

$\text{Cr}_2\text{O}_3$  respectively. The high aluminium content ( $> 6$  atoms per formula unit) suggests that the available chromium is substituting for magnesium in this material.

The dark-green tourmaline from Outukumpu, Finland (NMNH R15783) was similarly zoned in an irregular manner with the chromium content varying from 5.85 to 11.01 %  $\text{Cr}_2\text{O}_3$  in ill-defined irregular segregations.

The most chrome-rich sample examined is from Orissa, India (NMNH 120534). This material is also zoned and the chromium content varies from 18.92 to 22.85 %  $\text{Cr}_2\text{O}_3$ . The two analyses indicate that the chromium is substituting for both aluminium and, to a lesser extent, magnesium. A formula for the most chromium-rich Orissa material was calculated on the basis of six silicon atoms and assuming three boron atoms:  $(\text{Na}_{0.95}\text{Ca}_{0.03})(\text{Mg}_{2.21}\text{Cr}_{0.70}\text{Fe}_{0.01})(\text{Al}_{3.59}\text{Cr}_{2.41})\text{Si}_6\text{B}_3(\text{O},\text{OH})_{30}(\text{OH},\text{F})$ . It should be noted that several of the analyses are deficient in silicon. This is possibly due to the substitution of boron for part of the silicon as noted by Barton (1969).

In summary, chromium can substitute for both aluminium and magnesium in dravite. All such chromian dravites have  $\text{Na} > \text{Ca}$  and are not uvite. High-chromian dravite is compositionally zoned as irregular segregations of light- and dark-green material with the depth of colour corresponding to increasing chromium. No tourmaline is known which has  $\text{Cr} > \text{Al}$ . In cases wherein the aluminium content approximates six atoms, no tourmaline is known with  $\text{Cr} > \text{Mg}$ . The name chrome-tourmaline is not justified, and following the nomenclature rules of Schaller (1930), all specimens described herein should be termed chromian dravite.

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## Datolite and apophyllite from the Mendips

DURING most of 1975, working of the main faces in the northern segment of Merehead Quarry, near Cranmore, Somerset, exposed a large, complex manganese- and iron-rich vein within the Carboniferous Limestone. The vein at its maximum development of nearly 4 m wide had a constant northerly strike and dipped steeply to the east. However, for most of its exposed length (150 m) the structure was near vertical.

The principal ore constituents of the vein are goethite and an intergrowth of various manganese oxides, the nature and relationships of which are still being studied. Secondary lead and copper minerals, including mendipite, cerussite, hydrocerussite, and chloroxiphite, occurred in cavernous parts of the manganese oxides in the upper parts of the vein and closely resemble those from the near-by Higher Pitts mine (Spencer, 1923); preliminary descriptions have been made by Alabaster (1976) and by Symes and Embrey (in press). Lower in the vein, the goethite increased considerably in width and completely cut out the manganese oxides. Here, in an area of  $2 \times 1$  m, cavities in the goethite were found to be encrusted by an assemblage of apophyllite, datolite, calcite, and baryte. Observation of the exact relationships was hampered by large fallen blocks, but the formation of the encrusting minerals and intimacy of their association suggests that they were roughly contemporaneous with the iron and manganese mineralization.

A thick layer of calcite, fibrous radiating masses of datolite, and occasional small apophyllite crystals lie in direct contact with botryoidal goethite, and contain white aggregates of platy baryte crystals up to 2 cm across. The botryoidal surface of this layer is coated with a thin crust, up to 3 mm thick, of milky white fibrous datolite, in crevices within which lie aggregates of larger ( $< 10 \times 10$  mm) transparent tabular crystals of apophyllite.

This appears to be the third occurrence of either datolite or apophyllite in south-west England, and the first reported from Somerset. Datolite has been found at the Ramsley mine, Devon, apophyllite in the Levant mine, Cornwall, and both occur in the aplite quarry at Meldon, Devon. Both minerals commonly occur elsewhere in zeolitic associations in basaltic rocks, but apophyllite is well known as a constituent of vein-type mineral assemblages; its occurrence in a low-temperature hydrothermal vein with calcite and harmotome at the Korsnäs lead mine, Finland, has been described by Sahama (1965), but there the crystal habit was prismatic-pyramidal and not tabular.

Boron, an essential constituent of datolite, is also present at Merehead as a minor element in the lead oxychloride minerals in the upper part of this vein.

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## Stokesite crystals from two localities in Cornwall

THE rare mineral stokesite,  $\text{CaSnSi}_3\text{O}_9 \cdot 2\text{H}_2\text{O}$ , is now represented in the collection in the British Museum (Natural History) by crystals recently found by the donor, Mr. R. W. Barstow, at two localities in Cornwall. Several crystals (BM 1975, 541-6) 3 to 7 mm long were obtained in June 1975 from two boulders in the Penryn Granite Company's quarry at