

BIOLOGY

It's a female wolf pup!

A litter of four pups of the highly endangered Mexican wolf gives new hope that the species will not become extinct. Fewer than 50 animals are scattered now over remote areas of Mexico, and the mother of the pups is the only female wolf in captivity. She was pregnant when captured in 1978, but only males of the litter survived. The new litter, born at the Wild Canid Survival and Research Center in St. Louis, has three "she"-pups. U. S. Fish and Wildlife Service officials hope to establish a breeding program with these females and six males already in captivity.

More and more gene companies

New ventures to commercialize genetic engineering are springing up around the country. Particularly noteworthy are two recent enterprises in the Boston area. The Genetics Institute is a Cambridge company with Mark Ptashne and Tom Maniatis of Harvard University on its board. Last year Harvard University considered setting up a company with Ptashne (SN: 11/29/80, p. 340); after Harvard bowed out other supporters went ahead.

In a separate arrangement, the German chemical company Hoechst has announced a \$50 million grant to Massachusetts General Hospital to enable it to build a department of genetic engineering. Howard Goodman, now at the University of California in San Francisco, will head the department to be run jointly by the hospital and Harvard Medical School. Goodman was one of the first to transfer a mammalian insulin gene into bacteria (SN: 5/28/77, p. 340) and, in later research, to make bacteria produce growth hormone (SN: 7/14/79, p. 22). Massachusetts General Hospital will own the patents on any inventions from the new department, but it will grant Hoechst exclusive rights.

Meanwhile, investors' enthusiasm has diminished for the two genetic engineering companies offering public stock. Genentech stock, once worth \$89 per share (SN: 10/25/80, p. 261), is now selling for \$37, and Cetus Corp. stock has dropped in three months from \$23 to \$19.

Mail-order crane bride



National Geographic

A graceful courtship dance between a male whooping crane at an Idaho refuge and a female newly arrived from the East has encouraged scientists to predict a large increase in the whooping crane population over the next few years. The first whooping cranes hatched and raised by sandhill crane foster parents at Gray's Lake National Wildlife Refuge are now six years old and ready for breeding, but unfortunately

they are all males. The female just imported was reared at the U. S. Fish and Wildlife Service's Patuxent Wildlife Research Center in Laurel, Md. The cranes at the center come from "extra" eggs at whooping crane summer nesting grounds. Females generally lay two eggs, but only one chick survives, so scientists take one egg of a pair to incubate and rear in captivity. Scott Derrickson of the center says that the female recently sent to Idaho didn't need special wilderness training because her mate will take care of her. He says she has made a good transition—she's roosting, foraging and avoiding barbed wire. Derrickson hopes the cranes will migrate together in the fall and breed next year.

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SPACE SCIENCES

ESA weighs Mars-radar, other missions

The European Space Agency has just completed preliminary assessments of four possible space missions for the 1980s, including a craft that would orbit Mars with a radar-altimeter to provide accurate elevation measurements. The radar instrument, which has caught the interest of planetary scientists excited by results from the Pioneer mission to Venus, is a relatively recent addition to the ESA Mars mission concept, which was originally devoted to atmosphere, ionosphere, magnetic-field and solar-wind studies. Researchers hope that the mission, called Kepler, would be able to provide wider and more accurate information on Martian surface contours than is available from stereoscopic analysis of U. S. Viking orbiter photos.

Also evaluated were Asterex, which would make close fly-bys of several asteroids; Disco, designed to make spectral-irradiance studies of the sun and to monitor the solar constant; and Magellan, primarily a high-resolution, ultraviolet spectrograph to be placed in geosynchronous orbit around the earth for astronomical studies. By the end of this month, ESA hopes to pick two of the four candidates for expanded, "phase A" studies, joining four other missions that have already passed that point: an X-ray astronomy satellite called X-80, an infrared space observatory (ISO), a grazing-incidence solar telescope (GRIST) and the long-sought polar-orbiting lunar observatory (POLO).

In 1982, ESA plans to begin work on one mission chosen from among the six that will, by then, have been through the phase A stage. (The status of GRIST and POLO, however, is uncertain at present, since both would probably involve cooperative arrangements with NASA. Dealings between ESA and the United States are currently strained because of the U. S. decision to cancel its major part of the cooperative International Solar Polar Mission, and until the matter is resolved, other cooperative projects face an uncertain future.)

First steps toward shuttle Centaur

In 1985, at the start of the planned Galileo mission to Jupiter, the combination orbiter-and-atmosphere-probe will be carried aloft by the space shuttle, then launched from earth-orbit by an upper-stage booster that got there attached to the spacecraft in the shuttle's cargo bay. Late last year, unanticipated costs and performance limitations prompted NASA to abandon the three-stage, solid-propellant booster originally slated for the job in favor of a modified version of the Centaur, a cryogenically fueled stage that is the most efficient rocket in the space agency's fleet. Now NASA has awarded four letter contracts, worth about \$7.5 million, to begin the new Centaur's design and development—but the project is not necessarily off and running. The decision to "go Centaur" was a controversial one, not only because of money already spent on the other booster, but also because of differing views on the safety of carrying the Centaur's liquid hydrogen and oxygen propellants in the manned shuttle orbiter. NASA studies indicate that redundant systems will handle the safety matter, but there is now another issue: The agency decided on the Centaur without soliciting competitive proposals from other potential manufacturers of a cryogenic upper stage, and one such company, McDonnell Douglas Corp. (which built cryogenic stages for the Saturn rockets in the 1960s and early 1970s), has protested that action to the government. NASA points out that the Centaur is still in production, and that competitive bidding procedures could delay the Galileo launch until 1987, but the General Accounting Office could yet elect to require a competition anyway. Also, Congress has asked NASA and the Air Force (which is buying a two-stage version of the solid-fuel booster) to conduct a study to be sure that the Centaur will dovetail with military space plans.

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