1950/55

COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS.

RECORDS

1950, No.55

RADIOMETRIC INVESTIGATIONS IN THE DALY RIVER AREA, NORTHERN TERRITORY

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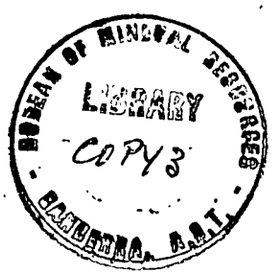


1. INTRODUCTION.

The area investigated, now commonly known as the Daly River Area, is situated on the north-eastern bank of the river, about 35 miles from the river mouth, and approximately 80 miles south of Darwin. It is adjacent to the Daly River Police Station and the Daly River Crossing (see Plate 1).

The present survey was made in July 1950, in conjunction with work being done by the Bureau at Rum Jungle, and was a general investigation for possible radioactivity in the district. Although no radioactivity of interest was detected, it is considered desirable that the results of the investigation should be recorded.

2. GEOLOGY.

The geology of the mineralised area is described in detail by Hossfeld (1937). The following brief notes are based on his report, but the formation names used by him have been replaced by those suggested by Noakes (1949).

Small deposits of copper, silver and lead minerals occur in rocks which may be safely assigned to the Brocks Creek group of Lower Proterozoic age, which contains practically all the mineral deposits of the Katherine-Darwin region. The member of the Brocks-Creek group, which contains the Daly River deposits cannot be specified on the information contained in Hossfeld's report.

To the east and south the Brocks Creek rocks are overlain unconformably by the Buldiva quartzites, which are considered to be of Upper Proterozoic age, and are typically gently folded, and unmineralised.

To the north-east of the area examined, the Brocks Creek group is intruded by the Litchfield granite, with which the Daly River mineralisation may be genetically related.

The known mineral deposits are small. The largest producer, the Daly River mine, produced about 6000 tons of ore averaging about 20 per cent copper. The other mines have not been developed past the prospecting stage.

3. FIELD WORK.

The major part of the work consisted of testing old mines and dumps, the instrument used being a portable Geiger-Muller Ratemeter, Type P.R.M.200, manufactured by Austronic Laboratories, Melbourne.

The localities visited (see Plate 1) were:-

A. Copper Deposits

- (i) Daly River Copper Mine
- (ii) Wheal Danks Group
- (iii) Workings at north end of ridge
- (iv) Warr's Copper Mine
- (v) Wallaby Copper Mine and nearby prospects
- (vi) Empire Mine

B. Silver-Lead Deposits

- (i) Knowle's Area
- (ii) Wallaby Area
- (iii) Hill No. 4

4. RESULTS.

Throughout the area there was no indication of the presence of radioactive minerals. Within the mineralised zones, readings obtained were only slightly greater than background. In many places, the lode material showed less radioactivity than the surrounding country rock.

At the southern end of the Daly Mine-Wheal Danks Ridge, readings on the country rock ranged from background count to 130 per cent of background, and, at the northern end, readings on the schists and spotted schists were 120 to 140 per cent of background count. Schists on dumps adjacent to the Wallaby silver-lead lode gave readings of 150 per cent of background; the silver-lead lode gave readings only slightly above background.

Shear zones, for example those at the Daly Mine, Wheal Danks North and Hill No. 4, were characterised by relatively high readings of up to 150 per cent of background count.

