of feldspar. Some of the sedimentary fragments are included in the volcanic material. Carbonate occurs as a cement, as individual fragments, and as crystals.

The fine material consists of sub-angular grains of pyroxene, feldspar, quartz and carbonate, and dark rock fragments.

150'

Fragments of tuff, fine grained, white, siliceous rock and carbonates occur. The fine grained material consisting of pyroxenes, feldspar, quartz and carbonates and opaque rock fragments as at 140'.

Chips taken from 100–105' consisted of tuff, siltstone and limestone, and tuff and limestone chips were obtained from 150'.

The evidence suggests that this is a transported deposit. Thus at 100–110' detrital minerals garnet and zircon occur along with tuffaceous material. At greater depths garnet and zircon disappear, but sedimentary fragments occur as inclusions in the tuff. Carbonates are of both primary and secondary origin and the presence of secondary carbonate may have been due to sub-aerial weathering. Thus from 150' a rounded nodule of carbonate was obtained containing fragments of tuffaceous material. Carbonate solutions permeating a deposit of porous fragments have resulted in its consolidation.

[22 October 1963]