

A re-examination of cliftonite.

By MAX H. HEY, M.A., D.Sc.

Assistant-Keeper in the Mineral Department of the British Museum.

[Read November 4, 1937.]

CLIFTONITE was described by Sir Lazarus Fletcher¹ in 1887 as 'a cubic form of graphitic carbon'. He put forward reasons for regarding it as a new allotropic modification of carbon and other reasons suggesting that it is a pseudomorph of graphite after some cubic mineral, perhaps diamond, but did not definitely favour either view. On the evidence available hitherto, both suggestions were clearly possible.

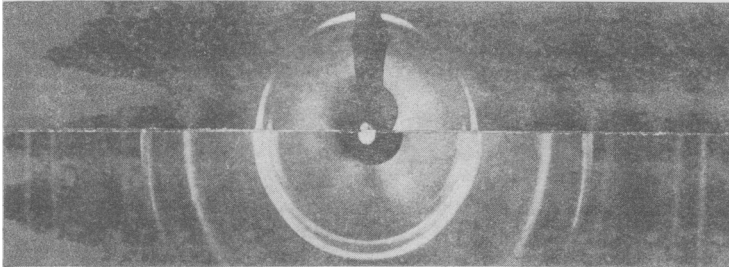


FIG. 1. X-ray photographs of cliftonite (upper) and graphite (lower).

At the suggestion of Dr. H. Berman, we have examined the original material by X-ray methods, comparing it with a specimen of graphite (B.M. 86685) from Grenville, Quebec. Although very thoroughly powdered, the graphite shows very marked orientation in the powder photograph (fig. 1, bottom half), the flaky crystals nearly all lying parallel to the supporting glass fibre, as is shown by the concentration of the (0001) reflection into short arcs.

The specimen of cliftonite examined was a small cube, Sir Lazarus Fletcher's no. 1, and was rotated about an [001] axis. The resulting photograph (fig. 1, top half) shows quite clearly that cliftonite is an oriented pseudomorph of graphite, the graphite crystals, the dimensions of which are not less than 0.1μ , being arranged with their *c*-axes parallel to the three [001] axes of the cube. The nature of the original mineral remains uncertain, as no diffractions other than those of graphite were observed.

¹ L. Fletcher, *Min. Mag.*, 1887, vol. 7, p. 121; 1899, vol. 12, p. 171.