5. CONCLUSIONS.

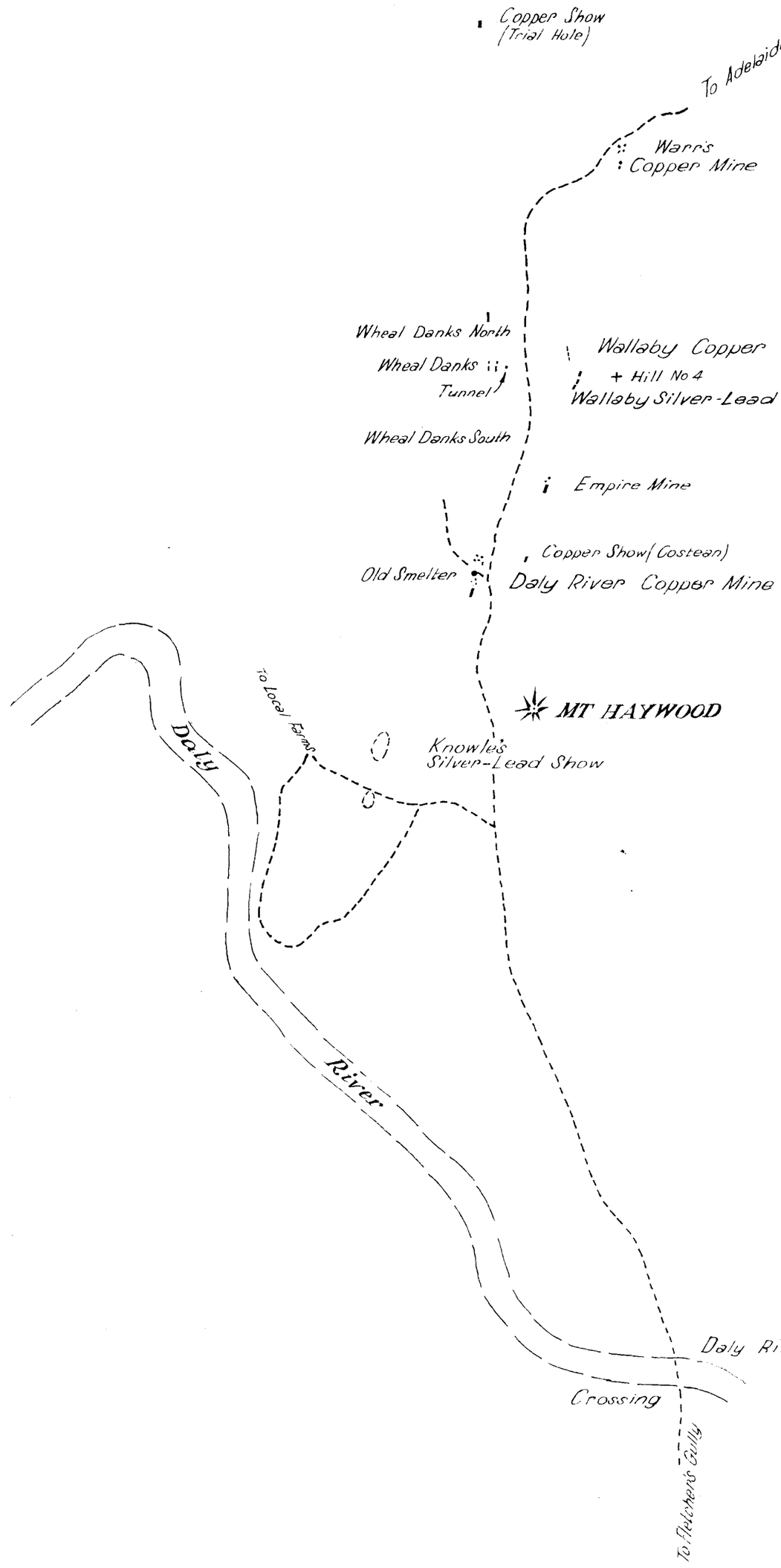
Although deposits of radioactive minerals were not found during the survey the results indicate that the possibility of their occurrence in the district cannot be ruled out. Only intensive investigations near the periphery of the Mt. Litchfield granite north-west of the surveyed area, would prove or disprove the presence of radioactive mineral deposits in the district.

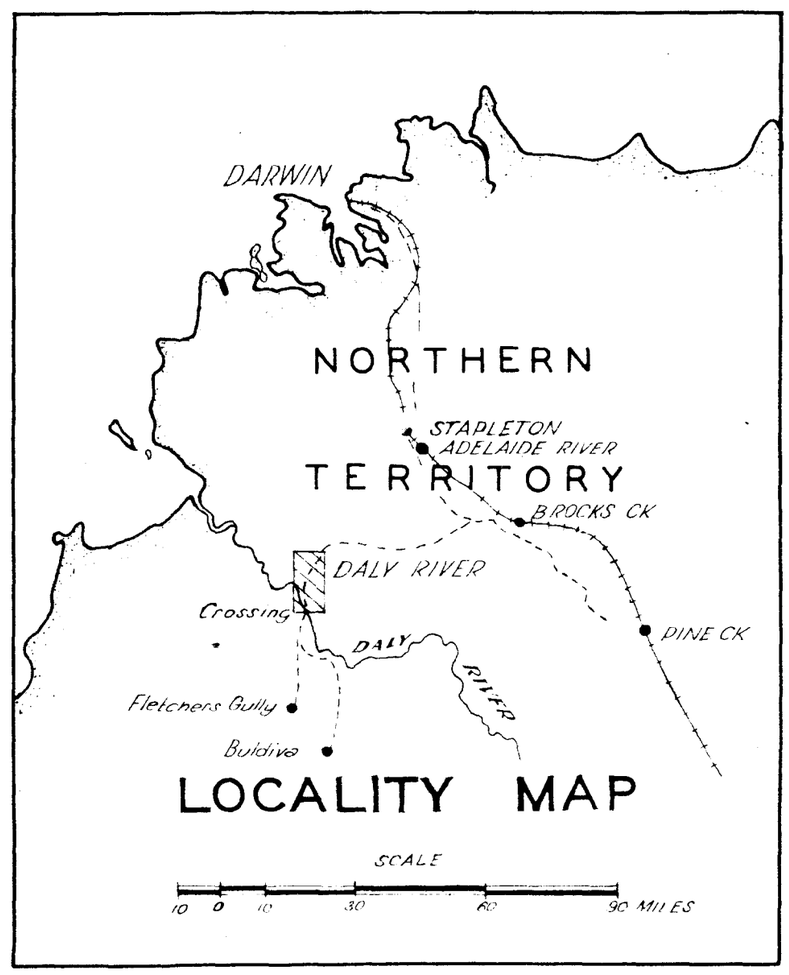
6. REFERENCES.

Hossfeld, P.S., 1937 - The Daly River Copper and Silver Lead Area-Daly River District, Aer.Geol. and Geophys. Survey of N.Austr., Report N.Territory No. 19.

Noakes, L.C., 1949 - A Geological Reconnaissance of the Katherine-Darwin Region, Northern Territory. Bur.Min.Resour.Aust., Bull.16.

PLATE I





SCALE IN MILES

1 0 1 2 3

D.F. Deplow

Geophysicist

GEOPHYSICAL SURVEY AT DALY RIVER. N.T

DALY RIVER DISTRICT

SHOWING

COPPER & SILVER-LEAD MINES

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Geophysical Section, Bureau of Mineral Resources Geology & Geophysics