meters of dust on the surface and compressing some of the dust into solid blocks, clustered around the secondary impact craters. Wind then presumably blew most of the loose dust away, leaving only what was piled around the compression blocks and rounding the corners to form the observed mounds. Even Viking's sharp images can't account for all the blocks, however, and if there's one thing the site-seekers don't like in their quest for a safe berth for lander 2 it's a mystery.

Even the backup site in the region of the huge saucer called Alba Patera, tempting to some geologists because of the possible youth of its fluvial features, has its curiosities. The latest photos have revealed thin, winding lava channels with nearly the same form as that of others thought to be tributaries cut by flowing water. This doesn't mean that the many vast fluvial features already found have suddenly been reassigned a new origin; they're still thought to be water-formed, says Masursky, with only one category of small rilles in confusion. "But," he says, "I'm no longer as sure as I once was that for each little channel I can tell whether it's a lava channel or a fluvial channel." Furthermore, he adds, there may be lava tributaries and *dis*-tributaries both.

Some of Viking's findings, meanwhile, are less surprising than reassuring, a distinction sometimes masked by the ready ability of some researchers to take new discoveries into account. Recent photos from the Viking 1 orbiter, for example, provided the first visual evidence of moisture—water—in transit between the surface and the atmosphere, a gratifying datum in view of previously observed diurnal fogs and hazes. A view of the surface taken 80 minutes after sunrise showed a number of bright spots apparently representing water-ice vapor just above the surface over several craters and channels that had no such spots in a photo of the same area made 30 minutes before.

"What it suggests," says William A. Baum of Lowell Observatory, "is that some significant fraction, at least [of the water in the atmosphere], is evolved probably daily from these low spots and probably returns again by some process to the surface."

Another finding with a ready home was the observation, by chief lander meteorologist Seymour L. Hess of Florida State University, of weeks of slow but steady drop in the surface pressure of the atmosphere. It fits right in, he says, with the freeze-out of carbon dioxide at the Martian south pole, where it is winter. The trend has not been countered by sublimation of CO_2 from the polar cap in the summery north because the solstice has just passed and the north pole is near its minimum.

Meanwhile, back at the lander, attention focused last week on the search for organic molecules in the soil by Viking's gas chromatograph/mass spectrometer (GCMS). The first analysis (SN: 8/14/76, p. 99) in which the test cell was heated to 200°C, failed to confirm even that a soil sample was inside. The second run, at 500°C, indicated the presence of a sample by recording the release of "copious amounts" of water, according to GCMS team leader Klaus Biemann of the Massachusetts Institute of Technology, and some carbon dioxide, but not of any complex organic material. Simpler organics, he said, would require rigorous computer analysis to detect them through the confusing presence of so much water. Because so much more water was given off by the sample at 500° than at 200°, Biemann theorized that the water may have come from hydrated minerals rather than from water molecules adsorbed onto the sample grains. Plans to analyze a second sample were thus modified to include a 350° run, in hopes of finding a temperature that would drive off organics without freeing the water from its mineralogically bound state.

As the lander's three biology instruments were being readied for their various second cycles and control runs, some of the mission scientists addressed themselves to the question of whether life that instruments would recognize might be possible even if there is too little organic residue for the GCMS's nominal detection limit of one part per million. The answer of Viking chief biologist Harold P. Klein is "yes." In earthly soils, he pointed out, most of the organic material is from the remains of past generations of living creatures; only a tiny fraction is from currently living things. One could imagine, says Klein, that on Mars, "you don't have a lot of dead bodies all around the place." Some process that transfers the vital carbon into the atmosphere, for example, could rob the GCMS of most of its intended subject matter. Or, the living Martian microorganisms might be feeding on—recycling—their ancestors. □

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ENCYCLOPEDIA OF ASSOCIATIONS, Vol. 1: National Organizations of the U.S.—Margaret Fisk, Ed.—Gale, 1976, 10th ed., 1,418 p., $64. Gives detailed information not only about all nonprofit American national membership associations, but also includes foreign groups, some types of U.S. local and regional groups, and citizen action groups.

INFRARED: The New Astronomy—David A. Allen—Halsted Pr, 1976, 228 p., photographs, diagrams, tables, $12. After brief historical section, the book describes the techniques of infrared astronomy, and separate chapters deal with the many unanticipated and unusual discoveries made during the last decade.

SCIENCE AND ITS PUBLIC: The Changing Relationship—Gerald Holton and William A. Blanpied, Eds.—Reidel Pub, 1976, 320 p., $26; paper, $11. Essays examine some of the serious critiques of 20th-century science in the more industrialized countries, aimed at stimulating research into the significance of arguments made from both within and outside science.

SIBERIA TODAY AND TOMORROW: A Study of Economic Resources, Problems and Achievements—Violet Conolly—Taplinger, 1976, 284 p., 12 plates, diagrams, maps, tables, $20. Attempts to present a balanced account of the Siberian economy as it emerges from a critical study of the available Russian material.