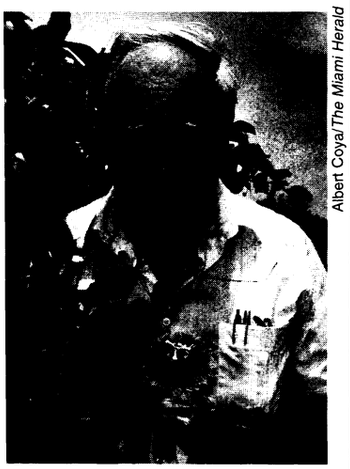
a major challenge is to ensure that the inserted gene is well regulated, producing enough of the enzyme at the right time, and that it does not disrupt normal cell activities.

This work complements that of Ronald Crystal of the National Heart, Lung and Blood Institute, who in April reported squirting a viral vector—without liposomes—into rats' lungs to transform cells to produce alpha-1 antitrypsin. At this early stage of research, it is a matter of debate which transformation technique might have more clinical value.

Passion-Pop?

Look out grapefruit juice, step aside OJ: Researchers at the U.S. Department of Agriculture (USDA) are developing a new kind of fruit, as yet unnamed, that is a cross between a wild flower and the passion fruit, is able to withstand freezes that ordinarily wipe out groves of citrus, and, like passion fruit, is suitable for juice.

The saga of the new hybrid began in the mid-1970s, when horticulturist Robert J. Knight of the USDA's Agricultural Research Service in Miami heard of an ornamental fruit-bearing hybrid of the maypop, a Maryland wild flower. Realizing the rich potential of a northern-growing plant that could yield edible, citrus-like fruit, Knight in 1979 began crossing the maypop (*Passiflora incarnata*) with the tropical passion fruit (*Passiflora edulis*).



Albert Coya/*The Miami Herald*

USDA's Knight poses passionately with new hybrid.

Early hybrids failed to reproduce well. But after sprinkling seedlings with the hormone colchicine, which doubled the hybrid's chromosomes, the researchers started to see more and more viable plants every year. Now Knight will be publishing the results of a decade of work in a forthcoming edition of *HortScience*. Knight and USDA plant geneticist A. Ann Amis have begun punching up the fertility of the cold-hardy hybrids. "Ann's been busy as a bee pollinating," Knight says.

Commercial cultivation of the yellow or purple fruit, the size of a large orange, probably won't happen for another few years, Knight says. But to a $3.3 billion-a-year juice industry that loses many millions worth of fruit to winter freezes every year, the prospect of planting the new fruit on land ranging from northern Florida up to the Carolinas must seem, well, quite a-peeling.

APA Boycotts DOD

Psychologists struck a blow for gay rights at the American Psychological Association (APA) meeting in San Francisco last month. They vowed to spurn advertising from one of their regular employers, the Department of Defense, so long as DOD continues to maintain that homosexuality is "incompatible with military service."

The DOD does not admit known homosexuals for military service and, according to APA estimates, discharges about 1500 a year. Psychologists' written complaints to the DOD having been rebuffed earlier this year, the APA Council of Representatives resolved to ban all military advertising from APA publications starting in January 1993. The military employs both research and clinical psychologists, and contributes a small but steady stream of classified ads.

Serendipitous Fix

A ground test gone slightly awry has helped reveal why the gaze of the Magellan spacecraft's antenna has repeatedly wandered off on its own since Magellan went into orbit around Venus a year ago. Engineers had been left scratching their heads after each "walkabout." But now they believe that one problem at least has been pinpointed: an error in the design of Magellan's computer software.

NASA

Artist's rendering of Magellan after being launched from the space shuttle.

The discovery came in late June during a ground-based verification test that was intended to duplicate the spacecraft system. The test system missed an electronic "heartbeat," as has happened four times on the spacecraft. That sent Magellan retreating into a protective mode of operation that took many hours of maneuvering to undo. But on the ground this time, a hardware glitch prevented complete fault protection, which on the spacecraft had always included wiping out all memory of how Magellan got into trouble in the first place. On the ground, the memory was left intact.

The preserved memory revealed that a software design error left Magellan vulnerable for the instant it took to switch from routine chores to top priority operations such as turning the spacecraft. If certain commands intruded at that moment, the computer would go into an "infinite loop" that cut off the essential electronic heartbeat and led to adoption of the backup mode.

The software error has now been corrected. But there remains the fifth walkabout, which came last September, that did not fit the pattern of the other four. The computer jumped from one kind of memory to another, something it was not supposed to be able to do. Magellan engineers are still working on that one.

Indigo for Computer Graphics Blues

Say you'd love to have three-dimensional, interactive graphics with animation capability, but these toys are a bit too pricey for your home or office computer and it's not really feasible for you to dash over to your nearby national supercomputer center.

A solution may be on its way: Indigo, a desktop workstation that offers complex three-dimensional capabilities and an easy-to-use visualization environment—all for less than $10,000. The system was the talk of the floor at a recent gathering in Las Vegas sponsored by the Association for Computing Machinery. The price of Indigo, which is produced by Silicon Graphics Computer Systems of Mountain View, California, puts it within reach of a substantial number of would-be users. And the visualization environment makes it easier for scientists who are not computer gurus to build applications. "The horsepower's there for people who don't want to become specialists," said Kelly Booth, director of the media and graphics center at the University of British Columbia. And, she adds, "you can use off-the-shelf solutions."

Larry Smarr, director of the National Center for Supercomputing Applications at the University of Illinois, hailed the new system as having "broad applications for science....Indigo will take three-dimensional interactive graphics from pioneering to routine use over the next 5 years."