

THE TAWALLAH VALLEY METEORITE.

General Description.

By T. HODGE-SMITH,
The Australian Museum.

The Microstructure.

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(Plates i-ii and Figures 1-2.)

General Description.

Little information is available about the finding of this meteorite. Mr. Heathcock, Constable-in-Charge of the Borroloola Police Station, Northern Territory, informed me in April, 1939, that it had been in the Police Station for eighteen months or more. It was found by Mr. Condon, presumably some time in 1937.

The weight of the iron as received was 75.75 kg. (167 lb.). A small piece had been cut off, but its weight probably did not exceed 200 grammes. The main mass weighing 39.35 kg. (86½ lb.) is in the collection of the Geological Survey, Department of the Interior, Canberra. A portion weighing 30.16 kg. (66½ lb.) and five pieces together weighing 1.67 kg. are in the collection of the Australian Museum, and a slice weighing 453 grammes is in the Museum of the Geology Department, the University of Melbourne.

The locality is Tawallah Valley, about forty-eight miles north-west of Borroloola, Northern Territory, Australia, latitude 15° 42' S., longitude 135° 40' E. approximately.

The shape of the iron is quite unusual in that it is more or less flat and there is an almost complete absence of thumb-marks so characteristic of meteoric iron. The iron contains only a few very small inclusions of troilite and no schreibersite has been found. This does support the view that thumb-marks are due to the decomposition of such minerals during the meteorite's flight through the atmosphere. The flat side forms roughly a parallelogram the longer sides of which are very straight and almost parallel. They are 65 cm. in length and approximately 38 cm. apart. The smaller sides of the parallelogram forming the head and tail of the meteorite are not so straight. The tail particularly is curved toward the centre.

The thickness gradually decreases from the head (65 mm.) to the tail (5 mm.). There is a general tapering from one side to the other, though this difference in thickness disappears toward the tail. One wing of the tail is bent at an angle of about 25° to the plane of the iron. It is possible that this was bent when the iron struck the ground, as there is a fairly large oval indentation on the edge just where the bending takes place, and there is no doubt that this indentation was formed^{me} mechanically.

The reverse side is almost perfectly flat with a number of indentations that have been mechanically formed. The larger ones appear to be the result of the iron striking something hard and sharp on reaching the ground. Their formation and orientation confirm the fact that the thick end of the iron was actually the head during flight. The smaller indentations are not oriented and resemble chisel marks and may have been made by man.

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