

in the middle of the road, but in the faint early-morning light they mistook it for cardboard and ignored it. When they passed it again at 7 a.m. it appeared to be metallic, and they stopped and moved it to the side of the road, after finding that it was too hot to handle except for brief periods of time.

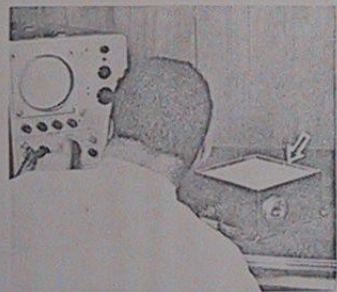
The unidentified fragment remained at the edge of the road until the afternoon, when police, acting on reports that there might be pieces of a satellite in the vicinity of Manitowoc, retrieved the object and carried it to police headquarters.

From there the object was taken to Milwaukee and flown to Cambridge for positive identification.

Additional Fragments

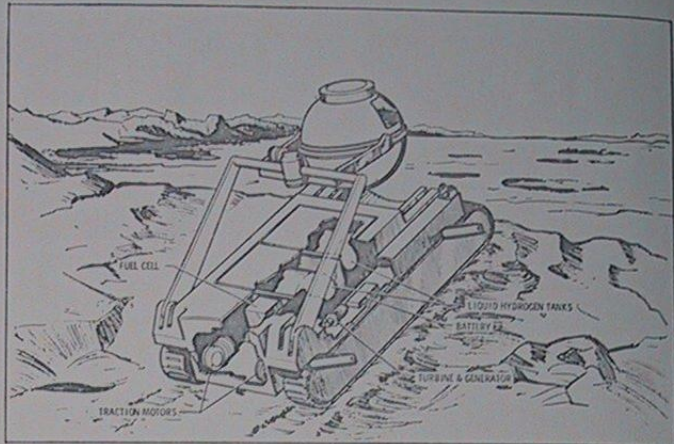
The search for additional fragments began several days later, when a Smithsonian field representative arrived in Manitowoc. A small piece had been found on a lawn about 125 ft. from the impact point. Further search along the line defined by the main impact point and the point where the smaller fragment was found yielded 15 small spherules on a roof about 20 ft. from the impact point and two small spherule clusters at a distance of about 500 ft. from the main impact.

The largest body, seen leading the formation of fragments by the Milwaukee Moonwatch observers, is presumed to have fallen into Lake Michigan, which is less than 2,000 ft. from the impact point. Smithsonian officials



Satellite Spectrometer

First infrared radiation measurements of earth from satellite, to obtain data for Midas early warning satellite sensors, were made using this 6-lb. interferometer-type spectrometer by Air Force Cambridge Research Laboratories (AW Nov. 19, p. 23). Instrument, made by Block Associates, made measurements over band of 1.8 to 16 microns, in series of one-second exposures each covering diameter of about 50 mi. at the earth. Device has sensitivity which is 10,000 times that of conventional spectrometer, according to Block Associates. AFRL plans to use device to make similar measurements in the ultraviolet and visible part of spectrum from a satellite.



Moon Vehicle Power System Uses Hydrogen, Lithium

Artist's concept indicates key elements in new power system for moon vehicles, designed by Martin Marietta's Space Systems Division, Baltimore, Md. Hydrogen gas, produced by heating liquid hydrogen, drives turbine-generator to furnish electrical power for traction motors. Hydrogen then would be introduced into fuel cell to produce additional electricity for vehicle. Hydrogen combines with lithium in cell to produce lithium hydride for storage aboard the vehicle. Nuclear reactor refueling station could break down lithium hydride into components and process them for re-use by the vehicle.

said that the Navy is considering the use of divers for search and recovery operations.

An attempt was made to return the fragment to the Soviet Union during a session of the United Nations Committee on Peaceful Uses of Outer Space on Sept. 14. P. D. Morozov, the Soviet delegate to the committee, refused to accept the object for his government, and labeled the move "a circus trick" intended to strengthen the U. S. position in the committee, which was working on rules for liability for injury or damage resulting from objects re-entering from orbit.

To date the Soviets have neither confirmed nor denied that the fragments were part of a Soviet satellite, Smithsonian officials said, and the incident received no coverage in the Soviet press.

However, it is likely that members of the Soviet scientific community are aware of it.

In addition to those mentioned, agencies and institutions which have examined the fragments include the National Aeronautics and Space Administration, Brookhaven National Laboratory, the Air Force Cambridge Research Laboratories, Department of Chemistry at the Carnegie Institute of Technology, and the Central Intelligence Agency.

The final disposition of the disk-shaped fragment is undetermined at the present time, Smithsonian officials said, although the Soviets may claim it any time. Scientific investigations

are continuing, and the fragment will be scientifically useful for several years because of the long half-lives of several of the radioactive isotopes, such as Manganese 54. Some Congressional interest has been shown in the return of the fragment to the Manitowoc museum adjacent to the impact point. Fragment is currently in the possession of the Smithsonian laboratories here.



Density Sensor

Ionospheric density sensor, developed by Geophysics Corp. of America under a National Aeronautics and Space Administration contract, weighs only 6 lb. and is designed to be a hitch-hiker on board a variety of rockets. Self-contained, it is programmed and calibrated by a d.c. motor with six gears. Tip on the left connects to an electrode on the nose of the rocket which measures currents during flight through the ionosphere.