

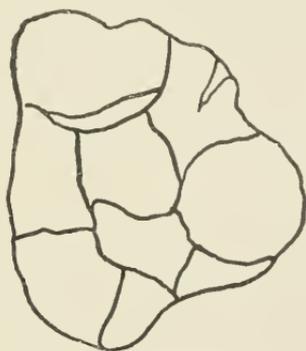
NOTE ON AN OCCURRENCE OF GRAPHITIC IRON IN A METEORITE.

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During the course of some investigations as to the relation of structure to composition in meteoric irons, at present being carried on by me, a black concretion was observed in a sample of the Canyon Diablo meteorite. This concretion was of such a size that it was readily broken out in a nearly perfect condition.

On cutting it, in order to make a metallographic examination, the mass was found to be a septarian nodule (see figure), the septa consisting of the native metals which metallographically did not differ from that of the mass of the iron. The interseptal portions consisted of a very fine-grained, distinctly crystalline graphitic carbon, and amorphous carbon, which could be separated from each other in part by floating. Intimately mixed with the two kinds of carbon is a very fine granular or scaly troilite. There is also present a lustrous metallic, dark steel-gray substance occurring in irregular angular masses varying in size from minute grains to one weighing 110 milligrams. This material was at first taken for graphite in that it closely resembled that mineral. It was, however, strongly magnetic, thus affording a ready method for its separation.



PLAN OF SEPTARIAN NODULE.
(Twice natural size.)

The composition of the material thus isolated is as follows:

Fe.....	88.84
Ni.....	4.00
Co.....	(a)
Si.....	2.00
C.....	4.35
P.....	0.87
	100.06

Specific gravity, 6.910.

a Present, but not weighable.

Weinschenk ^a has described a carbide of iron, cohenite, having the following properties: Hardness 5.5-6, specific gravity 6.977, luster metallic, color tin-white, becoming bronze yellow on exposure. Occurring in crystals, probably isometric, having the following composition: Fe, 89.88; Ni (Co), 3.71; C, 6.41; Sn, Cu, trace.

The graphitic iron here described differs from cohenite, in that it is soft enough to leave a mark on white paper; does not occur in crystals belonging to the isometric system but in angular foliated masses. Its color is dark steel gray, while cohenite is tin-white.

^aAnn. Mus. Wien., IV, p. 94, 1889.