

NOTES AND NEWS

THE OSSEO, CANADA, METEORITE

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HISTORY

This iron meteorite was received by the United States National Museum in May, 1935, from Mr. Frank Johnston, Cane P.O., Ontario, Canada. Mr. Johnston writes:¹ "This meteorite was found three miles from the village of Osseo, Temiskaming District, Northern Ontario, and was lying on a flat rocky knoll. This meteorite was on a solid flat rock, which I have examined closely, but cannot find the slightest mark where it fell." "This meteorite was found in June, 1931, was not a witnessed fall, and was found by accident by a settler doing a little prospecting on his lot." It is further reported that it was at first taken to be a mass of metallic silver.

It is listed at the United States National Museum, Washington, D.C., under No. 925. Several slices have been cut from the main mass, and some have been distributed to other collections, as follows:

Stuart Perry, Adrian, Michigan	750 grams.
Colorado Museum of Natural History, Denver, Colo.	775 grams.
H. H. Niniger, Denver, Colorado	140 grams.
Kyancutta Museum, Kyancutta, Australia	290 grams.
Geological Survey of India, Calcutta, India	505 grams

DESCRIPTION

The iron as received was an irregularly oblong mass, with one rather flat face, the opposite face somewhat domed. The most striking features are the marked flutings that characterize one side of the meteorite. These are straight-edged grooves, varying from very shallow, as in the left-hand side of the photograph, figure 1, to over 2 cm. deep, in the right center. They average about 2 cm. in width. These grooves are not in parallel alignment, but are inclined somewhat to each other. If they are due to scouring action during the passage of the mass through the atmosphere, some variation in direction during flight might be suggested.

The meteorite is covered by the usual oxidized crust, which is not of any great depth. The top and bottom have the usual pitted surfaces. The original weight of the mass as received was 46.3 kilograms.

A polished slice, etched with dilute nitric acid in alcohol, shows this

¹ Private Communication, in files of U. S. National Museum.

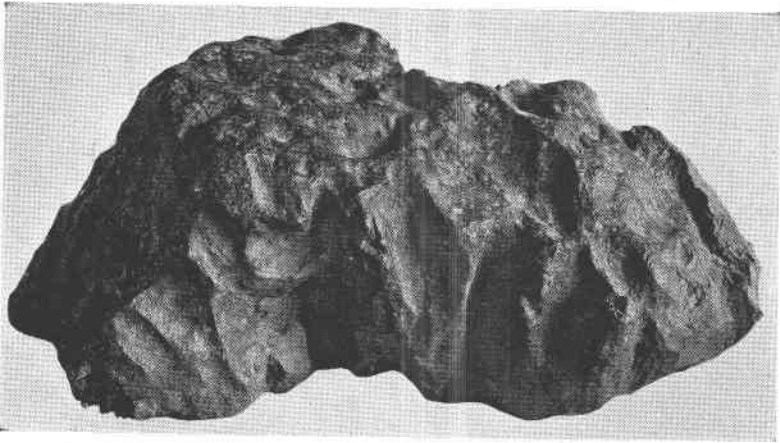


FIG. 1. The Osseo, Canada, meteorite. Side view. $\frac{1}{3}$ natural size.

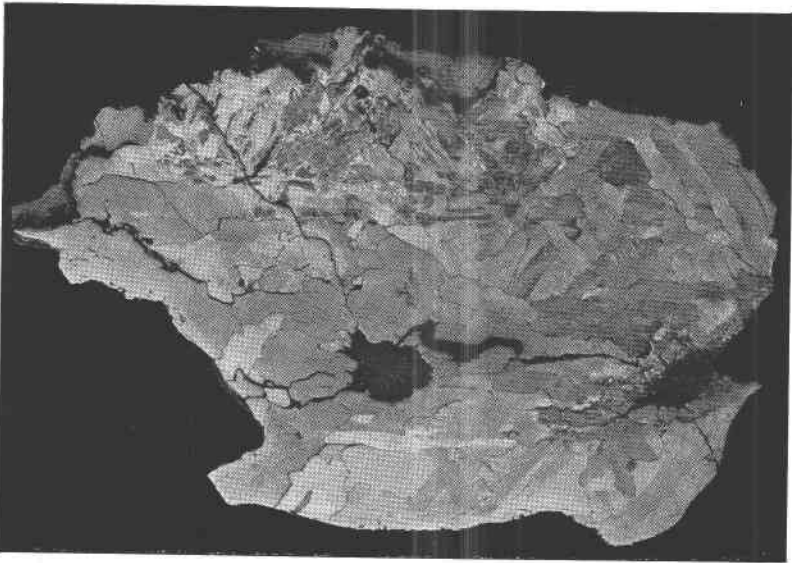


FIG. 2. Osseo, Canada, Meteorite. Polished, etched slice, $\frac{4}{5}$ natural size.

