

A NEWLY FOUND METEORIC STONE REPORTED BY
W. B. LANG FROM PECK'S SPRING, MIDLAND COUNTY,
TEX.

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(With chemical analysis by F. A. GONYER)

The stone here described was received at the United States National Museum from Mr. W. B. Lang of the United States Geological Survey to whose kindly efforts we are indebted both for the accession¹ and the information regarding its occurrence and finding, as quoted below:

The stone was found by Mr. R. De Chicchis about one-half mile east of the Judkins ranch house on section 14, township 3, block 57, Texas & Pacific Railroad survey, Midland County, Tex., on May 15, 1926. As found it was about the size and shape of a good-sized potato, was well encrusted, and showed little evidence of having been marred by contact from fall, hammering, or chipping. The portion received at the Museum weighed almost exactly 800 grams and represented slightly less than one-half of the original, the remainder having been broken away and scattered among numerous individuals. There was nothing to indicate the exact point of fall though the fact that the stone showed no signs of wear or abrasion leads to the conclusion that it was near by, if not on the exact spot. There is no record of its having been seen to fall.

Broken and polished surfaces of the stone show an unusually dense, dark-gray, nearly black ground, thickly studded with firmly embedded gray chondritic forms of all sizes up to 5 or 6 millimeters. Minute points of metal and metallic sulphide are thickly and irregularly distributed through the mass; in a few instances the first mentioned is clustered collarlike about a chondrule in such a manner as to give countenance to the theory once advanced by Nordenskjöld to the effect that it was derived from the silicate through a process of reduction.²

¹ Cat. No. 831, U. S. N. M.

² Geol. Foreningen Stockholm Forhandlingar, 1878-79, p. 60.

In the thin section the stone shows a pronounced cataclastic structure composed of fragmental and imperfect chondrules interspersed with fine granular particles of silicate minerals and the usual metallic and sulphide particles. The chondrules vary from the densely radiating enstatite type to porphyritic irregular and fragmental forms in which the phenocrysts are mainly enstatite; olivine is abundant often in the form of irregular chondrules with the common grate, or barred structure. (See pl. 1.) No feldspars or other silicate constituents were noted. There are, however, abundant small, colorless, and irregular isotropic areas that might on casual inspection be mistaken for a residual glass but for the pronounced fragmental character of the stone. It is to be further noted that these areas are not interstitial but occur for the most part if not wholly in the body of the individual enstatites and olivines. The metal, it may be stated, occurs in particles of unusual minuteness, few of them reaching a millimeter in diameter while many are microscopic and so small that even when reduced to a fine powder by rubbing in an agate mortar the silicates were found to still contain minute particles.

A pronounced finely granular structure is prevalent throughout, suggestive of crushing and frequent and abrupt changes in temperature. The stone is, however, unusually hard and dense.

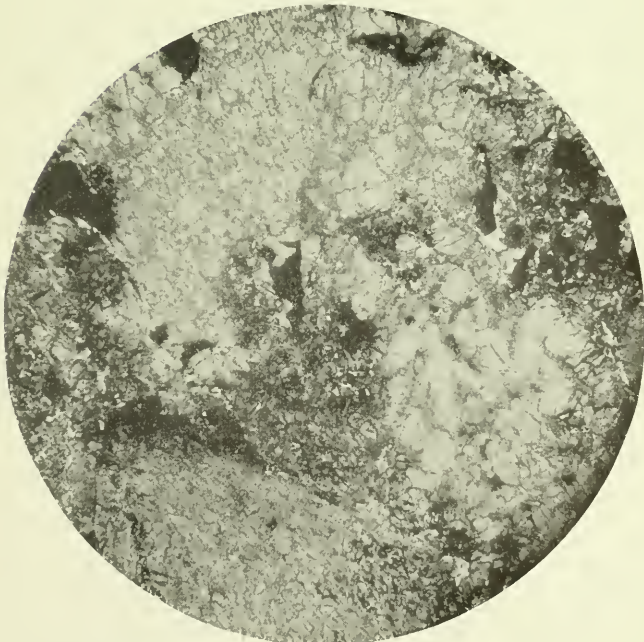
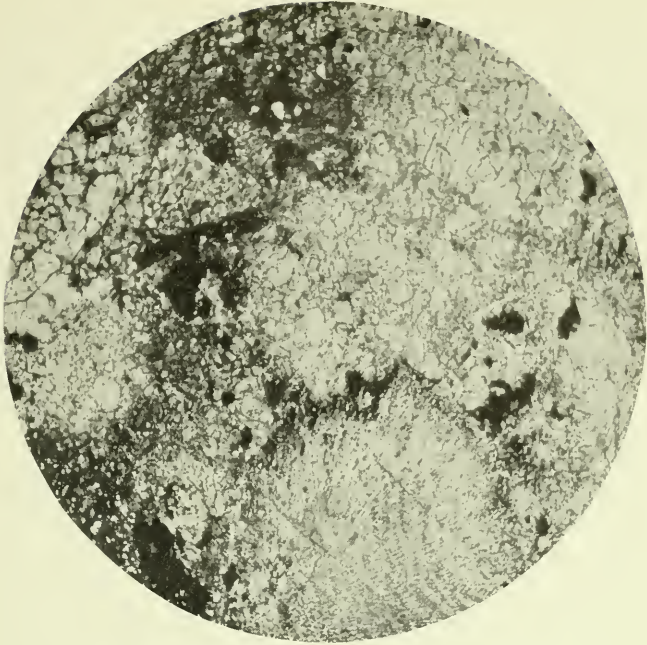
Mr. Gonyer's analysis yielded results as below:

A total of 11.2652 grams was digested in ammonium mercuric chloride. This yielded 10.6458 grams, or 94.51 per cent of silicates, and 0.6194 gram, or 5.4 per cent, of metal. These yielded as below:

	Per cent	
SiO ₂	37.57	} Silicate portion.
Al ₂ O ₃	7.12	
Cr ₂ O ₃35	
FeO.....	20.80	
CaO.....	2.14	
MgO.....	22.71	
K ₂ O.....	.21	
Na ₂ O.....	.78	
NiO.....	.55	
P ₂ O ₅24	
FeS.....	2.27	} Sulphide portion.
Fe.....	5.03	
Ni.....	.42	} Metallic portion.
Co.....	.01	
Cu.....	.002	

100.202

The analysis brings out no new or striking feature, though a little lower in metal than one would assume from an examination of a polished surface, and considerably below that of the average (12.45 per cent) that I have elsewhere given. On the other hand, it is high in alumina. There is, however, no reason to question the reliability of the analysis.



PHOTOMICROGRAPHS OF PECK'S SPRING METEORITE

FOR EXPLANATION OF PLATE SEE PAGE 2

