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The meteoric stone which fell at Ashdon, Essex, on March 9, 1923.

(*With Plate II.*)

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Fall of the Stone.

THE stone was seen to fall, at about 1 p.m. on March 9, 1923, by a thatcher named Frederick Pratt who was working at the time in a corner of a wheat-field on Ashdon Hall farm, Ashdon, near Saffron Walden, Essex. He heard a strange 'sissing' sound, and, supposing an aeroplane was overhead, looked up and a second or two after saw what he thought was a projectile fall about thirty yards from him into the wheat-field a few feet from the farm-road, causing the earth to 'fly up like water'. Three days later, in company with another worker on Ashdon Hall farm named Curven, he dug up the stone from a depth of about two feet. After taking up the stone and chipping off a few pieces, Pratt took it to the police-station and later disposed of it to the Rev. F. W. Berry, vicar of Wenden, near Saffron Walden, by whom it was generously presented to the British Museum. On June 8th, three months after the fall of the stone, the writer, in company with Mr. Berry and Mr. Pratt, visited the site of the fall. The spot is a third of a mile

due south of All Saints' Church, Ashdon, in 52° 2′ 40″ N. Lat. and 0° 18′ 20″ E. Long. Near the hole was found one of the chips which had been knocked off the stone when it was dug up. From Pratt's observations as to the direction from which the sound came and the inclination of the hole, it would seem that the stone was travelling from SW. to NE. and must have passed over Saffron Walden. As far as could be ascertained by Mr. Berry, no sounds of detonations appear to have been heard in the neighbourhood of Saffron Walden on March 9th.

Physical Characters.

The stone (*Reg.* No. 1923,484) as received weighed 1270 grams (about $2\frac{3}{4}$lb.), but its original weight before the pieces were chipped off the thin edge must have been about 1300 grams. Its dimensions are about 12 × 9 × 6 cm. In shape it is roughly lenticular with one large face nearly plane, and the opposite one rough and irregular but showing no definite 'thumb-marks'. The thickness between these two faces is about 6 cm. in the centre and 5 cm. on one side. Except on this side, the two large faces meet in a fairly narrow rim, so that the stone is somewhat wedge-shaped. The large plane face (Pl. II, fig. 1) shows very strikingly lines of flow of the fused surface, which radiate from the centre and are continued over the thick side of the stone in a regular cascade (Pl. II, fig. 2), but terminate in a thickening round the rest of the rim between the two main faces. This large plane face was obviously the one directed mostly to the front, with the thick side below, during the flight of the stone while the crust was molten. That the other irregular face, however, was also occasionally in front is suggested by the fact that it also shows in places lines of flow of the fused crust radiating from the centre, but these are much less distinct than those on the plane face. The dull black crust of the stone is fairly thick, up to one millimetre. The fresh fracture is white and shows specks of nickeliferous iron and very sparingly distributed chondrules. Under the microscope a thin section shows the usual characters of a white chrondrite. Chondrules are few and ill-defined, and consist mainly of pyroxene. Most of them show grating-structure, the gratings in some cases consisting of alternating bars of orthorhombic pyroxene and felspar, and in others of two different pyroxenes, one in narrow bars, orthorhombic and free from inclusions, the other monoclinic (extinction up to 35°) in wider bars and dusty with inclusions. Scattered through the slide are fragments showing grating-structure, and groups of idiomorphic olivines, suggestive of residual portions of chondrules which have been mostly

absorbed. Interstitial felspar is fairly plentiful, and also a mineral of higher refraction generally dusty with inclusions and in some cases nearly isotropic (probably merrillite). The felspar shows occasionally rather ill-defined twin-structure with low angles of extinction. Grains of troilite and iron are fairly plentiful. In the centre of the slide is a fine-grained patch of irregular outline and passing imperceptibly into the matrix. It consists of finely granular pyroxene, and probably olivine, with interstitial felspar, and is distinguished further from the matrix by showing no chondrules and no large grains of troilite and iron; but in reflected light numerous and fairly evenly distributed bright points, apparently of metal, are visible. The specific gravity ($D\ ^{21}_{4}$) of the stone, as determined by hydrostatic weighing on 2·0976 grams, is 3·58.

Chemical Composition.

A chemical analysis was made by the method described in a previous paper[1] in order to determine approximately the amount and composition of the nickeliferous iron. An amount weighing about 11½ grams of the stone was powdered and separated by the magnet into attracted and unattracted portions.

Weight of attracted material = 1·1061 grams.
„ unattracted „ = 10·3499 „

The result of the analysis of the attracted material is as follows:

Insoluble silicate	8·05
Soluble silicate	5·29
Troilite	1·09
Ni	12·46
Fe(+Co) by diff.	[73·11]
	100·00

The Ashdon meteoric stone is a *white hypersthene-chondrite*, containing 8·26 per cent. of nickeliferous iron in which the ratio of iron to nickel is about 6.

EXPLANATION OF PLATE II.

FIG. 1.—Photograph of Ashdon meteoric stone, showing large plane face with lines of flow of fused material radiating from the centre. Reduced to ⅘.

FIG. 2.—Photograph of Ashdon meteoric stone, showing side face, over the edge of which the fused material formed a cascade. Reduced to ⅘.

[1] Min. Mag., 1919, vol. 18, p. 349.

FIG. 1

FIG. 2

G. T. PRIOR: THE ASHDON (ESSEX) METEORITE.