

Mars Tests May Double

Experiments on Mars, directed by earthbound scientists, may be increased with the use of an automated biological laboratory

► THE NUMBER of experiments that could be done from a capsule landed on the surface of Mars can be doubled by using an "automated biological laboratory," it was reported in Anaheim, Calif.

The capsule would carry equipment flexible enough to conduct a wide range of scientific experiments as directed by command from earth. Later tests could be varied depending upon results of earlier analyses.

An automated biological laboratory, or ABL, is a possible payload for the Voyager planetary probes now scheduled for launch during the 1970s.

William Hostetler, manager of space programs for Philco Corporation's Aeronutronic Division, Newport Beach, Calif., said the weight of an ABL's integrated system would be 715 pounds, compared with the 1,200 pounds estimated for the average conventional payload that performs only individual experiments.

The ABL concept is being investigated by Aeronutronic for the National Aeronautics and Space Administration. The idea is to integrate equipment and materials so that earthbound scientists can direct life-detection experiments on planetary surfaces.

The system includes acquisition of

samples, chemical processing and sample analysis, Mr. Hostetler told an American Astronautical Society meeting. It also includes computer control, communications, power supply and other supporting subsystems.

The ABL would be programmed on earth to perform 35 experiments after landing on the Martian surface. It could then be directed to make additional tests as commanded by the scientists interpreting the data previously received. About three pounds of soil must be processed to support one cycle of the 35 experiments considered.

If three cycles are made each season for two years in order to chart seasonal changes, 36 pounds of Martian soil would be tested. Another 24 pounds of soil, obtained at intervals during the two-year period, would be encapsulated in its virgin state for later analysis during manned Mars missions.

The ABL would take samples from various sites on the Martian surface and drill as deep as 10 feet to take subsurface material for testing.

It would be equipped with such other instruments as a facsimile camera to photograph the Martian surface and equipment to measure radiation at the surface and beneath it.

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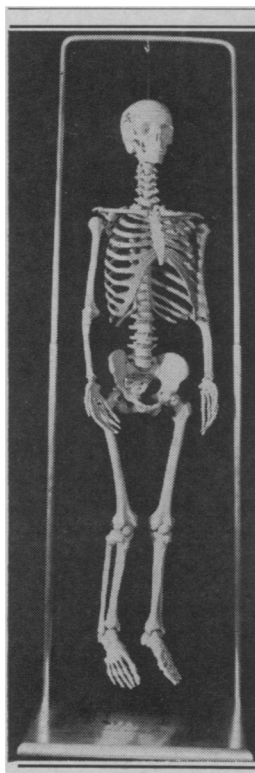
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