become liquid water," he says. This drove them to the mid-latitudes for Lander 2. At its maximum extent the northern polar cap comes down to a latitude of 40 or 45 degrees north. Then it retreats. The scenario the scientists have in mind goes like this: Dust gets kicked up and covers the ice. The temperature of the darkened ice rises, causing some of it to melt. The result: liquid water.

Other considerations concerned requirements for the seismic, meteorological and geophysical instruments. The spacecraft can stand winds up to 150 miles per hour.

What makes the Viking venture relatively safe is its flexibility. There are two orbiters as well as landers. A final "go" for a landing spot will actually be made in Mars orbit in 1976. The mission, as now planned, goes like this: Lander 1 will go into Mars orbit June 18, 1976. For almost three weeks the spacecraft will survey Mars, passing over the potential landing sites (primary and backup) each orbit. Instruments on board will take carbon dioxide measurements which will yield surface pressure. Cameras will take overlapping pictures that will allow stereo coverage (three dimensional). The resolution of the photography will be better than the best of Mariner 9—about 120 yards. Although that time of year in the northern hemisphere of Mars (summer solstice) is meteorologically very quiet (there should not be a major dust storm), if necessary, the spacecraft can stay in orbit about two months before the lander separates from the orbiter. If all looks okay, Lander 1 will touch down July 4.

At that time Lander 2 will be approaching Mars. Lander 1 will have landed, sampled the surface, checked the weather, sent back pictures of the surface and begun the biology experiments. One-third of Viking 1's mission will be completed before engineers have to decide where to land Viking 2, which will go into orbit Aug. 7 and land Aug. 24 if things go as planned. Late in 1976, communication with the spacecraft will be lost for a month because of the positions of the sun, earth and Mars.

Project Viking will probably follow on the heels of Soviet landers. There are strong indications the Soviets will land craft similar to Mars 2 and 3 in the Martian southern hemisphere west of Hellas in 1974. The results of these missions could be an extra bonus for Viking. Radar and atmospheric results of Mars 3 have already been used in selecting the Viking sites.

It appears that the Soviet 1974 landers will not have life detectors aboard. If life exists on Mars, it will probably have to await discovery by Viking. □

books OF THE WEEK

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ANNUAL REVIEW OF NUCLEAR SCIENCE, Vol. 22—Emilio Segré, J. Robb Grover and H. Pierre Noyes, Eds.—Annual Reviews, 1972, 506 p., diagrams, $10. Articles review developments in colliding beam accelerators, isospin impurities in nuclei, transition moments, Regge poles, and nuclear applications in art and archaeology.

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THE COLLECTED WORKS OF LEO SZILARD: Scientific Papers—Bernard T. Feld and Gertrude Weiss Szilard, Eds.; foreword by Jacques Monod; introd. essays by Carl Eckart and others—MIT Pr, 1973, 737 p., photographs, facsimiles, $17.50. Contains biographical notes, published papers in physics and in biology, documents relating to the Manhattan Project, patents and disclosures.

EATING DISORDERS: Obesity, Anorexia Nervosa, and the Person Within—Hilde Bruch, M.D.—Basic Bks, 1973, 396 p., $12.50. Discusses obesity and self-inflicted starvation from the psychiatrist's point of view and illustrates the closely related underlying problems with detailed case histories from 40 years of pioneering work in treating the emotional aspects of eating disorders.

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