mass to be a very coarse octahedrite. Random measurements made on several grains show the longer dimensions to vary between 9 and 26 mm., the shorter between 1 and 8 mm. It is a kamacitic iron, carrying a few troilite nodules and rather rare schreibersite. In places it shows cracking along the kamacite individuals to give a somewhat brecciated appearance. The Neumann lines are bent in places, which is a somewhat

unusual feature, and may perhaps indicate distortion during the flight, as may also the arrangement of the exterior grooves, as noted above.

On the slice studied, one of the troilite nodules is surrounded by schreibersite, and there is also considerable schreibersite having no connection with the troilite. The two main troilite nodules are connected with a narrow band of troilite, which varies in width, and seems to follow the kamacite boundaries in a general fashion. The schreibersite seems oriented irregularly in the same network as the kamacite. One or two small areas of plessite may be seen, and some oxidized troilite in thin bands, more or less between kamacite grains. There seem to be some areas of granular iron along the outside boundary of the slice. No lawrencite is visible. See figure 2.

ANALYSIS

A portion weighing about 25 grams was taken for analysis. No troilite and very little schreibersite were visible on its surface. The thin oxidized crust was removed by grinding. The results are shown in Table 1.

TABLE 1. CHEMICAL ANALYSIS OF THE OSSEO, CANADA, METEORITE

C	0.007%	Co	0.11
Pt, etc.	0.02	Ni	6.51
S	0.00	Fe	92.89
P	0.50		
Cu	0.10	Total	100.137%

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No striking peculiarities appear in this analysis. The ratio of iron to nickel is well within the average range of coarse octahedrites. A trace of chromite may be included in the small fraction reported as platinum, as this was too small for an accurate separation into further constituents. The absence of troilite from the analyzed portion is borne out by the absence of sulphur. The low phosphorus content shows only minor amounts of schreibersite. Evidently the troilite and schreibersite are irregularly distributed. Except for the carbon and platinum portions, the entire sample was soluble in warm dilute nitric acid.

COMMENTS

The absence of any marks on the ground underlying the meteorite when found may perhaps be accounted for by the fall having occurred during the winter, when there was a very heavy cover of snow and ice, which might not have been entirely dissipated by the impact. The possibility that the mass may have fallen elsewhere during glacial time, and been transported by the ice-sheet, seems rather far-fetched, especially

since no glacial striae are visible, and the weathered crust is relatively thin. While it is by no means a universal rule, meteorites that have been found in glacial drifts usually have a much thicker crust than this mass.

NOMENCLATURE

This mass will be known as the Osseo Iron, very coarse kamacitic octahedrite.

ACKNOWLEDGEMENTS

Thanks are due to the Assistant Secretary of the United States National Museum for permission to use the laboratory and other facilities of the Museum for this investigation. The kind assistance of Dr. W. F. Foshag and Mr. E. P. Henderson in the description of the mass and the choice of analytical methods are most gratefully acknowledged.

ZEOLITES IN NEW MEXICO

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The writer has been unable to find any occurrences of zeolites described from New Mexico. Consequently, the two localities mentioned below are possibly the first on record from this state. Both localities are near Socorro, the first about twelve miles northeast, the other about three miles west of Socorro.

VALLE DEL OJO DE LA PARIDA

The Valle del Ojo de la Parida is a depression lying in the northeastern corner of the Socorro quadrangle. It represents a remnant of a great area of pediment¹ cut mainly in Paleozoic, Mesozoic, and Tertiary rocks. Residual hills over the valley are capped with the Santa Fe formation of late Pliocene age, the main body of the Santa Fe being largely eroded from this immediate vicinity. Bordering the valley on the west is a belt of Tertiary volcanic rocks. It is in one of these volcanic flows that the zeolites are found.

The zeolite rock is a dark colored andesite, possibly extruded in Santa Fe time and covered shortly after extrusion with Santa Fe sediments. Although several andesite flows are found within the Santa Fe formation near Socorro, only this one is known to contain zeolites.

The Santa Fe formation in this locality is a very coarse, poorly sorted gravel. It is clearly of fluvial origin, swept out from the nearby hills by ephemeral streams and deposited as alluvial fans along the fronts of the

¹ Bryan, Kirk, The formation of pediments: *Rpt. of XVI International Geological Congress, Washington*. Preprint, 1933.