SCIENCESCOPE

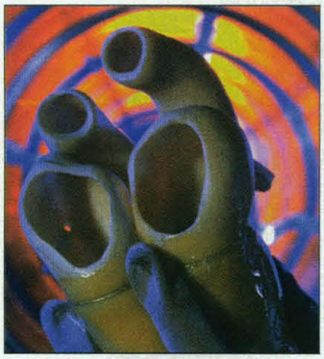
edited by CONSTANCE HOLDEN

Apollo Project for the Heart?

It may be a moonshot, but a handful of scientists are talking up the idea of a 10-year, $5 billion project to grow human hearts from human tissue.

A dozen biologists, surgeons, and engineers met at the University of Toronto last week to plot strategy for the initiative. Their vision is to wipe out the drawbacks of animal heart transplants—immune rejection, shortages, exotic viruses, and limited longevity—as well as of plastic organs, which are bulky and battery-dependent.

Chemical engineering professor Michael Sefton, leader of an international working group formed last week, admits that "it's going to take a little bit of biology"—such as a better understanding of genetics and embryonic development. Still, he notes that the field of tissue engineering is moving rapidly: Researchers can grow skin, bone, and bladder tissue, and there's been progress with growing two other complicated organs, the pancreas and the liver. "With 10 years and lots of resources, we could have tissue-engineered hearts that surgeons could implant," asserts Sefton.



DAN MCCOY/RAINBOW/PNI

The right stuff. Human tissue, not plastic (*above*), the way to go.

Making a human heart would entail designing a polymer scaffolding that dissolves as cells cover it. "The most difficult technical challenge is growing up a large number of very good cardiac myocytes," or muscle cells, and getting them to start pumping together as a muscle, says Sefton.

The initiative's backers plan on hitting up industry and private foundations for financial support in the early stages of the project, says Buddy Ratner of the University of Washington, Seattle, head of a National Science Foundation–funded center for engineered biomaterials. But, says Ratner, who compares this heart-engineering drive to the Human Genome Project, "the final push will have to come from the government."

John Watson, acting deputy director of the National Heart, Lung, and Blood Institute, which is involved in a new $30 million National Institutes of Health program to stimulate tissue engineering, says "I think it's a worthy goal, but no one's even made a heart valve yet."

Ag Bill Home Free

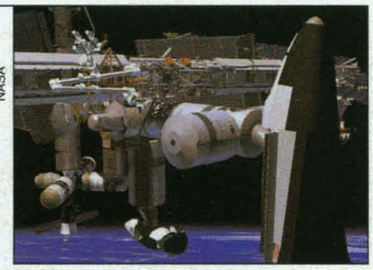
Plant and animal scientists are celebrating the House's approval last week of a bill creating a new $600 million program for competitive agricultural research over the next 5 years (*Science*, 3 April, p. 23). President Clinton has said he will sign the U.S. Department of Agriculture bill, which targets six areas including agricultural genome research and biotech. (The Senate passed the bill last month.) The measure's future had looked uncertain for a time, as lawmakers in the House and Senate sparred over—but finally agreed to—provisions restoring food stamps for legal immigrants.

Horse Talk

Following a meeting last weekend in New York, a cadre of researchers and others involved in drug treatment are skirting treacherous political waters: They want to design the first study in North America of an approach in which heroin addicts are given free heroin.

This approach, called heroin maintenance, is likened by detractors to giving an alcoholic free booze. But supporters say a major study in Switzerland, covering about 1000 heroin abusers, showed that maintenance could improve health and reduce drug consumption. Critics say the study lacked controls and was too loosely conducted to prove anything (*Science*, 20 March, p. 1839). But the Dutch have been impressed enough to design a 5-year trial, set to start in three cities next week. This is the first such study to have randomized controls, says epidemiologist Ernest Drucker of Montefiore Medical Center in New York.

The conference, convened by the George Soros–funded Lindesmith Foundation in New York City, was held primarily to air the Swiss study. But the next day participants pulled together a task force, headed by David C. Lewis, director of the Brown University Center for Alcohol and Addiction Studies, to design a study for the United States and Canada. It would most likely be launched in Canada, says Martin Schechter, epidemiologist at the University of British Columbia in Vancouver, where the public has been shocked by an "explosive outbreak" of HIV among intravenous drug users. In the U.S., says Lewis, it will be some time before such an experiment is politically palatable.



NASA

Debut delayed. Space station awaits Russian module.

Station Grounded Until November

The first piece of the international space station was supposed to be launched this month, but last week the program's partners pushed off the inaugural flight until 20 November. The problem, say NASA officials, is that Russia is lagging behind in completing a module that will provide key control functions for the early years of the orbiting lab. NASA officials are hedging their bets by working on a U.S. version that could replace the Russian module if necessary.

Delays are certainly not new to the space station, which President Ronald Reagan proposed in 1984 and which was to be completed within a decade. Now completion of the laboratory, which will weigh nearly 500 tons and stretch nearly the length of a football field, is slated for early 2004 rather than the end of 2003. Scientific research won't begin in earnest aboard the facility until early 2000.

Status Boost for DOD Medical Research?

Lobbyists for cancer research may be celebrating another victory soon as Congress moves toward setting aside another large slice of the Pentagon's budget for basic biomedical studies.

Last week, the Senate Appropriations Committee inserted a new permanent-looking section in the 1999 Defense Department funding bill, entitled "Medical Research and Development." The category provides a total of $250 million, including $135 million earmarked for "peer reviewed breast cancer research" and $40 million for similar studies of prostate cancer. The rest would pay for "peer reviewed medical research grants and activities" covering a wide spectrum of diseases.

The House appropriations committee had not released its 1999 defense bill at press time. But reports circulating in the biomedical community anticipate that the House set-aside for basic biomedical funding will be even larger—about $350 million. The committee may report a bill next week.