

# GEOLOGICAL AND MINERALOGICAL OBSERVATIONS IN CENTRAL AUSTRALIA.

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(Plates liii-lv; Figures 1-12.)

## Introduction.

By the invitation of the Mica Corporation of Australia Limited, and the generous assistance of a number of donors, I was enabled to accompany Messrs. J. Dale and R. Barlow on an expedition to Central Australia. Our method of transport was by motor lorry, and altogether we travelled 850 miles in Central Australia. Entering the Territory from Queensland at about latitude 21° 51' south, we travelled 25 miles south along the Queensland-Central Australia border fence to Tobermory Station, and then in a general west-by-south direction for 204 miles to Oorabbra Water Holes. From here we changed direction to approximately south-west. Crossing the Marshall and Plenty Rivers, and passing over the Hart Range, through Arltunga, we reached Alice Springs in the MacDonnell Range, a further distance of 180 miles. Returning to the Hart Range, we established a camp and remained in these ranges for a period of four weeks. It will be obvious that any work carried out is purely in the nature of reconnaissance, and all that can be hoped for is that these notes may add a little to our knowledge of this very remote and exceedingly interesting area. I am greatly indebted to Assistant Professor W. R. Browne for much valuable help in their preparation and for petrological determinations, and to Mr. R. O. Chalmers for the chemical analyses carried out by him.

The period of my sojourn in Central Australia was from the 12th October, 1929, to the 1st December, 1929. The maximum shade temperature recorded was 104° F. at 4 p.m. for several days, while the minimum temperature was 71.6° F. on the night of the 4th November. During the month of October it rained for six consecutive days, which, I understand, is a very rare happening for that time of the year. A week prior to our leaving the Territory, heavy rain set in, which was largely responsible for our returning somewhat earlier than we had intended. Once the wet season sets in, travelling is almost impossible.

The average yearly rainfall for the Hart Range area is under ten inches, and the country presents a very arid appearance. The vegetation is distinctly desert in type, except along the river courses, where the eucalypts are represented by several species, especially the Bloodwood (*E. terminalis*) and the Red Gum (*E. rostrata*). Elsewhere the acacias, particularly the mulga and gidyea, predominate. A coarse wiry grass covers many of the flat sandy valleys.