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

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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 observa-
tions 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 2¾lb.), but its original weight before the pieces were chipped off
the thin edge must have been about 1300 grams. Its dimensions are
about $12 \times 9 \times 6$ 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,
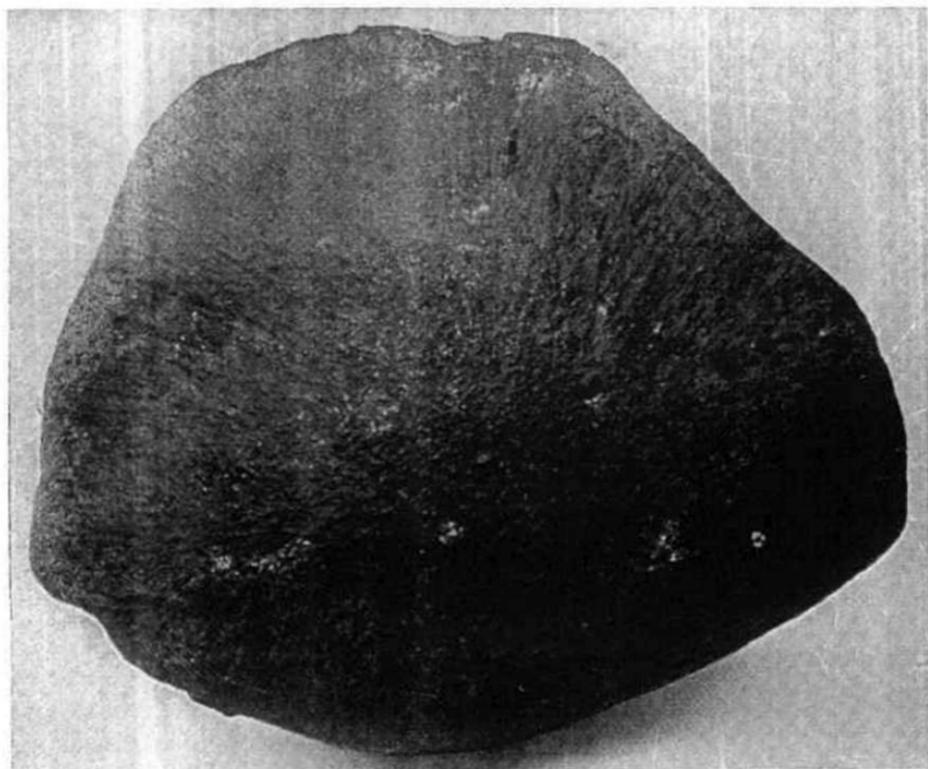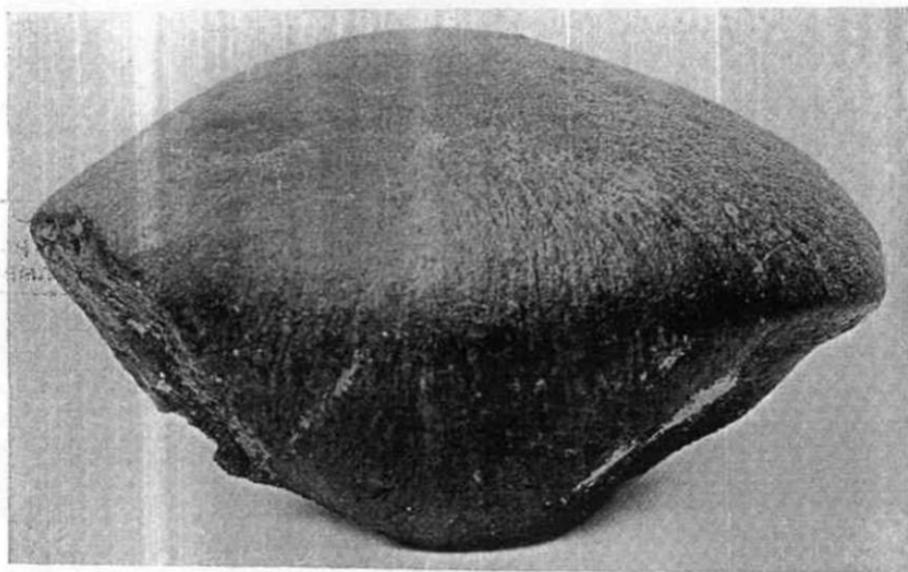suggestive of residual portions of chondrules which have been mostly

FIG. 1

FIG. 2

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

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 ($D \frac{21}{4}$) 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 $11\frac{1}{2}$ 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 $\frac{4}{5}$.

FIG. 2.—Photograph of Ashdon meteoric stone, showing side face, over the edge of which the fused material formed a cascade. Reduced to $\frac{4}{5}$.

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