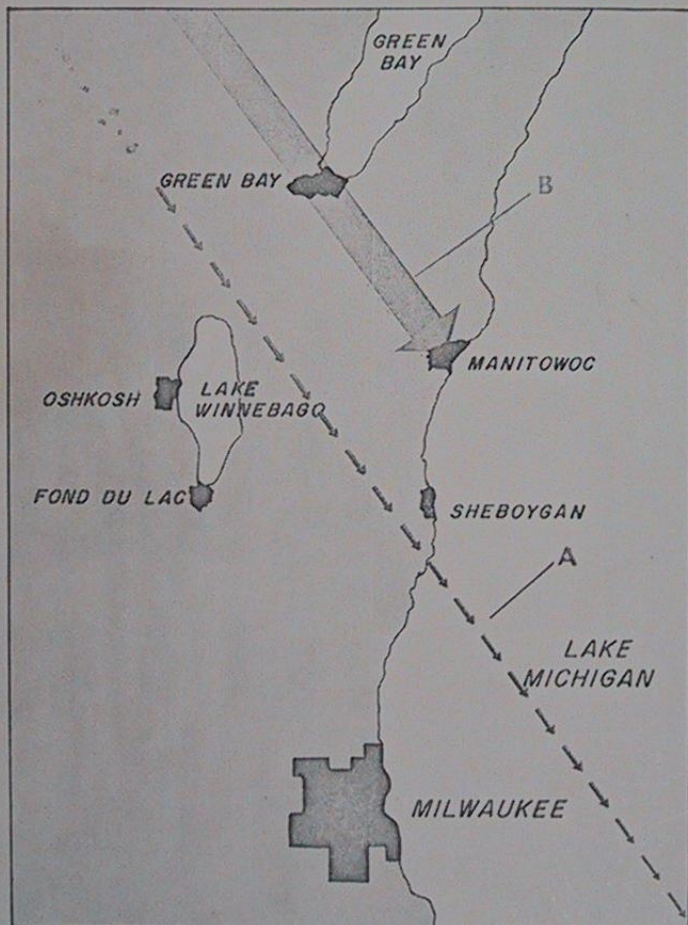


SECTIONED FRAGMENT of Sputnik 4 satellite shows shape of ablated steel on underside (left), embedded nut and flanged bolt (right).



PATH A SHOWS observed track and formation of the six fragments tracked by Milwaukee observer. Path B indicates probable track of fragments recovered in Manitowoc.

U. S. Analysis

By Warren C. Wetmore

Cambridge, Mass. — Metallurgical analysis of fragments from the Soviet Sputnik 4 satellite which fell in Manitowoc, Wis., Sept. 5 revealed that they were composed of a conventional, medium-carbon steel, according to officials at the Smithsonian Astrophysical Observatory here.

Sputnik 4—said by the Soviet Union to be a test of the Russian life-support system later incorporated into the manned Vostok spacecraft—was launched on May 15, 1960, and designated 1960 Epsilon (AW May 23, 1960, p. 27).

Satellite, according to Soviet reports, carried a dummy cosmonaut in a pressurized cabin. It was programmed for a controlled re-entry.

When the control system failed and the retrorockets fired in the wrong direction, the spacecraft was boosted into a higher orbit (AW May 30, 1960, p. 30). Following this error, the vehicle disintegrated into several pieces, the largest of which, thought to be the cabin, was designated 1960 Epsilon 1 (AW June 6, 1960, p. 30) and re-entered the earth's atmosphere on Sept. 5.

Recovered objects include heavily-ablated metallic spherules resembling ferrous meteorites, with diameters ranging from $\frac{1}{4}$ to $\frac{1}{2}$ in., and a disk-shaped object with a diameter of 7.9 in. and a thickness of 3.2 in. The latter, which weighed 20.9 lb. before a section was removed for analysis, has two distinct parts (see photos)—a short, solid cylinder with a diameter of 5.9 in. and a circular plate 0.39 in. thick.

The two are welded together around