

DEPARTMENT OF MINES

SOUTH AUSTRALIA

NOTES ON MINERAL ZONING IN THE AREAS ABOUT

ANTRO, BIMBOWRIE AND OLD BOOLCOOMATTA.

(Supplementary to Report of 8/12/54, S.R. 11/2/70).

ASSOCIATED PLAN US 488

The area considered in this report covers 260 square miles of the Archaean province east and north-east of Crocker Well, where the field prospecting party has mainly operated during this year. A wide range of mineral occurrences have been discovered which show a similar zonal distribution - but generally sparser uranium mineralisation - as that found in the Crocker Well area.

The zoning of minerals in the area under review differs from that in the Crocker Well area (see previous report of 8/12/54) in the following details:-

1. Zone I does not contain thorite - orangeite.
2. Zone II contains in addition relatively abundant beryl, tantalite, columbite and the rare phosphates graftonite, triplite, wagnerite and florencite, all of which have been observed occurring with uraninite, absite, or secondary uranium ochres.
3. Zone IV carries barytes. Cobalt is similarly found in this environment at the Bimba Mines.
4. In the Antro-Boolcoomatta area, the zonal boundaries are difficult to define, due to a more gradational relation of the granite, migmatite and metasediments, and to the marked habit of uranium and other mineralisation to be localised along epidote quartzite metasediments showing various stages of metamorphism and metasomatism. In the area south of Binberrie Hill, mineralised epidote quartzites can be traced into grey laminated siltstones and thin bedded iron formations. Ores of copper tend to follow the "Epidote Quartzite horizon", ores of tungsten, and barytes are

confined to it, and most uraniferous pegmatites with minerals of Zone II also tend to follow it. Only in the case of ores of thorium, cerium and yttrium, is mineralisation localised in gneissic granites, with accessory magnetite of "Camel's Hump" type, and not in epidote quartzite. The mobile red granites with two micas, and very little plagioclase, of the Binberrie Hill type, do not show much uranium mineralisation.

Only near Outalpa Springs is good zonation shown, where Zone I, II and III are present in concentric arcs about a centre of granitisation buried under tillites to the west. Here too, the uranium minerals of Zones II and III are confined to thin pegmatites in the grey quartzites of the epidote quartzite horizon. Also, east of Ameroo Hill, and south-east of Old Boolcoomatta, at Emery's Hill, Zone I is fairly definite in gneissic granites, but elsewhere, Zones II, III and IV are closely intermingled.

Addendum to previous report:

It has recently been brought to my notice that chalcopyrites occur in ore, with davidite, in the shaft at Victoria Hut Mine. It also occurs in D.D. cores in davidite bearing rocks at Jaggedy Rocks, Glenorchy. To this extent, at least, Zone III is overlapped by Zone IV, and zonal overlap is complete. A single occurrence of beryl, east of Weeroopie Hill, should also be noted as a Zone II occurrence, as well as recent absite discoveries at Loc. AB 6, west of Glenorchy.

J. E. Johnson

(J. E. JOHNSON)
DEPARTMENTAL PROSPECTOR.

