

Summary

No uranium has yet been sold from Tasmania and only two prospects have proved worthy of some development. Both of these occur in fracture zones in Devonian granite and are situated in the Fingal Municipality in the central eastern part of the State.

Royal George

The first authentic discovery of a uranium mineral in Tasmania was made at the old Royal George Tin Mine, 10 miles from Avoca, by W. Pitulej in 1955. The mineral was identified as torbernite and later a reward was paid.

The Royal George Tin Mining Company produced about 900 tons of tin oxide between the years 1911 and 1922. The principal workings consist of an open cut, some 800 feet in length by 80 feet in width and 40 feet deep; and two underground levels from which ore was stoped. These workings occur in a granite of Devonian age, a coarse grained rock containing well developed crystals of quartz, biotite and feldspar, partly albitised. In places the granite is porphyritic with large crystals of both quartz and feldspar and contains nodules, a few inches in diameter, of finely crystalline quartz and tourmaline.

In the granite is developed a very even and well marked set of joint planes or fractures, averaging three feet apart, striking at 320° and dipping to the south-west at 75° . These joints have acted as channel ways for hot siliceous solutions from the granite magma and the granite on either side of them has been greisenised so that a section through this joint zone shows a banded structure with nearly half the porphyry greisenised.

In the open cut visible uranium mineralisation is entirely secondary and splashes and small crystals of torbernite coat partings and exposed surfaces of the greisen and to a lesser extent of the unaltered granite and quartz-tourmaline nodules. Whereas the tin mineralisation is confined to the greisen zones, the uranium mineralisation is quite sporadic through the open cut. Numerous assays have been made of samples taken from the open cut and values have ranged from 0.002 to 0.07% U_3O_8 .

Four bores put down to intersect the mineralised zone below the workings showed only traces of torbernite and radiometric logging of one of these showed very low values. Three of the bores reached over 500 feet below the surface, but no primary uranium mineral was found in the core.

Chwalczyk's Prospect (later Tasmania United Uranium N.L.)

This is located on the eastern bank of Story Creek about two miles below the township of Rossarden in the central east of Tasmania and in the same general locality as the "Royal George".

The chief rock type in the vicinity is Devonian granite of medium to coarse grain-size composed of

felspar, glassy anhedral quartz and sub-ordinate muscovite biotite with large phenocrysts of soda-orthoclase. The rock has been hydrothermally altered and albite is a common mineral and may occur as perthitic intergrowths with orthoclase. The potash felspar has been almost completely sericitised and the albite partly altered. Included in this granite are tongues and irregular bands of a microgranite which is sometimes intensely sheared. Some authors regard this microgranite as intrusive into the normal granite but, in this section, there is no difference mineralogically between the two and in places the finer granite appears to grade into the coarser material.

At the prospect, however, mineralisation is associated with a sub-horizontal shear zone which contains angular fragments of the slightly sheared, fine-grained granite. This shear zone outcrops almost at Creek level and an adit has been driven on it for 90 feet, the first 30 feet on a bearing of 117° and the last 60 feet at 60° . The shear zone at the entrance dips at 8° but at the adit bend has increased to 27° .

Within the shear zone is a black vein 9 inches in width consisting of an assemblage of hydrothermal minerals including fluorite, pyrite, galena, chalcopyrite, sphalerite and black sooty pitchblende with a gangue of fine-grained quartz and iron-stained chalcedony. Further in the adit the vein dips southward at an angle less than the shear plane so that the last twenty feet of the adit are below the vein. A rise put in at the end of the adit, however, failed to intersect the vein. Various chemical and radiometric assays have been made of the black material with a maximum of 4% Y_2O_3 at the adit bend. Further in the adit however a 2 inch channel sample assayed 0.11% U_3O_8 .

Three bore holes were drilled south and east of the adit designed to intersect the shear zone and possible mineralisation, but although some shear zones were intersected they showed no appreciable increase in radioactivity and the radiometric logging of the holes revealed counts of very little over background.

The company extracted some of the black material from the adit and bagged it ready for shipment but none of the material was sold.

Other Prospects

Minor amounts of radioactive material are associated with the granites in various parts of Tasmania. Investigations have been made at the Anchor Mine in the Blue Tier District of North Eastern Tasmania and at the old Rederation Mine near Zeehan in the west but the amounts of uranium minerals have proved very small.

An interesting prospect was examined at Castle Carey Creek four miles from Avoca in the central east. Here a uranium mineral is contained in basal Permian beds of black shales containing much organic material and nodules and concretions of pyrite. An assay of these beds showed an average value of about

0.02% U_3O_8 . The uranium mineral was not identified but because of its associations is probably a complex ore of the thucholite variety.

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REFERENCES

- Blissett A.H. 1959 - Geology of Rossarden - Storeys Creek District
Tas. Dept. Mines Geol. Surv. Bull. No. 46
- Hughes, T.D. 1956 - Tas. Dept. Mines An. Rept. Dir. 1955. pp 5, 18
- 1957 - Tas. Dept. Mines Tech. Report No. 1 (1956) pp. 14
- 1958 - Tas. Dept. Mines Tech. Report No. 2 (1957) pp. 14
- Noakes, L.C. 1955 - Notes on Radioactive Deposits in Tas. Storeys Creek and Blue Tier Districts.
Bur. Min. Res. Aust Records 1955/72 (Unpublished)
- Ostle, D. 1956 - Uranium Occurrences in Tas.
Bur. Min. Res. Aust Records 1956/97 (Unpublished)
- Walpole, B.P. 1955 - Uranium Occurrences, Avoca Area, Tas.
Bur. Min. Res. Aust Records 1955/30 (Unpublished)