

SOME METALLOGRAPHIC OBSERVATIONS ON THE TISHOMINGO-OKLAHOMA METEORITE

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A metallographic examination of a portion of the Tishomingo, Johnston Co., Oklahoma, meteorite (a recent find) revealed some unique features. This iron contains 32.5 percent Ni, and displays a coarse martensitic structure, with retained taenite in the interstices of the needles. The volume percentage of martensite and taenite are about 79 and 21 percent respectively.

Martensite, although known in meteorites, has not been found in meteorites with high nickel contents. In order for martensite to form in an alloy of this composition the material must cool to possibly 150-225°K.

$(-48^{\circ}\text{C to } -123^{\circ}\text{C})$
 $(-54.4^{\circ}\text{F to } -189.4^{\circ}\text{F})$

This meteorite appears to be in a tempered condition. The tempering may have occurred during cosmic exposure or since the fall.

Striations within the martensite indicate the metal was slightly deformed. Since its fall, oxidation has penetrated altering the martensite needles.

Photomicrographs and electron micrographs of the microstructure and data on the Knoop hardness are given.

From the program of the ^{29th} Meeting of the Meteoritical Society, Nov 3-5, 1966 at the Natural History Museum 10th & Constitution Ave, N.W. Washington, D.C.

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