FINAL REPORT to COMMONWEALTH OF AUSTRALIA

MINES BRANCH

NORTHERN TERRITORY ADMINISTRATION

PROSPECTING AUTHORITY

2850

JAMES RANGE

H. YOUNG
NIMEX - 541/72-H
MAY, 1972
This Prospecting Authority of 2850 square miles is approximately 70 miles of Alice Springs.

Geology

Geological formation from Upper Proterozoic to Devonian are exposed in a series of east-west trending anticlinal structures in this portion of the Amadeus Basin. The lowest stratigraphic unit found in the area is the Bitter Springs limestone outcropping near Henbury Homestead. In the northern part of the James Range, the structure is simple and characterised by gently undulating symmetric folds. Proterozoic rocks are not exposed in the cores of the anticlines. In the southern, complicated longitudinal faulting is commonly observed; especially in the Chandlers and Ollife Ranges. The Goyder and underlying formations were considered prospective. There is a well marked eastward increase in the limestone content of the Goyder Formation, near Orange Creek Homestead. It contains large amounts of iron, probably sedimentary in origin. The Jay Creek limestone and its lateral equivalents are frequently made up of extensive algal bioherms. No feature of particular interest was noticed in Proterozoic formations.

Exploration

Most exploration work was concentrated on a study of the geology and sedimentology of the Cambrian in the area. An attempt
to disclose locally enclosed basins and geological features or facies favourable to base metal deposition was unsuccessful. The Cambrian succession is quite uniform and apparently deposited under very stable conditions of subsidence which did not allow for economic mineralisation. This was confirmed by the lack of significant geochemical anomalies in most of the James Range.

Zinc anomalies associated mostly with rocks of the Patatasa formation occur in the Chondlers and Oliffe Ranges. In the south-eastern corner of the Oliffe Range, samples from a small occurrence of wad and ironstone displayed high copper, zinc, cobalt and nickel values. The outcrop is visible in a creek bed, close to the contact between the Jay Creek and Goyder Formations. Results of all work done are displayed in Appendix I.

Total Expenditure $67,400
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Fig. 1 / - Location Map

Fig. 8 / - Portion of the Rodinga Sheet Geological Map with Superimposed Results of Geochemical Survey James Range Prospect 1:100,000 scale.

Fig. 9 / - Portion of the Henbury Sheet Geological Map with Superimposed Results of Geochemical Survey James Range Prospect 1:100,000 scale.

Fig. 10 / - Detailed Stream Sediment and Gossan Geochemical Surveys Zone A, East of Aveyonga, Copper Values 1:46,000 scale.

Fig. 11 / - Detailed Stream Sediment and Gossan Geochemical Surveys Zone A, East of Areyonga, Lead Values 1:46,000 scale.

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Fig. 14 / - Detailed Stream Sediment and Gossan Geochemical Surveys - James Range Zone B Sheet 1 Tempe Downs Lead Values 1:46,000 scale

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Fig. 17
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Zinc Values 1:46,000 scale
Report for Mines Department

JAMES RANGE A to F 2850

Monthly Report: January, 1972

Final Report in Preparation.

Expenditure for December: $1189.
JAMES RANGE

A to P 2850

Our ref: NIMEX 45/72H

Investigations continued on a copper zinc bearing gossan in the south east of the area.

Costs for November: $414.
MONTHLY REPORT - NOVEMBER, 1971

JAMES RANGE

A. to P. 2850

Our Ref. NIMEX 310/71/W

Planning is being made for investigating the cupriferous gossan discovered in the southeastern part of the Oliffe Range. Costeaming appears necessary to explore the anomalous area which is covered by scree.

Expenditure for September amounted to $199
Expenditure for October amounted to $800
Exploration and regional mapping are in progress throughout the area. A total of 25 gossan samples were collected and are being tested. A few areas with gossans displaying an anomalous copper and zinc content will be investigated in detail during the next months. General reconnaissance will continue, mainly in the Oliffe and Chandlers Ranges.

Costs for September amounted to $199.
Geological and geochemical exploration is in progress in the James Range, Chandlers Range and Oliffe Range areas. Twenty-two gossan and rock samples were collected and tested. Most geological work was concentrated on outcrops of the Goyder Formation. Geochemical testing of gossan samples revealed a copper content normally smaller than 500 parts per million, except one gossan in the Oliffe Range which had a copper content of 1100 parts per million whereas zinc and cobalt content respectively reached 3100 and 1700 parts per million. Geologically, this gossan is associated with argillites at the base of the Goyder Formation, in an area of intense longitudinal faulting 2.5 miles NE of the Bokhara bore. Other gossans in the same area have a low copper content but zinc values are reaching a maximum of 2500 parts per million. In the NE of the Chandlers Range only minor amounts of base metals were detected.

Costs for July were $303.56. Costs for August will be supplied with September Report.
Examination of aerial photographs and compilation of previous geochemical survey data was carried out during the month.

Field geological reconnaissance is planned to commence early next month.