

heart of the Carter initiatives.

Among proposals in Carter's nine-point program are recommendations to:

- grant exclusive licenses to inventors for products or ideas they develop under government contract (patents remain with the government), except when doing so is not in the public interest or is inconsistent with goals of the funding agency,
- substitute, where possible, performance standards for design or specification standards in government regulations, encouraging new solutions to stated goals,
- expand the NSF program funding small firms for analysis of new projects and technology demonstration — from \$2.5 million to \$10 million (Carter would eventually involve other agencies and increase annual funding to \$150 million),
- establish an Office of Small Business Patent Counsel to aid inventors in moving from idea development to marketing,
- clarify antitrust law on joint ventures between big and small businesses,
- establish nonprofit centers at universities or in industry to develop and transfer generic technologies — such as robotics, welding and corrosion prevention (centers would be jointly financed by government and industry, with the federal share falling to 20 percent by the fifth year of operation), and
- establish state- or multi-state corporations for innovation, which, with matching federal funds, would provide venture capital, management assistance and guidance to those applying for the NSF grants. □

Magsat launched

On Oct. 30, NASA launched the first spacecraft designed exclusively to measure the earth's magnetic field, including anomalies in the field that may reflect differences in the earth's crust. The crust may vary in magnetism due to geothermal activity, tectonic activity or underlying deposits of dense rock such as ore. Mapping the slight anomalies in the magnetic field — whose overall strength is barely that of a toy magnet — may aid in mineral and petroleum exploration and may improve geological mapping.

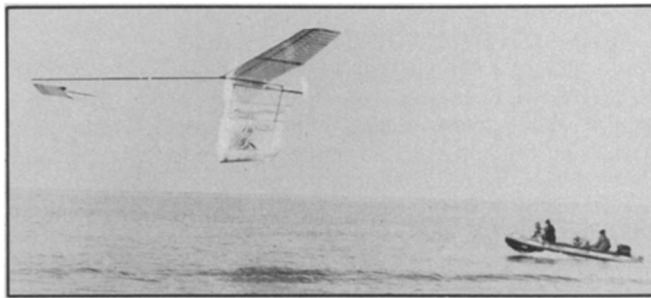
Called Magsat, for Magnetic Field Satellite, the joint NASA-U.S. Geological Survey-sponsored satellite will have a pole-crossing orbit that will range from 350 kilometers to 500 km in altitude. This relatively low altitude will provide, it is hoped, extremely high resolution. Unlike previous satellites (SN: 5/24/75, p. 340), which measured some magnetic field characteristics in addition to other operations, Magsat is a single-experiment satellite with an expected lifetime of only 120 days. It will carry instruments that measure both the magnitude and the direction of the field. At least three complete sets of global data are expected during its short lifetime. □

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Gossamer Albatross to take the high road

When a fragile, pedal-driven vehicle called the Gossamer Albatross on June 12 became the first human-powered aircraft to fly the English Channel, it skimmed over the waves at altitudes ranging from about six inches to perhaps 15 feet, traveling no faster than 14 miles per hour. Now the National Aeronautics and Space Administration is about to send the plane's twin, the Gossamer Albatross 2, to a far loftier environment: 70,000 to 85,000 feet above the earth, and at speeds up to seven times that of the channel crossing.

The plane's huge wingspan (94 feet) and low weight (about 70 pounds) give it extremely high lift and the ability to fly slowly (compared to jets and most propeller-driven fixed-wing craft), which interest both NASA and military researchers in regard to several applications: As a high-altitude communications platform, says Raymond E. Rose, NASA program manager for general aviation, such a vehicle might be able to stay aloft for as long as several months with high-output batteries for power, performing some tasks difficult for satellites. High-resolution atmospheric measurements could be another possibility, and one can imagine military interest in the craft's



Gossamer Albatross I: Its twin will fly higher.

ground-observing potential, since it would offer more speed and controllability than a balloon, better resolution than a satellite, yet could spend longer over a target than could, say, a speedy U-2.

A two-month series of flight tests is expected to begin by Dec. 1 at NASA's Dryden Flight Research Center in California, under a \$65,000 contract to AeroVironment Inc., headed by Paul MacCready, who designed and built both Albatrosses and their predecessor, the Gossamer Condor. Some human-powered flights may be included in the tests, but, says Rose, the high-altitude excursions will be done with the craft rigged for remote control from the ground and driven by an electric motor. A balloon may be used to carry the Albatross 2 to test altitudes, which may be as great as 100,000 feet. Even with no pilot aboard, however, weight will be a concern, with only about 155 pounds available for motor, batteries, other control equipment and test instrumentation. □

Treating malnutrition: Food is not enough

Children need both adequate nutrition and emotional stimulation in order to develop normally; deprived of either, they lag behind in physical and mental growth. Now, evidence suggests that the ill effects of these two deficiencies are intertwined to an extent not recognized previously. What we know as malnutrition may come from more than a lack of nutrients, and more than an adequate diet may be needed to correct it. Joaquin Cravioto of the Instituto Nacional de Ciencias y Tecnologia de la Salud del Niño-DIF in Mexico City presented these findings at the annual meeting of the Institute of Medicine in Washington.

For three years, Cravioto and colleagues followed the progress of a group of children who, at birth, were approximately equal in height, weight, skull circumference and other physical characteristics. They looked at the children's nutritional status as well as at their psychosocial, language and motor development. Using an Inventory of Home Stimulation, the researchers evaluated the quality of the children's language environment and of

the interactions between mother and child, including expressions of affection, interest in the child and sensitivity to his or her behavior.

A curious pattern emerged. Cravioto found that by looking at the Home Stimulation scores, he could identify those children who would become malnourished six months to two years before they began to suffer from malnutrition. The "future malnourished" children had poor quality language environments (suffering from what Cravioto calls "vocal malnourishment"), and their mothers tended to be passive and nonreactive toward the children, not proud or admiring.

The intermingled effects of stimulation and nutritional intake continued when the children were hospitalized for treatment. One group lived in a livened-up hospital environment and received systematic stimulation from the staff. The remaining children stayed in a normal (i.e. unstimulating) hospital environment. Both groups recovered physiologically, but only the stimulated children caught up mentally and emotionally. □

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