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COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT
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RECORDS

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NOTES ON PLEN'S RADIOACTIVE DEPOSIT AT TOONGI,
SOUTH OF DUBBO, N.S.W.

by

R.S. Matheson

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A brief geological examination of this deposit was made by the writer and D.N. Smith between 18th and 20th July, 1952. The deposit had been previously examined in 1951 by J. Daly of the Geophysical Section, Bureau of Mineral Resources, and by J.C. Lloyd of the N.S.W. Mines Department and the results of their investigations were available for reference.

The deposit is situated approximately 1 mile north of Toongi Station on the Dubbo-Molong railway about 14 miles south of Dubbo.

Radioactivity is associated with a volcanic flow rock (determined as orthophyric trachyte) outcropping as a south-westerly trending ridge in the north-east corner of portion 39 and extending north-easterly into portion 19, Parish of Oxley, County of Gordon. The volcanic flow, which outcrops over a width of about 12 chains, and in which vesicular structure is well shown, is interbedded with slates, sandy slates and grits considered to be of Silurian age. The Silurian rocks are overlain in part by sandstones, grits and pebble beds of Jurassic age.

The radioactive area examined during the present investigations was an area of about $\frac{1}{4}$ square mile of the volcanic flow in the north-eastern corner of portion 39. In this area the volcanic flow is strongly jointed in three directions, namely, east-west, N60°E and N40°W, and a portable Geiger counter showed radioactivity varying from five to eight times the normal background count, over the whole of the area. No evidence could be obtained of the occurrence of any strong shear zones allowing for later introduction and localisation of mineralisation by radioactive minerals in the area, and the writer is in agreement with the previous investigators that the radioactivity is due to a mass effect of some radioactive mineral associated with the volcanic flow rock itself. It has been suggested that the radioactivity is due to a mineral disseminated in the rock, but there may be an additional concentration in the quartz veinlets occurring in the joint system. The joint filling is thought to represent a late magmatic stage of the rock itself.

Samples of the quartz veinlets and of the volcanic rock were collected, and tests carried out with the Laboratory Geiger counter in Canberra indicate that both are radioactive and that the radioactivity is slightly greater in the sample from the quartz veinlets. Investigations are being carried out to determine the mineral causing the radioactivity and to determine whether or not there is a greater concentration of it in the quartz veinlets.

It has been determined by the previous investigators that if the radioactivity is due to uranium, the uranium content of the rock would only be of the order of 0.02 to 0.03 per cent, so that it appears unlikely that the deposit will be economic value unless a demand arises for very low grade radioactive material.

REFERENCE

Lloyd, J.C. 1951: Radioactive Rocks at Toongi, near Dubbo.
Geol.Surv.N.S.W. Rept.

LOCALITY PLAN TOONGI RADIOACTIVE DEPOSIT

