Hebrew that was used about one thousand years later. One of the most important tablets is one containing a vocabulary of Ebalite and Sumeric words. The Sumerians, developers of cuneiform script, thrived in Mesopotamia about 3000 B.C.

The tablets, found in the ruins of the ancient palace, are now being translated. They tell of commercial transactions, international treaties, military reports, religious rites and sacrifices and the story of creation and the great flood. This suggests that Ebla was an important commercial and political power in the area around the Red Sea north to Turkey and east to Mesopotamia. In addition, says linguist Giovanni Pettinato, the tablets shed light on the history of the Jewish people and may contribute to an understanding of some controversial parts of the Bible. □

Fish attracted to electric schools

One otherwise nondescript group of African fishes called "mormyrids" possess a stimulating anatomical feature—an electrical system. An electric organ in the tail generates weak currents, and specialized tissues in the brain in turn detect them. This system helps mormyrids find food and dodge predators in the murky rivers and lake bottoms of tropical Africa and helps them as well, a new study shows, to stay in protective schools.

Mormyrids such as the *Marcusenius cyprinoides* (or "parrot mormyrids") that live in tributaries near Lake Chad form schools at night and migrate along the river bottoms in search of worms and larvae. Although vision is probably the major sensory cue in the schooling behavior of most fishes, ichthyologists agree, visual cues are obviously reduced for nocturnal bottom-dwellers.

Animal behaviorist Peter Moller of Hunter College and the American Museum of Natural History in New York decided to study the schooling behavior of these electric fish. He made field measurements, then conducted laboratory experiments at Daga Weir on the El Beid River in Chad.

He first caught young specimens of *M. cyprinoides* (schooling occurs mainly among young fish) then observed three groups of them for several days in a concrete holding tank. He was able to identify five types of group behavior: pursuit, physical contact, slow group movement, parallel lineup and single-file swimming.

Moller then "disconnected" the electrical system in each member of one observation group by surgically severing the spinal cord and its neurons just above the electrical organ in the tail. This operation, Moller writes in the Aug. 20 SCIENCE, does not interfere with the animal's locomotion since the muscle nerves are connected to the spinal cord in front of the surgical lesion.

The fish in the now "electrically silent" group, Moller found, showed less pursuit of and contact with the current-emitting fishes, and seldom participated in slow group movement. Most striking was the total absence of parallel lineup and single-file swimming—quite characteristic of schooling fishes—among the "turned off" mormyrids.

The data, Moller says, suggest that electric organ discharges provide the basis for schooling behavior by reducing the number of aggressive physical encounters and keeping the fish spaced within minimum and maximum distances. Since schooling is considered, in large part, a visual process in other fish, this study represents another schooling mechanism that is adapted to aid group cohesion and thus survival in dark, murky waters, Moller says. □

Diet scrutinized for drug metabolism

Due to the ever-increasing number of drugs on the market and the propensity of Americans to take them for every ailment, major or otherwise, scientists are scrutinizing factors that might influence the way drugs behave in the human body. First they found that the drug-metabolizing enzymes a person inherits are crucial for an effective and safe passage of drugs through his body (SN: 6/26/71, p. 438). Then they found that if two or more drugs are taken at the same time, unexpected toxic reactions can result (SN: 5/29/71, p. 365). Now they have found for the first time that diet can influence the speed at which drugs pass through the human body, confirming similar animal results.

Alvito P. Alvares, Karl E. Anderson and Attallah Kappas of Rockefeller University and Allan H. Conney of Hoffmann-LaRoche, Inc. studied three young men over an eight-week period. During the first two weeks of the study, the subjects ate their usual home diet. The average American diet is 15 percent protein, 50 percent sugar and 35 percent fat. During the second two weeks, they were kept on a low-sugar, high-protein diet. The composition of this diet was 44 percent protein, 35 percent sugar and 21 percent fat. During the third two-week period, the subjects were put on a high-sugar, low-protein diet. The composition was 10 percent protein, 70 percent sugar and 20 percent fat. The final two weeks the subjects returned to their usual diets.

During each of the test periods the subjects received a drug called antipyrine on day 10 and a drug called theophylline on day 14. The amounts of the drugs in the subjects' bloodstreams were measured up to a few hours after drug administration. Results in all three subjects, reported in the August PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, showed that the two drugs were broken down considerably faster when the subjects were on a high-protein rather than a high-sugar diet. Specifically: The half-life for the drugs during the high-protein diet was 9.2 hours, versus 17.5 hours during the high-sugar diet.

