

POTENTIAL URANIUM SOURCE AREAS

Brief mention is made here of possible sources of uranium in the South Esk Catchment.

(a) Ben Lomond Granite

An airborne scintillometer survey by the Bureau of Mineral Resources (1956) showed that all of the outcropping granite bodies north of Avoca, and the apophysis SE of Avoca in the St. Pauls Valley are markedly radioactive. Uranium mineralization has been detected at the Royal George Mine, about ten miles ESE of Avoca, where a large quartz-tourmaline-Fe-sulphide greisen dyke in porphyritic granite has been opencut for cassiterite (opencut dimensions 850 ft. long x 10-80 ft. wide x 40 ft. deep, according to Reid and Henderson, 1929). Sheared, greisenised wall rock, where examined, has sparsely distributed coatings and plates of torbernite on fractures, occasionally associated with cassiterite bearing stringers. Local patches of the wall indicated scintillometer readings to 1200 cps, with the whole opencut registering 150-200 cps. Other large greisen zones have been worked for tin at this locality and these may have associated torbernite.

Chwalczyks Prospect is located about two miles SSW of Rossarden. Here a nine inch mineralized shear in porphyritic granite, showing late stage microgranitic intrusions, carries Fe sulphides, minor pitchblende and secondary uranium minerals. The vein was followed by an adit and a peak reading of 12,600 cpm was obtained in 1957 - 4%  $U_2O_8$  (Blisset, 1959, after Langron, 1957). Only patchy mineralization occurs generally and the vein is of no great longitudinal extent.

A small greisen lens about  $\frac{1}{2}$  mile south of this, known as Hughes Prospect. Some Fe sulphide associations registered up to 700 cpm (background x 5) using a Phillips Austronic counter (Blisset, 1959). No uranium mineralization was identified.

It appears likely that many of the greisen bodies in the granite, carrying cassiterite and/or wolframite plus Fe sulphides, show greater than normal radioactivity. Blisset, 1959, mentions the Ben Lomond Tin Mine. Here a quartz-fluorite-tourmaline vein system in greisen registered background x 3 radioactivity.

The Rex Hill Mine, about six miles NW of Avoca, examined by the writer, is a pipe like expression resultant from strong cross fracturing on a quartz greisen lode. At an opencut, the lode is 70 ft. long and 55 ft. wide (Blisset, 1959), and massive quartz and greisen is seen to carry prominent large pods of sphalerite, galena, pyrite-chalcopyrite and arsenopyrite, cassiterite reportedly becoming more common with depth. The opencut walls registered 250-300 cps on the scintillometer with the walls of an adit up to 300-400 cps. Slightly greisenous granite boulders registered to 150 cps.

(b) Permian Sequence Overlying Ben Lomond Granite

Remnants of the basal Permian rocks, which unconformably overly the granite are radioactive. At Prospect Creek, a small tributary of Castle Carey Creek, about six miles north of Avoca, a wedge of basal Permian rocks has been