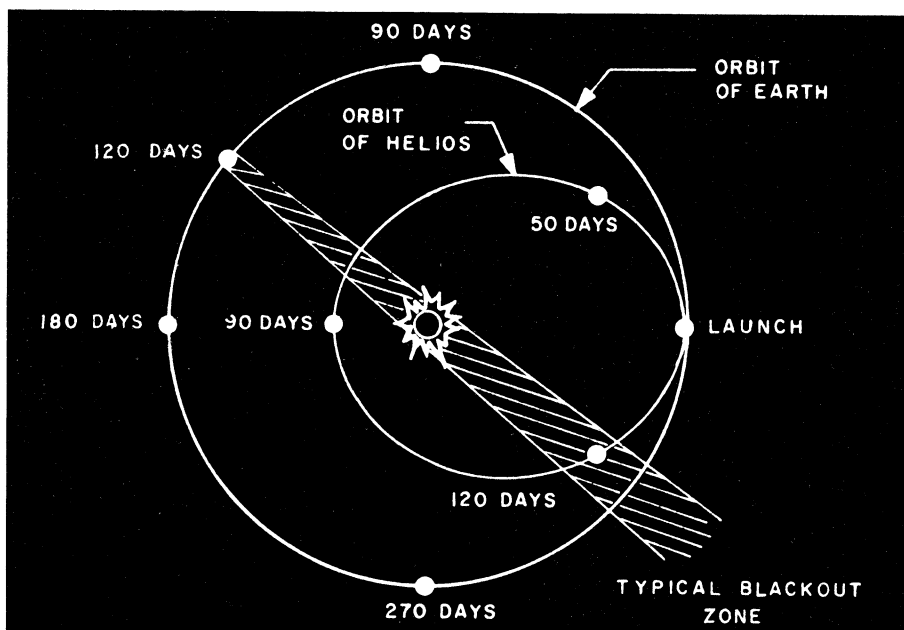


Helios B: Even closer to the sun



Facing the fire: Helios B should come within 43.4 million kilometers of the sun.

Helios A, the German probe that last year went closer to the sun, withstood higher ambient temperatures and reached a greater speed than any spacecraft before it, is about to have all of its records broken. The new contender is Helios B, launched Jan. 15 onto a path expected to lead it barely 43.4 million kilometers from the sun, nearly three million kilometers closer than its predecessor. At its warmest, Helios B may face temperatures about 10 percent greater than the lead-melting, 700-degree F. heat met by Helios A. As it swings through perihelion, the spool-shaped craft should set a speed record of more than 240,000 kilometers per hour.

The goal, of course, is research, not records, and Helios A has already shown that promising results are in store as soon as some data-processing bottlenecks have been removed (SN: 12/20/75, p. 388). Helios B carries the same array of scientific instrumentation (SN: 8/3/74, p. 74), with the addition of a detector to help pinpoint remote gamma-ray sources, and early signs indicate that all is well with the experiments.

There is one possible problem, and though it is not definite, it will be frustrating if it is real. There is an indication—an unactivated microswitch—that a panel covering the spacecraft's micrometeoroid detector has not come off as it was supposed to. Researchers have been looking forward to the probe's measurements of micrometeoroids, space dust, ever since the first Helios reported finding about 15 times as many of the tiny particles close to the sun as near the earth.

"They come from sharply defined but many different directions at different times," says James Trainor of the Na-

tional Aeronautics and Space Administration's Goddard Space Flight Center, U.S. project scientist for the predominantly German mission. "We don't know whether they are transported by the sun's corona after being pulled into the sun from

elsewhere in space—which would have an important impact on solar energy transport theory—or whether they may be following the path of starlight directly in toward the sun." In addition, Helios B is also flying "upside-down" relative to Helios A, which could help resolve an apparent difference in the number of particles found on the ascending and descending sides of the spacecraft's orbit. Nearly a week after Helios B was launched, there was still uncertainty whether the dust-counter's cover had come off. Telemetry from the microswitch said no, but analysis of the spacecraft's temperature suggested that it had. The answer will have to wait until the instrument reports at least one micrometeoroid impact—or doesn't.

Helios B will reach its closest point to the sun, according to best estimates, at about 8 p.m. EST on April 16, when it should be within 0.29025 AU, or 43,421,110 kilometers. Its orbit, which takes in both the sun and the earth, will carry it to perihelion every 186 days. The probe's magnetometers, charged-particle detectors and other instruments will also be used in combination with other satellites, including two IMP (Interplanetary Monitoring Platform) Explorers in earth orbit, the Pioneer spacecraft orbiting the sun at about the same distance as the earth, and Pioneers 10 and 11 among the outer planets. But Helios has the inside track. □

Red Dye No. 2 dies a slow death

A good percentage of the processed foods, drugs and cosmetics sold in the United States will undergo a change in formulation starting this week, a result of the Food and Drug Administration's recent ban on the artificial coloring Red No. 2. This action comes after more than a decade of testing and FDA indecision on the safety of the chemical additive.

Alexander M. Schmidt, the FDA commissioner, announced this week that a reexamination, begun in November and completed recently, of the data accumulated during years of laboratory testing "could not establish the safety of Red No. 2." The coloring agent is an azo dye, derived from naphthalene and known generically as amaranth. Feeding tests done on a sensitive strain of laboratory rats (Osborne-Mendel female rats) revealed that high dosages of the dye significantly increase the number of malignant growths in a variety of tissues.

This finding certainly was not encouraging, considering the wide use of Red No. 2. It is used in almost every processed food with a reddish or brownish color, including canned fruits, gelatins, candy bars, salad dressings, cereals, frankfurters, ice creams and cake mixes, as well as a variety of drugs and cosmetics. An estimated \$2.9 million worth was added in 1973 to more than \$10 billion

worth of products. Red No. 2 has many advantages as a coloring agent—persistence, stability, intensity, solubility, economy—and was often chosen over other red dyes such as Red No. 40 and Red No. 3. But these substitutes are already being phased in by several large food processors, including General Foods, Nestlé, Nabisco and Borden, following release of the FDA data review.

Commissioner Schmidt's action comes after more than a decade of safety testing, and after the FDA postponed making a decision on Red No. 2 14 times at the request of food and cosmetics manufacturers. This was stated in a report critical of FDA indecision, issued last October by the General Accounting Office. This latest safety review was begun last November. Red No. 2 has been used under provisional approval, pending the results of safety tests, and thus can be removed from the provisional list without public hearings or appeals by the industries involved. Notice of the FDA action will be published in the FEDERAL REGISTER within a few days, and from that time, the dye can no longer be added to products. Existing stocks of products containing Red No. 2 can still be sold because, Schmidt says, "there is no evidence of a public health hazard" from foods or other products made with Red No. 2. □