The implications? A high-sugar diet would probably predispose people to greater drug toxicity than a high-protein diet, since drugs would linger longer in the body. In fact, animal studies have shown that protein deficiency increases the toxicity of certain drugs (SN: 7/1/75, p. 43). However, this might not necessarily be the case. A high-protein diet is known to prime the liver enzymes needed to break down drugs in the body, but sometimes these enzymes metabolize drugs and other foreign compounds to a more toxic rather than to a less toxic state. A lot more must be learned about diet and drug metabolism before scientists can recommend what kind of food people should eat to obtain optimal drug metabolism.

For instance, researchers need to know whether the protein and sugar content of the diet also influences the metabolism of other drugs in people. They need to learn whether the fat, vitamin and trace element content of the diet influences human drug metabolism. Unsaturated fats and some vitamins and minerals appear to keep animals' liver enzymes primed for action (SN: 7/19/75, p. 43). Finally, they need to better understand precisely how different dietary components influence drug metabolism. □

NAS panel member forced to resign

For the first time in its history, the National Academy of Sciences has requested and obtained the resignation of a member of one of its committees for inappropriate conduct and conflict of interest. Pathologist Paul Gross was asked to leave the NAS Subcommittee on Particulate Contaminants, of the Committee on Drinking Water Standards, after documents obtained incidentally in a court case revealed he had leaked committee recommendations to a mining company involved in relevant litigation. Gross, 74, lives in Naples, Fla., and holds a research post at the University of South Carolina.

At issue is the question of whether asbestos fibers can be dumped safely into lakes and rivers from which drinking water is to be drawn. Gross has served as a consultant for the Reserve Mining Co., which dumps iron ore wastes containing asbestoslike fibers into Lake Superior. He once testified on the company's behalf in a lawsuit brought by the Environmental Protection Agency to stop the

dumping, for fear that the fibers could cause cancer in people who drink water containing them. Gross maintained that the fibers were harmless, but Reserve lost the case and is now appealing. A report by the Academy subcommittee might well play a key role in the outcome of this and similar court cases, as well as in the drafting of additional environmental legislation.

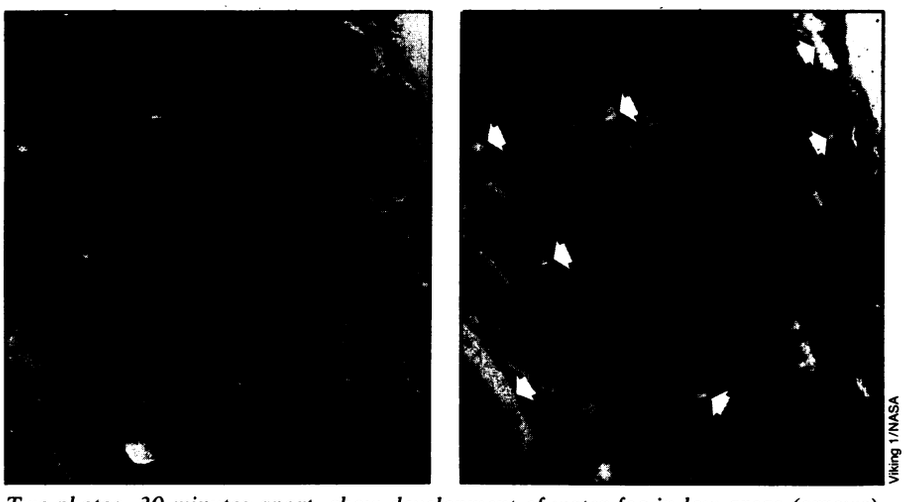
Specifically, Gross is accused of improperly telling the company what conclusions the subcommittee had reached, before they were available to the public. Earlier he had agreed to turn over draft documents of deliberations to the company, and an internal company memorandum noted that "we should have some opportunity to assist Dr. Gross in evaluating the contents of those reports."

All this came to light when copies of this and other memoranda were made available to EPA lawyers by the court. Gross explained that he did not at first realize that the committee proceedings were meant to be confidential, and that when he found out they were, he informed Reserve that he could not supply the draft reports. Nevertheless, he did subsequently pass on the tentative conclusions in a telephone conversation. According to one news report, Gross received $75 an hour for the time he spent talking to Reserve Mining Co. representatives.

