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The Winnebago County (Iowa) Meteorites

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The Winnebago County (Iowa) Meteorites.

ON Friday evening, May 2, 1890, at 5.15 P.M., standard western time, a meteor was observed over a good part of the State of Iowa, and is described as a bright ball of fire, moving from west to east, leaving a trail of smoke which was visible for some minutes. It was accompanied by a noise likened to that of heavy cannonading or of thunder; and many people rushed to the doors, thinking it was the rumbling of an earthquake. Substantiated reports have been received from Des Moines, Mason City, Fort Dodge, Emmetsburg, Algonia, Ruthven, Brett, and Forest City. The noise was also heard at Sioux City. Some of these places were at a distance of over a hundred miles from the point where the meteor fell. It exploded about eleven miles north of Forest City, Winnebago County, in the centre of the northern part of Iowa, latitude $43^{\circ} 15'$, longitude $93^{\circ} 45'$ west of Greenwich, near the Minnesota State line. The fragments were scattered over a considerable surface of ground. Up to the present time, there have been found a 104-pound, a 70-pound, and a 10-pound mass, and a number of fragments weighing from one to twenty ounces each; and a part of the main mass of the meteorite is believed to have passed over into Minnesota. The pieces are all angular, with rounded edges.

This meteorite is a typical chondrite, apparently of the type of the Parnallite group of Meunier, which fell Feb. 28, 1857, at Parnallee, India. The stone is porous, and when it is placed in water to ascertain its specific gravity, there is a considerable ebullition of air. The specific gravity, on a fifteen-gramme piece, was found to be 3.638. The crust is rather thin, opaque black, not shining, and, under the microscope, is very scoriaceous, resembling the Knyahinya (Hungary) and the West Liberty (Iowa) meteoric stones. A broken surface shows the interior color to be gray, spotted with brown, black, and white; the latter showing the existence of small specks of meteoric iron from one-tenth to four-tenths of a millimetre across. Troilite is also present in small rounded masses of about the same size. On one broken surface was a very thin seam of a soft black substance, evidently graphite (?), and soft enough to mark white paper; a felspar (anorthite?) was also observed, and enstatite was also present. I present a paper on this meteorite at the meeting of the New York Academy of Sciences, May 12, and will give full particulars at the next meeting.

This is the fourth meteorite that has been seen to fall in Iowa. The other three falls were as follows: at Hartford, Linn County, Feb. 25, 1847; at West Liberty, Iowa County, Feb. 12, 1875; and the great fall of siderolites at Estherville, Emmet County, May 10, 1879, which fall comprised over two thousand pieces weighing from a tenth of an ounce to four hundred pounds.

GEORGE F. KUNZ.

New York, May 8.

A REMARKABLE meteor, or meteoric shower, passed over this State at 5.30 P.M., Friday, May 2. In spite of the brightness of the sun, shining at the time in a nearly cloudless sky, the light of the meteor was very noticeable. Its great size, powerful illumination, discharge of sparks, comet-like tail three to five degrees in length, and the great train of smoke which marked its course for a full ten minutes after its passage, made a strong and lasting impression on the minds of all who saw it. Unfortunately the clamor over an exciting game of ball prevented the many members of the college who saw it from making as careful observations as they would otherwise have done: so it was impossible to tell whether its passage was accompanied by sound or not, although farmers near here report a faint hissing noise. It appeared to enter the atmosphere about twenty to thirty degrees south of the zenith, and, descending at an angle of about fifty to sixty degrees, passed below the horizon north-north-west of this place. By telegraphing, one small meteorite weighing one-fifth of a pound, and several fragments from a 70-pound one, were secured, and analyses and microscopic sections at once made. They contain a large amount of metal for the "stone" class of meteorites.

Following is the analysis of the matrix of the 70-pound meteorite: silica, 47.03; iron oxide, 29.43; oxide aluminium, 2.94; lime, 17.58; magnesia, 2.96; total, 99.94.

The specific gravity is 2.63. The shower covered an area at least two and a half miles long by one wide, near Forest City, Io. There the meteorites are said to have fallen in great numbers; and already many have been found, varying from a few ounces to sixty or seventy pounds in weight.

It seems worthy of mention, that, in accordance with theories entertained here, a 100-pound aerolite has just been found in Kosuth County, some thirty or forty miles farther north. These meteorites all have the characteristic burned, blackened surfaces. Within they are light gray, interspersed with innumerable irregular spots of iron. The many exaggerated and excited reports make it difficult to get at facts: so it seems best for the present to make only a preliminary statement and analysis, until we can make a full and accurate report on this last and highly interesting Iowa meteor.

JOSEPH TORREY, JR.
ERWIN H. BARBOUR.

Iowa College, Grinnell, May 9.