

Data derived from X-ray powder photographs of the mineral agreed with the spacings given by Frondel and Heinrich¹ and by Neumann and Sellevoll² for coronadite, $MnPbMn_6O_{14}$. Material from Bou Tazoult, Imini, Morocco, kindly supplied by Dr. H. Neumann, of the Mineralogical Museum, Oslo, allowed a direct comparison of photographs to be made. There is no doubt that the Dry Gill mineral is coronadite.

Further confirmation was obtained from a qualitative spectrographic analysis of the material carried out by Miss J. M. Rooke in this department. Mn was present as a major element, Pb as a minor, with traces of Al, Ba, Ca, Co., and Fe.

The coronadite is found with massive quartz, psilomelane, and campylite, the well-known mineral association from the upper dumps in Dry Gill. It occurs in two forms:

As a silver-white, inclining to steel-grey, metallic mineral when fresh, tarnishing to a dull black. The habit varies from massive to fibrous, the fibres being especially well developed when the mineral is botryoidal, not only as radiating fibres within the body of the globules, but as minute acicular crystals on their surface giving the appearance of black velvet.

As a dull black, fibrous, botryoidal mineral, indistinguishable from psilomelane in the hand specimen. This form was X-rayed in the expectation of confirming the presence of psilomelane; obviously a re-examination of much of the psilomelane from Dry Gill might well be of interest.

The occurrence of coronadite in Dry Gill adds weight to the idea that the gill is part of a manganiferous outer zone, associated with the centre of tungsten mineralization in Grainsgill to the south. The manganese moved northwards along a series of north-south faults, which are especially well seen in Brandy Gill and fault the Dry Gill vein itself.

This is the first record of the occurrence of coronadite in the British Isles.

*Dept. of Geology,
University of Leeds*

J. HARTLEY

¹ Amer. Min., 1942, vol. 27, p. 48.

² Vid.-Akad. Avh. Oslo. I. Mat.-Naturv. Kl. 1955, no. 3.

*Molybdenite associated with Laxfordian gneisses at
Loch Stack, Sutherlandshire.*

AN occurrence of molybdenite, associated with amphibolites adjacent to a quartz-albite-oligoclase pegmatite, has been found in a road cutting $1\frac{1}{4}$ miles north of Achfary, near the southern shore of Loch Stack, Sutherlandshire.

The pegmatites appear to be of two varieties, a pink quartz-microcline-albite-muscovite type with accessory epidote and minor secondary chlorite and scapolite, and a white quartz-albite-oligoclase type with minor biotite, chlorite, and epidote. The feldspars of each type are slightly altered.

Both varieties are seen to intrude the country rocks, which in this area consist of foliated quartzose rocks with biotite, hornblende, epidote, and sphene; plagioclase-amphibolites with epidote and sphene; and thick coarse-grained hornblendic rocks. In all of these types alteration of the feldspars and development of secondary chlorite are common.

The molybdenite is mainly concentrated in the hornblendic rocks, which are intruded by the white quartz-albite-oligoclase pegmatite; but locally small flakes of molybdenite associated with biotite are seen in the white pegmatite itself. In the hornblendic rocks molybdenite occurs as aggregates up to half an inch across and is locally associated with pyrites. Brown crystals of sphene are common. The amphibole is sometimes partly altered to a white, fibrous asbestiform mineral. A qualitative spectrographic analysis of the molybdenite indicated traces of the following elements: Ca, Al, Mg, Zr, Fe, Si, Co, Y, Ti, and Na.

Independently, Nutter (1953) noted molybdenite and traces of Mo in the quartzose veins, $\frac{1}{2}$ mile south-west of the house at Badnabay. The veins 'may represent a late stage differentiation from the Loch na Seilge sill' (Nutter, 1953, p. 291) which continues for 5 miles to the ESE. to Loch Stack, where the present molybdenite occurrence was found.

It may be that these isolated molybdenite occurrences are part of a more extensive, relatively molybdenum-rich, zone of pegmatitic or hydrothermal origin. It is hoped that a bio-geochemical investigation of this region can be undertaken in order to establish the extent of this molybdenum mineralization.

A somewhat similar type of molybdenite mineralization has been described by Thomson (1918, pp. 308-12) from Quebec. Molybdenite, pyrite, pyrrhotine, sphene, and scapolite are found in pyroxenites and are considered to be of pegmatitic origin.

*Department of Geology,
The University,
Leeds, 2*

O. VON KNORRING
R. DEARNLEY

NUTTER (G.), 1953. A spectrographic and geochemical study of the trace elements in the Archaean pegmatites of NW Sutherland. Ph.D. Thesis, University of Leeds.
THOMSON (E.), 1918. *Econ. Geol.*, vol. 13, p. 302.