Charges of conflict of interest are not new at the Academy—in some fields it would be virtually impossible to obtain the services of experts who did not have some vested interest in the outcome of a report. To keep committee deliberations above board, then, a "bias statement" is required from members to disclose possible conflicts, and members are expected not to use privileged information for personal gain. In his bias statement, Gross did not mention having been a consultant for Reserve Mining, but an Academy spokesman told SCIENCE NEWS that his subsequent actions led to his requested resignation.

The official NAS statement concerning the affair cites a "serious" conflict of interest by Gross, and behavior "inappropriate and incompatible with responsibilities of a member" of its committees. The statement also says that a review is continuing into how the matter originally arose so that future incidents can be prevented. This will probably mean tightening up the working definitions of conflict of interest and inappropriate conduct, as well as a more rigorous disclosure procedure. □

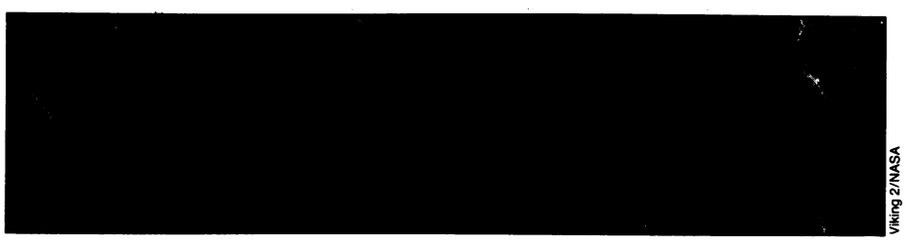
Viking: New types of Mars terrain



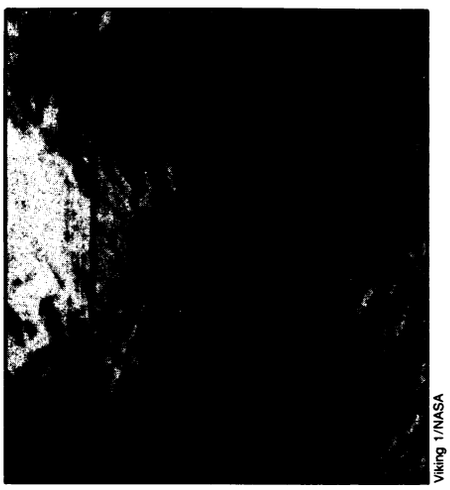
Two photos, 30 minutes apart, show development of water fog in low areas (arrows).

Scientists scanning photos from the two Viking orbiters to choose a safe site for the Viking 2 lander have now discovered, in the process, at least four types of Martian terrain that have never been seen on the planet.

In the Plains of Acidalia, the region that includes the second lander's original primary site in Cydonia, there is an area much like the "collapsed terrain" known in other parts of Mars, believed to have been created when permafrost suddenly melted out from underneath it. In the previously known cases, however, the abruptly dropped surface has been strewn with a chaotic jumble of huge blocks, perhaps a consequence of the rapid subsidance. The newly found terrain has all the proper symptoms of collapse—sharp borders, mottled floors, etc.—but it is mysteriously short of the blocky rubble. It is possible, says site-selection team head Harold Masursky of the U.S. Geological Survey, that the region simply collapsed more slowly, minimizing the resulting chaos. But not even the collapsed terrain with blocks is well understood yet. Slow collapse is certainly well enough known in the permafrost regions of earth, however. Engineers working on the Alaskan pipeline or on large-scale projects in Siberia have to deal with it all the time.



Channels offset by faults along flank of Alba Patera, a backup Viking 2 landing site.



Branched channels: Fluvial or lava flows?

Elsewhere in Acidalia, the photos from orbit have revealed several strange groups of curving parallel ridges so neatly ordered that Masursky compares their appearance to that of contour plowing on earth. Except that they're hundreds of times larger. On earth, says Masursky, similar alignments have resulted from surface slumping adjacent to fault lines, but seldom, if ever, with such "geometric fidelity."

So much exotic stuff has been turning up in Viking's crisp photos of the former first-choice site region, in fact, that it may well be the first to be dropped from the list. Still another kind of hitherto unknown surface feature for example, is the "measles." Similar features spotted in the Chryse region during the search for the first lander's site were identified as "pedestal craters," small craters where molten ejecta presumably formed broad-shouldered, hard blankets that preserved sharp-cornered mesas when the surrounding material was eroded away. Cydonia's measles were at first thought to be the same phenomenon, says Masursky, until closer scrutiny revealed a softer, more stoop-shouldered morphology. Now, he says, it seems more likely that they resulted from rocks thrown out by larger impacts nearby, crashing into tens of