ON A NEWLY-FOUND METEORITE FROM SELMA, DALLAS COUNTY, ALABAMA.

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The information relating to the finding of the stone described below was sent the writer by Mr. John W. Coleman, to whom he is indebted for a small fragment and the privilege of describing, as well as information concerning its weight and general appearance.

The stone, as found, appears to have been a nearly complete individual, a piece of some three or four pounds weight only having been broken from one side. In shape it is roughly polygonal, without strongly marked flutings or pittings, and is considerably shattered and cracked, either from exposure or from the shock of striking the earth. (See Plate VI.)

The specimen received is without crust, and weathered to a dark reddish brown on the surface. Total weight of the stone, as reported, 310 pounds (140.6 kilograms). Greatest dimensions, as given by Mr. Coleman, 24 by 14 inches (60.96 by 35.5 centimeters); circumference, 69 by 44 inches (175 by 118 centimeters). Locality, 2 miles north and a little west of Selma, near the Summerfield road.

Although not found at the time, the date of fall is considered by Mr. Coleman as July 20, 1898, at about 9 o'clock in the evening. This is on the authority of various witnesses of "a great light passing from east to west, leaving behind it a trail of fire 10 or 12 feet long, and accompanied by a rumbling noise." One of the persons was so sure of the place of fall that a search was instituted for it at the time. There is, of course, no possibility of establishing absolutely the identity of the stone so recently found and the one seen to fall, but the close proximity of the localities makes it possible.

Additional data subsequently given by Mr. C. G. Gilbert, who visited the locality in the interests of the late H. A. Ward, are as follows:

The position of the stone, as found, was such as to suggest that it was first unearthed in the work of digging a trench for the purpose of laying a drain pipe and rolled one side, as would have been done

with an ordinary boulder, where it lay among the weeds until its true nature was surmised by Mr. Coleman.

As described by Mr. Gilbert in a letter to the writer, the stone at first sight is "a completely formless polyhedral block, but on longer inspection it resolves itself into something of a characteristic aerolite form—a blunt quadrangular pyramid with smooth, unpitted faces and rounded edges." (See Plate VI.) The thickness of the block he gives as 35.56 centimeters, the basal edges measuring, respectively, 35.56, 43.18, and 50.8 centimeters. The blunt apex of the pyramid—evidently the front side during flight—was covered for a distance of about 15.24 centimeters with a thin coating of carbonate of lime, which presumably marked the depth to which the stone penetrated on first striking the ground. This portion of the stone is smooth, except for the lime coating, and shows, as do the sides, the original though now oxidized crust. The base is, however, rough, with a somewhat scaly brown-black appearance, quite unlike the rest of the surface, and is divided by numerous fissures, due to weathering, as shown in fig. 3 of Plate VI. "The whole appearance," writes Mr. Gilbert, "indicates that it represents what was once a fine, large, well-orientated aerolite, many of the characteristics of which have become obliterated through exposure."

Macroscopically the stone is dense, of a dark-gray color, and sufficiently compact to receive a good polish. Cut surfaces show abundant "kugel" chondrules of all sizes up to 3 millimeters in diameter, though forms above 1.5 to 2 millimeters are rare. These are so firmly embedded as for the most part to break with the stone. The metallic portion is quite inconspicuous to the unaided eye.

Under the microscope in thin sections the stone is seen to be composed of extremely variable chondrules, often fragmental, and scattered particles of silicate minerals embedded in a dark opaque ground which, by reflected light, shows up as a network of deep-blue metallic iron and its oxidation products and brilliant points of yellow-white troilite. Olivine, enstatite, and a monoclinic pyroxene constitute the silicate portion. These are, in large part, in the form of fragmental chondrules, though sometimes quite perfectly oval. (Plate VII, fig. 1.) The olivine chondrules show the common barred and porphyritic forms, the latter with a more or less glassy or fibrous base. (Plate VII, fig. 2.) Some of them are mere aggregates of polarizing points without evident interstitial matter. There are also occasional large, scattered, single crystals and fragments not constituting chondrules. The enstatites occur under similar conditions and also in fan-shaped radiating forms, very much broken and otherwise imperfect (Plate VII, fig. 1), and in dense crypto-crystalline forms, presenting no opportunity for optical determination. (Plate VII, fig. 3.) The monoclinic pyroxenes are the least abundant of the silicates and show the usual (in

meteorites) polysynthetic twinning and low (15° to 20°) angles of extinction. They are colorless or of a gray color and, but for the inclined extinctions, distinguished with difficulty from the enstatite. They occur in chondrules as well as in scattered isolated forms. No feldspars nor minerals other than those noted were observed.

The most striking feature of the stone is the broken and fragmental condition of the chondrules and the variety of forms manifested. It is best comparable, so far as the writer's experience goes, with that of Tieschitz, Moravia, described by Tschermak.[a] It belongs, therefore, to Brezina's class of kugel chondrites Cc. It will be known as the Selma, Alabama, meteorite, and is the fourth stony meteorite thus far reported from that State.

Since the above was written the stone has been purchased by the American Museum of Natural History, New York city.

EXPLANATION OF PLATES.

PLATE VI.

Three views, drawn from photographs.

PLATE VII.

FIG. 1. Showing microstructure and fragmental nature of olivine and enstatites. The amount of dark interspace is exaggerated by the oxidization of the ferruginous constituents.

2. Chondrule of porphyritic olivines.

3. Chondrule of cryptocrystalline enstatite.

[a] Denkschrift d. math.-Natur. Classe d. kaiserlichen Akad. der Wissen., XXXIX. 1878.