

*SOMETHING NEW
IN FULGURITES*

by JEFF HILL

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Several unique specimens were brought to the author's attention recently by Mr. Thomas A. Oleszkowicz of 6969 Parkwood Avenue, Detroit, Michigan, who also wrote the author concerning the occurrence of these specimens which is the basis of this report and for which the author is greatly indebted.

On the evening of July 6, 1947, during a short but severe electrical storm, a lightning bolt struck a concrete sidewalk on McGraw Avenue near St. Lawrence Avenue in Detroit, leaving upon the light-colored surface a black streak about 44 inches long and about 2 inches wide. Along the length of the streak the concrete was superficially fused and blistered by the heat of the stroke into a crust of black glassy slag which is vitreous and

brittle, resembling black obsidian. A few scattered bead-like specimens of sizes 1/16 to 1/4 inches were gathered by Mr. Oleszkowicz and several cavities in the streak yielded other small specimens for examination. The material was of three types: 1) fused material encrusting the sidewalk, resembling splashes of hot tar, 2) loose material roughly spherical in shape but encrusted with light-colored unfused grains of concrete, and 3) a few tiny nearly perfect spherical beads, completely fused, opaquely black, and free of any adherences of the original unfused material.

The bolt (or streak) of lightning may have been attracted to the specific spot by iron piping underlying the sidewalk and the duration of the discharge permitted the point of contact to shift along the direction in which the pipe ran, if this was the case, fusing a course of nearly four feet in the surface of the sidewalk. The subsequent turbulence caused by friction and heat resulted in some of the fused material being broken loose from the sidewalk and scattering during the discharge. Some of the material thus displaced, fell back onto the sidewalk before the material had cooled and solidified, adhering to the sidewalk or absorbing into its liquid outer surface a coating of unfused concrete, while other particles reached the ground as solidified droplets and were found as clean glassy beads.

Except for the brief statements here given concerning its general appearance and the fact that the completely fused material seems to have a hardness of about 6, no other properties are evident or have been systematically determined. It is obvious, however, that a chemical analysis must coincide closely with that of the concrete itself, and the material must be optically isotropic.

One possible significance of this occurrence is that the specimens of the latter group resemble tektites in appearance, and the occurrence would thus seem at first to add strength to the theory of the fulguritic origin of tektites as postulated by Dr. Virgil E. Barnes*. While it is far from the purpose of this paper to enter into the involved and lengthy debate of tektite origins, it must be stated that the fulgurite occurrence here discussed, however, under scores the unlikelihood that all tektites (if they

were of fulguritic origin) would be found completely free of parent rock, even considering the great loss of mass by erosion in their estimated 2,000,000 years of existence on earth. All tektites found to date have borne no traces of parent rock, and this is one of the prime objections to its fulguritic origin; the microscopic lechatelierite inclusions are not considered an exception to this. And while the present writer does not ascribe to either the impactite or the fulguritic origin of tektites, he does not wish to influence the reader in so brief an account to take sides readily in the matter, but hopes, as does Mr. Oleszkowicz, that this account of a unique fulgurite will be of interest *per se*, and that is the real purpose of this paper.

*Barnes, Dr. Virgil E: *North American Tektites*, Econ. Geol. Bur., Texas University, 1939, pp. 477-573,

THE EVENT

PETRIFIED LIGHTNING FROM CENTRAL FLORIDA

A PROJECT BY ALLAN MCCOLLUM

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