

ART. XXXVI.—*On a mass of Meteoric Iron from Wichita County, Texas*; by J. W. MALLET.

THE following is the history of the Wichita County meteoric mass, as given me by Hon. Henry P. Brewster, Commissioner of Insurance, Statistics and History of the State of Texas, a gentleman whose personal knowledge of the State in its early days is extensive and accurate.

The meteorite was found on the upper waters of Red River, in what is now the county of Wichita, not far from the Red River

¹⁵ *Science*. vol. ii, No. 41, p. 654.

itself, on the opposite side of that stream from the part of the Indian Territory at present set apart for the Kiowas, Comanches and Apaches. It had been set up as a kind of "fetich" or object of worship or veneration by the Indians, "who revered it as foreign to the earth and coming from the Great Spirit," at a point where several converging trails indicated periodical visits to the spot. In 1858 or '59 Maj. Neighbors, then commanding at Fort Belknap, sent a wagon after the mass, and had it brought into the fort. It was thence sent in a government wagon to San Antonio, and subsequently moved to Austin, and there deposited in the old Capitol building, where it remained until the destruction of the building by fire some three years ago. Removed from the ruins, it was placed in a passage on the ground floor of the temporary Capitol now in use while the new and very handsome structure, intended for the permanent seat of the State government, is being erected. During last winter the meteorite was turned over by the State authorities to the University of Texas, and is now preserved in the University building at Austin.

The mass has an irregular, elongated pear-like shape, somewhat flattened, a good deal larger at one end than the other, with tolerably smooth general surface, but with well marked concavities or shallow pittings—in every way presenting the appearance of a typical metallic meteorite. There is no well-defined crust, but merely a thin, closely adhering film of oxide on the surface. There is no appearance of any effect from the Capitol fire through which it passed; very probably the weight of the mass may have carried it rapidly, on the giving way of the floor, down to some position in the basement in which it was sheltered from the heat by masonry rubbish accumulated over it. The dimensions of the specimen in its original state were—

Maximum length . . .	595 millimeters.
Maximum breadth . . .	305 " "
Maximum thickness . . .	223 " "

The weight was a little under 160 kilograms, as determined on a rather rough platform balance.

A piece was cut off one end in order to display the character of the interior. Most of the iron was compact, and tolerably soft, tough and malleable. Here and there occurred nodules of troilite of considerable size, the principal ones ranging from 5 or 6 up to 23 millimeters in diameter. Signs of the presence of thin plates of schreibersite could be seen even without the use of acid, but that ingredient is not very abundant. The average specific gravity of the whole mass was probably pretty fairly represented by that of a slice weighing 204 grams, which was found = 7.841 at 24° C.

A polished surface having been etched with nitric acid, Widmannstätten figures were clearly brought out, the broad bands of crystalline nickel-iron (with finer subordinate markings upon them) contrasting strongly with the more sparingly occurring, well-defined, lustrous lines of schreibersite.

Chemical analysis of an average sample of the shavings taken off by a planing machine in cutting through the mass gave :

Iron	90.769
Nickel	8.342
Cobalt265
Manganese	<i>trace</i>
Copper018
Tin004
Phosphorus141
Sulphur016
Graphitic carbon190
Silica	} .132†
Magnetic oxide iron	
	99.877

A separate examination of the troilite nodules proved them to consist of ferrous sulphide with a little nickel and traces of manganese and chromium. The nickel may very possibly have existed in the form of minute granules of nickel-iron or schreibersite, and the chromium may in like manner be referred to an admixture of little particles of daubréelite.

The most interesting point about this specimen is perhaps the probability of its forming a separate portion of the same meteoric fall from which was derived the large iron meteorite, weighing 1635 lbs., first described by Col. Gibbs in 1814, and which has long been a prominent object in the mineralogical collection of Yale College at New Haven, Connecticut. The latter is said to have been found "near the head of Trinity River, a few miles west of the Cross Timbers, Texas, lat. 32°7', long. 95° 10' west of London." It is said to have been "one of a large number of meteoric masses which are reported to exist at the locality mentioned above." The statement of locality is not quite clear; the spot designated by latitude and longitude is in the northern part of the present Cherokee County, near the line of Smith County, and rather on the head waters of the Neches than of the Trinity, though not far from the latter, and about 240 miles from the locality in Wichita County where the meteorite now described was found. Even such a distance

* Both of course variable with the distribution of schreibersite and troilite.

† Silica perhaps originally present as iron silicide—magnetic oxide iron doubtless from outside surface.

perhaps does not altogether exclude the idea of simultaneous fall, and it is of course quite possible that the mass found to be regarded with attention and veneration by the Indians may have been by them carried to the spot where they afterwards preserved it. There seems to be some uncertainty as to how many meteoric irons from Texas have before now been noticed, and are to be found in the mineralogical collections of the world. In a catalogue of the collection of Professor C. U. Shepard, published in 1857, in the second part of his treatise on mineralogy, p. 436, there is mentioned a meteoric iron from "Texas (Red River), U. S. A., found in 1808." In Rammelsberg's *Handbuch der Mineralchemie* (Leipzig, 1860) are noticed, p. 917, specimens from "Red River in Louisiana," and from "Texas," with the statement that according to Partsch these are probably identical; this opinion is undoubtedly correct; the analyses quoted show that both represent the Yale College specimen. In the recent (1880) catalogue of meteorites in the collection of the Indian Museum at Calcutta, No. 108 is quoted on p. 38, as two specimens from "Red River, Texas, U. S. A., found in 1814," No. 27, on p. 31, as a specimen which "apparently has been fired, from Denton County, Texas, U. S. A., found in 1856," and No. 39, on p. 32, as from "Brazos River, Texas, U. S. A., found in 1856." It may be questioned whether Nos. 27 and 39 refer to portions of the same or of different masses; the same date is given, but the shortest distance from any part of Denton county to the Brazos is about 40 miles, this county being traversed by affluents of the Trinity. The specific gravity of the iron now described agrees closely with that reported for the Gibbs meteorite of the Yale College collection. The results of the chemical analysis are also very similar to those obtained for the latter by B. Silliman, Jr. and Hunt. It is stated that this latter "encloses a few small masses of magnetic pyrites;" this statement probably referring to troilite nodules like those which are conspicuous enclosures in the University of Texas specimen. The Widmannstätten figures developed by etching this University of Texas iron do not closely resemble those of the Yale College specimen, as shown in a lithographed figure published in connection with the (Göttingen) inaugural dissertation on metallic meteorites of Wm. S. Clark (1852), copied from one published by Professor B. Silliman, Jr., but the difference of appearance may be largely due to difference in the planes of section in relation to those of crystallization in the particular pieces submitted to the etching process.

University of Virginia, August 11, 1884.