be transformed either entirely or at the surface only into magnetic oxide, and in this latter case the nucleus is protected from further oxidation by the coating which thus covers it.

"One may suppose that meteorites in their passage through the atmosphere break into numerous fragments, that incandescent particles of iron are thrown off all round them, and that these eventually fall to the surface of the globe as almost impalpable dust, in the form of magnetic oxide of iron more or less completely fused. The luminous trains of falling stars are probably due to the combustion of these innumerable particles, resembling the sparks which fly from a ribbon of iron burnt in oxygen, or the particles of the same metal thrown off when striking a flint. It is easy to show that these particles in burning take a spherical form, and are surrounded by a layer of black magnetic oxide.

"Among the magnetic grains found in the same conditions as those just described are other spherules, which are referred to the *chondres*, so that if the interpretation of a

FIG. 295.—Black Spherule with Metallic Nucleus ($\frac{40}{1}$). This spherule, covered with a coating of black shining magnetite, represents the most frequent shape. The depression here shown is often found at the surface of these spherules. From 2375 fathoms, South Pacific.

FIG. 296.—Black Spherul. with Metallic Nucleus ($\frac{40}{1}$) The black external coatin of magnetic oxide has been broken away to show the metallic nucleus, represented by the clear part at the centre. From 3150 fathoms, Atlantic.

cosmic origin for the magnetic spherules with a metallic centre were not established in a manner absolutely beyond question, it almost becomes so when their association with the silicate spherules is taken into account. It will be seen by the microscopic details that these spherules have quite the constitution and structure of *chondres* so frequent in meteorites of the most ordinary type, and on the other hand they have never been found, as far as is known, in rocks of a terrestrial origin; in short, the presence of these spherules in the deep-sea deposits, and their association with the metallic spherules, is a matter of prime importance.

"Among the fragments attracted by the magnet in deep-sea deposits granules are distinguished slightly larger than the spherules with the shining black coating above described. These are yellowish brown, with a bronze-like lustre, and under the microscope, it is noticed that the surface, instead of being quite smooth, is grooved by thin lamellæ. In size they never exceed a millimetre, generally they are about 0·5 mm.