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## Eskolaite, Cr<sub>2</sub>O<sub>3</sub>, from County Wicklow, Ireland

ALTHOUGH long known as a synthetic material, Cr<sub>2</sub>O<sub>3</sub> was reported as a mineral only in 1958 following its discovery in 1949 at the Outokumpu copper mine, Finland (Kuovo and Vuorelainen, 1958; Tennyson, 1961). The Outokumpu eskolaite occurs in skarns, quartzites, pyrrhotine veins, and chlorite seams within chromium-rich metamorphic rocks surrounding the mine. A second occurrence in the then British Guiana has also been described (Milton and Chao, 1958; Milton and Narain, 1969). The Guyana eskolaite is the predominant species amongst a complex mixture of several chromium minerals termed 'merumite', which occurs as pebbles in placer gravels dispersed within the Merume river and its tributaries. A new find from County Wicklow is believed to be the third known occurrence of eskolaite.

On 20 September 1974 a small piece of greywacke with a marked green coloration was submitted to the Geological Survey of Ireland by Mr. T. H. Stevenson of Newcastle, Co. Wicklow; the material had been encountered in the form of tiny pebbles within clay being dug for foundations. Examination of a polished mount failed to reveal discrete green mineral grains although a green internal reflection was evident surrounding the quartz grains of the greywacke. The presence of Cr and Mn was indicated by XRF examination. A sample was sent to the Institute for Industrial Research and Standards, Dublin, for XRD analysis, and the presence of eskolaite within the rock was established. Further XRD and microprobe analysis was conducted at University College, Dublin, confirming both the identification and the concentration of the chromium around the quartz grains and dispersed within the matrix. As the eskolaite grains are virtually submicroscopic no physical description can be given.

*Field relations.* The eskolaite occurs at Callowhill Upper, near the village of Newtown Mt. Kennedy, Co. Wicklow (Grid ref. 'O' 2477 0260). The mineral is restricted to small pebbles found within a 2 m thick deposit of boulder clay. The largest pebble found is 2½ cm long, but most are pea-size or smaller; less than a handful of material was collected in all, and the deposit has since disappeared by excavation. The surface of the boulder clay shows signs of having moved downhill by solifluction. The glacial material would be expected to derive from bedrock situate an uncertain distance to the west, broadly within a range of up to 5 km. The underlying solid rocks are coarse to fine greywackes and slates belonging to the upper part of the Bray Group, of late Lower to early Middle Cambrian age. The solid rocks are pale greenish in colour but similar tints are not uncommon elsewhere and XRF analysis failed to indicate a chromium content higher than background. A major fault that can be traced for at least 12 km passes within 200 m of the exposure.

The apparent absence of any chromium concentration in the immediately underlying rocks together with the restriction of the eskolaite to but a few pebbles within the boulder clay indicate that the mineral was not formed *in situ*. In the absence of all direct field evidence pertinent to the problem it is premature to speculate on the origin of the Wicklow eskolaite. No mineralization is known from the area, although the important copper deposits of Avoca occur in Lower Palaeozoic rocks about 22 km to the south-south-west.

As each of the three reported occurrences of eskolaite has a markedly distinctive geological setting it would appear that the mineral can form in a number of ways, and might well be commoner than has hitherto been recognized.

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