

conceivable.

It's possible, of course, even likely, that if the presence of life on Mars is definitely established, some will wonder in retrospect why the answer wasn't obvious. Hindsight could reveal that no inanimate chemistry imaginable should have been thought capable of producing such signs. Viking scientist Leslie Orgel of the Salk Institute, who labored for years as part of the effort to understand the formation of the building blocks of life, says, looking back, that one wonders why it wasn't easier. Given the knowledge of the

necessary conditions, the long-sought result turned out to be almost unavoidable. For now, however, the razor must be a prime factor in deciding whether biology or chemistry is the easy way—even if the authors of some theories suffer a little sympathetic bleeding.

But then, William of Occam was controversial even in his own time. The chancellor of Oxford, where he was studying for his doctorate, accused him of heresy, and Pope John XXII himself called him on the carpet. But you can't keep a good razor down. □

## Cell transplants for diabetes

Scientists have long visualized the day when diabetics whose pancreatic cells do not make insulin might receive an injection of pancreatic cells to correct the deficiency. Then the patients would once again be able to convert sugar to energy without difficulty and avoid diabetic coma, insulin shock, heart disease, kidney failure and other hazards and complications of the disease.

This hope has now become a near-reality for one diabetic, thanks to John S. Najarian, chairman of the Department of Surgery at the University of Minnesota Medical School in Minneapolis. He reported his successful application of this treatment approach last week at the Sixth International Congress of the Transplantation Society in New York City.

Back in the 1960s, several researchers conceived of the idea of taking cells that make insulin from the pancreas, so-called beta cells, mixing them with salt water and injecting them into the portal vein behind the pancreas in hopes that the cells would nest there and start making insulin. The technique was successfully used in animals by the late 1960s. After that, Najarian and his colleagues confirmed the results in animals and then, a year-and-a-half ago, tried the technique on seven diabetics.

The technique worked beautifully in one patient and has continued to do so for 18 months. Her need for injected insulin has been reduced by two-thirds. The technique also helped five of the other patients for nine weeks or so.

There are several major hurdles to getting the treatment to work in patients, Najarian explains. One is the difficulty of getting the cells targeted to the right site in one injection. Another is getting the patient's body not to reject the cells as foreign because they are from another person. The rejection problem did not exist in the animal experiments because donor and recipient animals were closely inbred, and it was minimized in Najarian's seven patients because all had received kidney transplants previously and were on immunosuppressive drugs.

Only when these challenges are better met will the techniques become widely

available to diabetics with malfunctioning pancreases. And even then it is doubtful whether the technique will help those diabetics whose problem is not inadequate insulin production but rather something in their blood that antagonizes the action of insulin or a deficiency of insulin receptors on their insulin target cells (SN: 10/19/74, p. 248). □

## One hand, one thumb: Test for depressives

It was 1899 when the German psychiatrist Emil Kraepelin introduced the term "manic-depressive psychosis" into the psychiatric vernacular. He described it as recurrent cycles of attacks of elation and depression, and pronounced it as being one of the two primary complexes of mental illness—the other is now known as schizophrenia—from which all others derive.

Studies spanning several decades have shown since then that some individuals experience only the "manic" part of manic depression, some only the depression (unipolar depression) and still others experience both types of reactions (bipolar manic depression). But researchers have not been able to prove that unipolar depression and bipolar manic depression are two distinct affective disorders—let alone give a consistent diagnosis for one or the other. Estimates of agreement between diagnosticians reach as low as 30 percent in various studies.

Through work on what they call the "Thumb Opposition Test," Erica Metzger, Steven Rosenberg and Mark Ast of the Bernard W. Schlesinger Foundation in New York and Steven D. Krashen of the University of Southern California have presented evidence (*BIOLOGICAL PSYCHIATRY* 11:313) supporting the hypothesis that depression is related to the left hemisphere of the brain, which is dominant in most human beings for language control (SN: 4/3/76, p. 218), while the mania of manic depression is related to the brain's minor or right hemisphere.

Since the body's right side is controlled

by the left hemisphere of the brain, they found that left hemisphere depression would be associated with a slight loss of spontaneous movement of the body's right side. Right hemisphere mania would be associated with loss of spontaneous movement of the body's left side.

The test involves—what else?—the thumb. This digit has been anthropologically connected with having developed in direct parallel with the evolution of the human cerebral cortex, which is responsible for humans' superior cognitive functioning. The movement of thumb opposition, placing the thumb pad to the pad of any other finger, especially the little finger, is the most complex and refined in the entire body.

The researchers applied the test for the purpose of distinguishing a group of bipolar manic depressive patients from a similarly sized group of unipolar depressives. A control group of normal subjects also took the test. Twenty-eight of the 52 right-handed normals (approximately 50 percent) could more directly approximate the pad of the right thumb to that of the little finger. Because these subjects were right handed and showed right hand superiority, they were termed "pure dominant." The remainder were termed "cross dominant" since they had right hand preference but left side superiority in thumb opposition.

Of the 25 right handed, bipolar manic depressives, 21 were pure dominant. Of the 26 right handed, unipolar depressives, 17 were cross dominant. The results with the left handed groups were similar.

The findings demonstrate that even normal human beings show an unequal capacity for rotation between both thumbs. Consequently, people are left-and-right thumbed as well as being left-and-right handed. But compared with the control group's 50 percent split between pure dominant and cross dominant, the unipolar depressive patients showed a higher frequency of cross dominance, and the bipolar manic depressives showed greater pure dominant tendencies.

This suggests, say the researchers, that thumb opposition, together with handedness testing, may be capable of detecting the right or left hemisphere's vulnerability to unipolar depression or bipolar manic depression. They also feel that the two diseases may be directly linked to the right or left hemispheres of the brain—bipolar manic depression to the former and unipolar depression to the latter. Perhaps, they say, the tests may be used for early detection and diagnosis of the two seemingly distinct illnesses.

"Since manic depression and recurrent depression have been shown to have a high genetic component," explain the scientists, "the first application of the test would be to relatives of already afflicted patients. For relatives are at a high risk for these diseases compared to the rest of the population." □