

SPACE

Thirty Years to Mars

► **MEN SHOULD LAND** on Mars before the century's end.

Some optimists say this could happen by the late 1970's but others argue that the formidable problems to be solved make any time period less than some 30-odd years unrealistic. Unless, they add, there is a now unforeseen breakthrough in launching giant loads into orbit or propelling such loads through interplanetary space.

Even before man lands on Mars, however, the question of whether some form of life exists there will be answered. Sound circumstantial evidence now exists that the answer is "Yes, some form of low plant life." At least that explanation is the one many scientists believe is the best for observed changes in Martian features.

A definite answer should come next year when the National Aeronautics and Space Administration will send a Mariner on a Mars fly-by, with the aim of probing the red planet's secrets as successfully as the Mariner II did for Venus last December.

On the Mars Mariner flight, an attempt will be made to take high-quality television

pictures of the planet's surface, which could show clear evidence of the color changes indicative of lifeforms and the reasons for them.

Instruments on board the space probe will also obtain information on possible magnetic fields, trapped particle regions similar to earth's Van Allen belts, and cosmic dust close to the planet.

Although landing instruments on the Martian surface is still four or more years in the future, scientists are already concerned about the possibility that the earth vehicle might contaminate the planet with terrestrial organisms. Or as one scientist put it, "Don't mess up Mars."

Large chemical rocket boosters for lifting from earth, combined with nuclear rocket upper stages, will be used to land instruments on Mars, Dr. Harold Finger of NASA predicted in Denver at a symposium on the exploration of Mars. Such vehicles will also be used for the "preliminary missions" of manned fly-by trips around Mars and trips into orbit around Mars, he said.

• Science News Letter, 83:381 June 15, 1963

ARCHAEOLOGY

New Echinoderms Found

► **STRANGE** new creatures have been discovered in a fossil bed in California, where they have been resting for about 600 million years.

The tiny sea animals, found in the oldest layer of fossils, represent a new major grouping of ocean inhabitants.

Like the familiar starfish, sea urchins and sand dollars, they are in the general category of spiny-skinned animals known as echinoderms. The shape and motion of the new creatures were individualistic, so scientists put them in a class apart from the other types of spiny skins.

Dr. J. Wyatt Durham of the University of California, Berkeley, and Dr. Kenneth E. Caster of the University of Cincinnati named the class *Helicoplacoidea*, because the creatures' spiral-shaped bodies (helix) were made of little flat plates (plakos).

In their original ocean life, the animals looked like collapsible Japanese lanterns. They slinked along the ocean floor by pumping water in and out of their flexible bodies.

Their perfect five-part symmetry is easily seen, the investigators said. The symmetry of starfish and sea urchins is well known, but until the *Helicoplacoidea* were discovered, ancient forms were thought to be irregular.

Finding the new animals calls for a change in evolutionary theory, the scientists reported in *Science*, 140:820, 1963. The theory holds that five-part symmetry of echinoderms came as a later development when they adapted to a sedentary life on the ocean bottom. Since the new creatures show

echinoderms may have started off being symmetrical and free-living, their discovery means scientists should take a new look at the starfish and sea urchin family tree.

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BOTANY

Valuable Oilseed Crop Can Grow in Salt Soil

► **SAFFLOWER**, that thistle-like herb with highly unsaturated oil seeds, can flourish in soils that are too salty for most crops.

Researchers at the California Agricultural Experiment Station at Riverside find that the safflower plant can grow under high salt conditions almost as well as cotton. In fact, salt even speeded up maturing of the plants. Plants in the plot with salty soil put forth their orange-colored flower heads three days earlier than those of the control plot, and were ready for harvest three weeks earlier.

Scientists warn, however, that safflower seeds may be susceptible to salt injury during germination. Farmers can help prevent this injury to the young plants by planting seeds on double-row or sloping beds.

Safflower seeds contain much unsaturated oil, highly desirable for today's food products, particularly margarine and cooking and salad oils. The use of safflower oil in food increased from two million pounds in 1960 to 45 million pounds in 1961. This oil is also used as a drier in paints.

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