

Surgical wizardry: Pancreas in the liver

During the latter part of 1977 and the first half of 1978, an electrician named John Foster experienced distressing attacks that led him to hazard a most singular operation. His surgery was a pronounced success and now holds promise for other patients as well. The story goes like this . . .

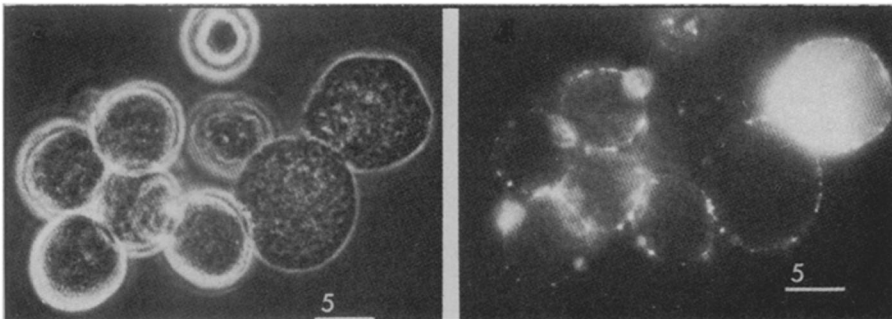
Foster found himself experiencing painful bouts, during which he couldn't move, sit up, lie down or stand up. He went to the doctor and was diagnosed as having a chronically diseased pancreas, the organ that makes insulin, the hormone chiefly responsible for enabling the body to store and use sugar, and that makes enzymes that digest food. Foster then received worse news: The only proven treatment for chronic pancreatitis, which may be caused by alcoholism, gallstones, abnormal fat levels in the blood or other causes, was removal of 95 percent of the pancreas, which would leave him diabetic for the rest of his life. But Foster was offered an alternative solution for his condition — a highly experimental operation only tried six times before in the United States, and only twice successfully, by John L. Cameron, professor of surgery at Johns Hopkins

University School of Medicine in Baltimore. "It sounded kind of strange," Foster recalls, "but anything was better than what I was going through." So he agreed to it.

Cameron and his assistants operated on Foster on June 30. They first removed his pancreas and found that it had developed a handful of cysts, which had impaired gland function and which had caused pancreatic enzymes to back up in the pancreas and literally digest it. Then they separated out pancreatic tissue section by section in order to retrieve pancreatic cells that were still healthy and injected the cells into Foster's portal vein, which supplies blood to the liver. The pancreatic cells moved up the vein, finally lodging in Foster's liver. And voilà! The cells, although separated from their native organ, began to function again. Foster was discharged from the hospital on August 26 and expects to be back at work full time by Christmas. His operation was "obviously a complete success," says Cameron.

Cameron hopes to repeat this operation seven or eight times during the next few months in other patients with chronic pancreatitis. He will also be working to refine it on the basis of techniques he and his colleagues have explored in dogs. "I now believe that within five years this will be the established procedure for treating chronic pancreatitis," says Cameron. □

Immune foul-up in juvenile diabetes?



Healthy islet cells (left) and antibody-damaged ones.

Diabetes mellitus strikes one to two percent of all Americans and often leads to blindness, heart attacks or other serious complications. Its precise causes remain to be fully delineated, but progress is being made slowly in zeroing in on the culprits. Adult-onset diabetes, for instance, appears to have a strong genetic component, while juvenile-onset diabetes appears to stem from immune aberration and possibly also from a viral infection.

Additional evidence that some kind of abnormal immune reaction underlies juvenile diabetes is reported in the Aug. 24 *NEW ENGLAND JOURNAL OF MEDICINE* by Åke Lernmark of the University of Chicago and colleagues. Twenty-eight out of 88 (32 percent) juvenile diabetics were found to have antibodies in their bloodstreams that damaged insulin-producing (islet) cells

taken from the pancreases of rats. (See accompanying illustration that compares healthy rat islet cells with rat islet cells damaged by antibodies from juvenile diabetics.) In contrast, only one out of 24 healthy children was found to have antibodies that caused this reaction. Since diabetes consists of sugar intolerance due to inadequate insulin production by the pancreas, Lernmark and co-workers interpret their finding as evidence that many juvenile diabetics may make antibodies that attack insulin-producing cells in their own pancreases and hence destroy the insulin they need to control blood sugar. The researchers are now studying the influence of such antibodies on the function of islet cells, to determine their role in the pathogenesis of diabetes. □

More guests for Salyut 6

The latest visitors to join cosmonauts Aleksandr Ivanchenko and Vladimir Kovalenok aboard the Soviet Salyut 6 space station were Soyuz 31 crewmen Valeriy Bykovskiy (veteran of the Vostok 5 and Soyuz 22 missions) and Sigmund Jaehn (the first East German cosmonaut). Launched on August 26, they docked with the Salyut a day later, staying for several days of photographic, biomedical and materials-processing experiments before returning to earth on September 3. The launching came only five days after the departure from Salyut 6 of the unmanned Progress 3 supply craft (thus freeing a docking port), which had delivered oxygen regeneration equipment and other gear to the station. Bykovskiy and Jaehn returned to earth aboard Soyuz 29, leaving their fresher Soyuz 31 docked with the station for Ivanchenko and Kovalenok, who may thus be attempting to surpass the manned space flight record of 96 days set aboard Salyut 6 earlier this year by Yuri Romanenko and Georgi Grechko. □

Another smallpox case

In signing the death certificate, last December, for *variola major* — the blinding, maiming and often lethal form of smallpox — the World Health Organization's director announced that the world had seen its "last case of *variola major* on earth" in October 1975. But a new case was confirmed August 27 in England. The victim, a photographer in the Birmingham University Hospital Medical School, worked one floor above a laboratory using smallpox viruses, according to the Sept. 8 *SCIENCE*. For three years WHO has asked that such labs either voluntarily destroy their stocks or transfer them to a WHO collaborating center to prevent just such an incident. This is the second laboratory exposure in England within five years. □

Senate report on DNA

Current guidelines for recombinant DNA research are deficient in several respects, reports the Senate Subcommittee on Science, Technology and Space. The findings are based on hearings held last November. While support of recombinant DNA research is seen as justified, the subcommittee recommends enforcement be entrusted to an agency other than the National Institutes of Health. The subcommittee also suggests that institutions be certified and that local governments be prohibited from enacting stricter standards without presenting convincing reasons. In a minority report, Sen. Harrison Schmitt (R-N.M.) says the recommendations would result in "unwarranted and excessive regulation." □