

6. Discussion

- (i) Comparison with other areas. The magnetite-pyrite mineralisation is similar to that encountered at Prince Darwin, where large replacement bodies of magnetite, pyrite, quartz and tourmaline occur near the western contact of the Darwin Granite. There are also similarities with magnetite-pyrite mineralisation around granite dykes near Lake Selina, and at the contact of the Murchison Granite in the Murchison Gorge. The proven association of the King Jukes mineralisation with an intrusion, and the hornfelsing and tourmaline in mineralisation to the north-east strongly suggest that the lavas in the north-eastern part of the grid formed the contact zone of a granite body now faulted out.

The mineralisation in the basal quartz grit of the Eastern Sequence appears to be comparable in mineralogy, style and stratigraphic situation with the Lake Dora mineralisation where the host is a gritty quartz sandstone conglomerate.

- (ii) Relationships of mineralisation. The magnetite-pyrite mineralisation is typical deep-seated mineralisation of the Central Sequence and is of a similar age to that of other such mineralisation in the region. The chalcopyrite mineralisation of Jukes Pty. Nos. 1 and 3 adits is later. It probably occurred during the time interval between the two unconformities in this area. The reasoning behind this suggestion is as follows. The zone of intense chloritisation in lavas south-west of Jukes Pty. No. 1 adit appears to be controlled by the unconformity and to be spatially associated with the Jukes Pty. mineralisation. Its age is fixed within these limits by the lack of hematite in lava beneath the Eastern Sequence unconformity (showing that no goethite formed by weathering of chlorite at that stage, i.e. that the lava was then non-chloritic) and by the presence of hematite in lava immediately beneath the Owen Conglomerate unconformity (showing that the lava was chloritic at that stage). A little hematite (as veins) occurs in DDH Z142003 immediately beneath the earlier unconformity (221-225m). Fresh chlorite and chalcopyrite occur adjacent to, and probably post-date, the hematite.
- (iii) Control of the Jukes Pty. mineralisation. Chloritisation of the basal quartz grit is widespread but copper mineralisation is confined to a smaller interval. It is not evident what controls either of these. A fault is prominent in the No. 3 adit, but the shear-zone is sericitic and it may post-date the mineralisation.

In the INAL drillhole Z142003, the chloritisation (and most of the chalcopyrite) occurs in relatively short intervals of core, eg. 137.4 to 142.5m, 151.8-153.8m, 156.5-158.2m, 160.0-160.2m. Between these, the quartz