

Destination Mars

It was a long row to hoe, but after what seemed to be interminable simulations, meticulous investigations, tests and launch-holds, the United States finally got off a spacecraft, Mariner 9, toward Mars this week. The successful launch of the Mars orbiter at 6:23 p.m. May 30 came three weeks and a day after the failure of Mariner 8 (SN: 5/15/71, p. 330) and two days after the second straight successful Soviet launch of a Mars-bound craft (Mars 3).

Now, if all goes well, three spacecraft will begin probing the secrets of the red planet in November. The first hints that Mars 2 and 3 would at least orbit Mars, and probably land, were proffered, rather evasively, by Soviet scientists this week in two Moscow newspapers. The articles mentioned the possibility of using "scoops and culture mediums" (much like those planned for the United States' Viking landers in 1976) in an effort to discover whether life indeed does exist on the planet.

Whether the Soviet scientists will be any more open with their findings from Mars 2 and 3 than they have been about the goals of the launches themselves is still uncertain, but, says Dr. George Low, deputy administrator of the National Aeronautics and Space Administration, "We're optimistic."

A hybrid orbit has been tentatively selected for Mariner 9. Originally Mariner 8 would have mapped 70 percent of the planet while Mariner 9 studied the atmospheric and surface changes. The new orbit of Mariner 9 will now be inclined 65 degrees. The Mariner will orbit the planet every 12 hours at altitudes ranging from 750 to 10,300 miles. It will be able to map somewhat less than the 70 percent of the surface, but with the same resolution as originally planned. Instead of studying six areas every five days (to map seasonal changes), it will study about 17 smaller areas every 17 days.

After the failure of Mariner 8 on May 8, NASA engineers traced the cause in the Centaur stage to a failed diode that should have protected the integrated circuit in the pitch channel of the rate gyro reamplifier of the autopilot. This protective device, either damaged or loosened, then permitted an electrical short during launch to damage the integrated circuit, resulting in the failure.

The engineers had just homed in on that one when another shorted part was found, this time in the Centaur's propellant utilization system, which measures the amount of hydrogen and oxygen and controls their flow to the engines. The tank had to be opened, the circuits split and fixed. The short was probably due to "dew contamination," says Vincent Johnson of NASA.

The launch, then rescheduled for May 29 was delayed twice again even

after the fixes. There appeared to be problems with both the diode and the propellant utilization system again; much to the relief of the engineers, these problems turned out to be malfunctions in the ground support equipment that sends messages to each of the units during prelaunch tests.

Thus many sighs of relief accompanied the successful launch of Mariner 9 as it locked on to the star Canopus and began its 247-million-mile journey to a planet then 63 million miles away. □

INTERNATIONAL CONFAB

Quakes, science and NATO

Any serious earthquake is predictably followed by a rash of conferences and committee reports, and the Feb. 9 San Fernando quake has been no exception. So far, the U.S. Geological Survey, the National Bureau of Standards, and the National Academy of Sciences/National Academy of Engineering have prepared reports on the quake (SN: 3/27/71, p. 211).

Last week, the United States, Turkey and Italy sponsored an international meeting of earthquake experts and Government officials. Delegations from 17 nations and seven international political and scientific organizations attended. Though the meeting, held in San Francisco, had been planned for more than a year, much of the input and impetus came from the San Fernando and other recent disasters. The delegates met for six days, and produced recommendations that will be passed on to the North Atlantic Treaty Organization's Committee on the Challenges of Modern Society.

The recommendations themselves were far from radical: systematic collection of all existing relevant data; improved mapping of seismic risk areas; increased strong motion equipment; replacement of dangerous buildings; prompt field investigation of earthquake damage to structures; building code improvements; improved public awareness of earthquake hazards; increased international cooperation for disaster assistance through existing organizations; establishment of a central disaster agency to coordinate the activities of governments, universities, industry and volunteer groups.

There were some specifics however. One working group proposed that NATO develop a capability for rapid assessment of damages in order to assist member nations in reconstruction, and that an international meeting be held to formulate an accord through which signatory nations, in time of disaster, can remove or modify legal barriers to foreign assistance. The group also recommended that resettlement of vic-

FDA science activities get mixed review

The Food and Drug Administration last week made public a critique of its scientific operations. Dr. Roy E. Ritts Jr. of the Mayo Graduate School of Medicine and four other medical school professors compiled their report after a year of observing FDA activities. It was the first time in FDA history that an extramural group was invited into the FDA maze to probe, pry, tell it like it is.

The Ritts Committee Report scores the FDA for lax, misdirected, uneven research; substandard conditions in some of its labs; less than electric morale among researchers, and a curious aura of secrecy—in short, for not better managing its scientific effort.

This indictment didn't surprise some FDA watchers of long standing, who hold that where scientific data are incomplete or inconclusive, FDA bureaucratic considerations seem to overrule the recommendations of FDA's scientific

researchers. Granted, FDA scientific judgment is circumscribed by Congressional law. The recent FDA decision to yank cyclamates from the market was based both on shaky animal test data and on the Delaney Amendment, which forbids any product in foodstuffs that causes animal cancers.

In spite of its scorching criticism of specific areas of FDA operation, the Ritts report praises the FDA for doing an extraordinarily competent job in view of the thousands of food additives and drugs the FDA has to evaluate. More, some of the report's recommendations for the FDA are already being implemented, including one to place consumer specialists on the National Advisory Committees in each of the FDA bureaus. Consumers have never been represented in the United States' oldest and largest consumer protection agency before. With the Ritts report, the consumer era may be coming of age.