ROMARCHITE AND HYDROROMARCHITE, TWO NEW STANNOUS MINERALS

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Tin pannikins lost from the overturned canoe of a voyageur between 1801 and 1821, were recovered 15 feet below the surface of the water at Boundary Falls, Winnipeg River, Ontario. Some of the surfaces of the pannikins have a thin crust of alteration products consisting of white crystals and black crystals.

The black crystals give *x*-ray powder diffraction data practically identical to those given for SnO by Swanson *et al.* (1955). Strongest spacings (in Å for Cu$K\alpha$) are: 2.98(10), 1.601(9), 1.799(7), 2.679(6) and 1.491(6 broad). Space group is *P4/nmm* with $a = 3.79$Å and $c = 4.83$Å. X-ray spectrographic scans detected only tin and a trace of iron. The mineral is named romarchite (*R*oyal Ontario *M*useum *Arch*aeology).

The white crystals have an *x*-ray powder pattern which matches that of stannous oxide hydrate ($5SnO.2H_2O$). The strongest spacings (in Å for Cu$K\alpha$) are: 3.50(10), 2.773(9), 2.961(8), 1.924(7), and 1.906(7). Donaldson (1961) found that synthetic $5SnO.2H_2O$ was triclinic with $a = 11.5$, $b = 6.03$, $c = 19.8$ (all in Å), $\alpha = 99°$, $\beta = 60°30'$, $\gamma = 88°30'$. X-ray spectrographic scans detected only tin. The mineral is name hydroromarchite in allusion to its relationship to romarchite.

The minerals and names have been approved by the Commission on New Minerals and Mineral Names, I.M.A.

PETROLOGY OF THE AXELGOLD LAYERED ANORTHOSITE

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The Axelgold intrusion was formed from a single pulse of gabbroic anorthosite magma which was emplaced into steeply dipping rocks of the Cache Creek formation in central British Columbia. The body is oval-shaped, 7 mi. by 3 mi., with its long axis parallel to the regional northwest trend. Its age has been suggested as Jurassic, but it could be much younger.

The body consists of a layered series ranging in composition from anorthosite to anorthositic gabbro and ferrodiorite, capped by a massive quartz diorite to granodiorite. The layered series is divided into seven zones on the basis of cumulus mineralogy, texture, and structure. Plagioclase and olivine are cumulus minerals in all zones, clinopyroxene is cumulus in some zones, and orthopyroxene is cumulus in ferrodiorite. Ilmenite and sulfides occur in all zones, but are much more abundant in some than in others. Sulfides are pyrrhotite, minor chalcopyrite, and rare pentlandite; they form scattered rounded blebs which probably once were immiscible sulfide droplets in a silicate magma. Accumulations of sulfides, ilmenite, and/or mafic silicates up to a few feet thick occur in parts of the intrusion.

Chemical fractionation consists of strong enrichment of Fe, Mn, and Ti in the upper ferrodiorite at the expense of Al and Si; and strong enrichment of K and Si in the cap rock at the expense of Ca and Mg.

Except for its much smaller size, the Axelgold intrusion is grossly similar to the Kiglapait intrusion of Labrador.

MINERALOGY AND PETROLOGY OF SOME LUNAR SAMPLES

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The major minerals of the Apollo 11 and 12 rocks can be assigned to common terrestrial rock-forming mineral groups, but show compositional variations and textural relationships which lie outside previous petrographic experience. The compositional variation in clinopyroxene and the presence of the new mineral, pyroxferroite, are illustra-