activity and in basic inclusions near the periphery of the granite body (Bose, 1957).

A parallel example has also been observed associated with an amphibolite band in contact with granite gneiss near Bhagwa (23° 43′ N., 86° 21′ E.), Bihar (Bose, 1955). Here thin sections of the systematic samples at an interval of 3 yards (towards the granite) revealed the stages and mode of transformation of the coloured amphibole into the 'bleached' type. The initiation of alteration is marked by the appearance of fine colourless striations (parallel to the trace of (001)), which gradually widen to narrow stripes and finally appear as bands and then encroach along the cleavage direction in prismatic grains and ultimately replace a major part of the hornblende, leaving some islands of coloured rectangular blocks (with major axis parallel to the trace of (001)). The coloured amphibole in this stage often shows twin lamination in prismatic sections, which in rare cases are parallel to (001). Micrometric analyses of thin sections not only show an absolute increase of the bleached type but also increase in the ratio of colourless to total amphibole towards the granite boundary.

The increasing amount of bleaching towards the granite and the regular pattern in the bleaching suggest the phenomena to be an instance of intralattice metasomatism produced by hydrothermal solutions from the granite.

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A preliminary note on chromian mica in an ankerite–quartz–pyrite rock from southern Ross-shire, Scotland.

PUBLISHED records of British examples of chromium-bearing muscovites are, to my knowledge, restricted to two occurrences of 'fuchsite' noted by Heddle[1] from Argyllshire, and by Clough[2] from Glenelg, Inverness-shire. It is, therefore, of considerable interest to record a new occurrence of a chromian mica from southern Ross-shire, Scotland.

The mica forms 10–12 % of an ankerite–quartz–pyrite rock associated with an ESE.–WNW. trending fault-zone in the upper reaches of An Leth Allt, a stream which drains into Loch Duich from the northern slopes of Sgùrr an Airgid. The actual fault-line averages 7 feet in width, but the cataclastic effects and accompanying carbonatization, kaolinization, and chloritization extend over a zone approximately 15–20 feet wide. Within this zone the metamorphic textures of the country-rock gneisses, mainly of Moine Series age, are broken down and the rocks are partially replaced by ankerite and calcite. The mica–ankerite–quartz–pyrite rock is one of the products of this replacement and forms four main outcrops, the largest of which is some 40 square feet in area.

The chromian mica is bright green in colour and imparts an irregular foliation to the rock. Chemical analysis has shown that the mica contains more than 2·0 % of Cr_2O_3 and approximately 25 % of Al_2O_3. Under the microscope it is pale green in colour and exhibits the characteristic optical properties of muscovite. X-ray powder-studies show that it possesses a single-layer monoclinic (1M) muscovite structure. The properties of the mica define it as a relative of the chromian muscovite *fuchsite*.

Because of its bright green colour the mica appears to dominate the mineralogy of the rock. In fact, however, ankerite constitutes more than 50 % of the rock by weight, and its oxidation results in a rusty ferruginous crust on weathered outcrops. Under the microscope the ankerite shows a random crystallographic orientation interpreted as depositional. The remaining 30–40 % of the rock is made up of lenticular aggregates of elongated quartz crystals disposed in vug-like array. Pyrite, chalcopyrite, and sphene are the most important accessory minerals. The chemical composition of the rock is: SiO_2 39·43, TiO_2 0·14, Al_2O_3 2·91, Fe_2O_3 0·72, Cr_2O_3 0·33, FeO 3·55, MnO 0·18, MgO 9·03, CaO 17·27, Na_2O 0·25, K_2O 0·83, H_2O+ 0·65, H_2O- 0·33, CO_2 24·58, total 100·20 % (Analyst: Erna Padget).

In its mineralogy and association with a fault-zone, this rock is closely similar to the fuchsite–carbonate–quartz–sulphide rocks which are characteristic of the gold deposits of the Larder Lake district of Canada,[3] and the Kalgoorlie district of Australia.[4] Similar carbonate rocks, containing the chromian muscovite *mariposite*, have also been described from the gold-mining area of the Mother Lode of California, U.S.A.[5] To date, however, no trace of gold has been found in specimens from southern Ross-shire.

The An Leth Allt fault-zone is but a minor representative of a whole

plexus of similar faults to which the Strathconon Fault is the master fracture.[6] Furthermore, throughout the Scottish Highlands there are a number of similar post-Moinian fault systems, which are related to the Strathconon Fault.[7] Viewed in this light, this preliminary description of the chromian-mica–ankerite–quartz–pyrite rock from southern Ross-shire is intended to draw attention to the possibility of similar lithological types, perhaps of economic significance, elsewhere in the metamorphic area of the Northern and Grampian Highlands of Scotland. A fuller description of the mica, and of the rock and its associations and origin, awaits further laboratory and field work.

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