

CUMBERLAND FALLS

AUBRITE



Fell April 9, 1919
36° 50' N., 84° 21' W.

Several stones fell in Whitley County, Kentucky at noon after the appearance of a fireball and sonic booms. The largest fragment recovered was estimated to weigh 31 pounds. This meteorite is a breccia composed mainly of chalky-white enstatite fragments with a unique type of unequilibrated chondritic inclusion called a forsterite chondrite ("F chondrite"), and accessory metal, iron sulfide, and graphite. ALH78113 contains the only other material found so far from this chondrite suite. The nature of the association of the enstatite with the chondritic inclusions suggests that the F chondrite object was disrupted by collision with the enstatite parent body, severely shocked, and rapidly cooled. The fragments were then incorporated in an aubritic regolith, deeply buried, and annealed under pressure to form the breccia we see today. The shock-formed jadeitic pyroxene is not present in any other meteorites.

Cumberland Falls has a cosmic-ray exposure age of 45 m.y. The specimen pictured above is a 3.5 g fragment covered by an inconspicuous, very thin, yellowish-brown, filmy fusion crust. A photo showing the brecciated interior of Cumberland Falls containing large forsterite chondrite inclusions can be seen below.

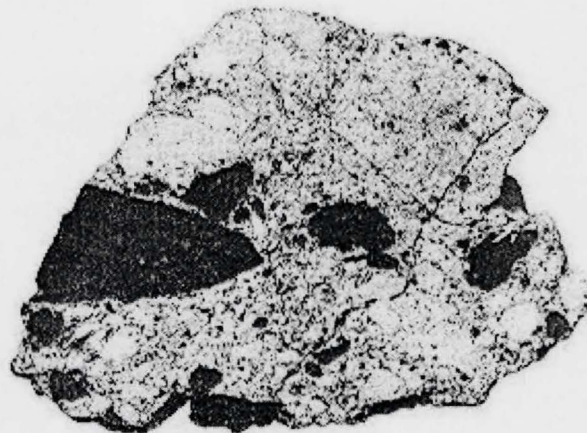


photo courtesy *Proceedings U.S. National Museum, Vol. 57*