

patches that narrow the blood vessel. Scientists hypothesize that high density lipoproteins are beneficial because they can lure the cholesterol out of the arterial walls and deliver it to the only organ in the body that can degrade it, the liver.

Most supporting data for this mechanism have come from studies of isolated tissue culture cells (SN: 2/4/78, p. 72). Now an *in vivo* study reported in the April 7 SCIENCE has found that the liver of a woman selectively used the cholesterol bound to high density lipoproteins rather than that bound to low density lipoproteins. Charles C. Schwartz and colleagues in the departments of medicine and surgery at the Veterans Administration Hospital in Richmond, Va., intravenously injected radioactive labeled HDL and LDL and sampled blood and bile frequently for the next 11 hours. (The bile was easily obtained because the woman had had her gall bladder removed and the bile duct had been connected to the body surface.) Three days later they repeated the experiment, switching the radioactive labels on the HDL and the LDL. In both experiments the free cholesterol from high density lipoproteins was more rapidly incorporated into biliary cholesterol than was the free cholesterol from low density lipoproteins. The control tissue, red blood cells, preferred cholesterol from HDL more than that from LDL also, but the difference was quite small in comparison to the liver.

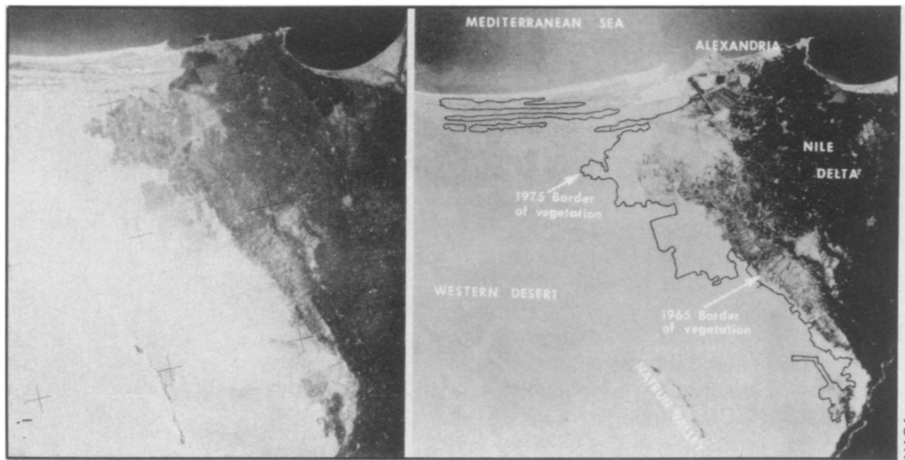
Obviously, one patient does not a theory make, but this observation does support the hypothesis that HDL delivers its load of cholesterol to the liver where it is metabolized and destroyed.

Why do premenopausal women, Swedish skiers and Greenland Eskimos have elevated levels of HDL? Why are levels depressed when cholesterol or triglyceride levels are high, or when a person is obese or diabetic? Why are the levels of HDL high when the levels of LDL are low, and vice-versa? Answers to these questions are not yet to be had.

Studies have been hampered because the high density lipoproteins in most animal models have proved resistant to manipulation. Last week at the annual meeting of the Federation of American Societies for Experimental Biology in Atlantic City, N.J., J. L. Hojnacki, Robert J. Nicolosi and Kenneth C. Hayes of the Harvard School of Public Health reported that they had found a model that responded to increased dietary cholesterol by elevating the levels of high density lipoprotein rather than the low density lipoprotein levels. Cebus monkeys, unlike most others, have a majority (80 percent) of high density lipoproteins and are very resistant to atherosclerosis. The researchers hope that this model will reveal what regulates HDL levels and that the findings can be extended to manipulate the HDL levels in humans in order to decrease the risk of atherosclerotic heart disease. □

APRIL 22, 1978

## Greening the Egyptian desert



The above photo (left) of the Egyptian desert, taken from orbit during the July 1975 Apollo-Soyuz space-rendezvous mission, may seem unexceptional enough — until it is compared with a photo of the same region (right) taken 10 years before during the flight of Gemini 5. In the intervening decade, says Farouk El-Baz of the Smithsonian Institution, Egypt has reclaimed about 686 square kilometers of desert for vegetation. Also outlined on the Gemini photo are areas identified as fertile and with reclamation potential. This, says El-Baz, is important to a country whose land is only about 4 percent fertile.

## Genius and parental loss

"Anna O.," a patient of Sigmund Freud's, lapsed into the hysterical symptoms of headaches, paralysis and anesthesia in her limbs during her father's terminal illness and after his eventual death. She later discovered, through psychotherapy, that her symptoms were linked to the trauma of her father's death. Anna O. went on to become the first social worker in Germany, founded a periodical and started several institutes.

In published reports of the case, "trauma and symptom were linked, but trauma and creative productivity and occupational achievement were not linked," says J. Marvin Eisenstadt of East Plains Mental Health Center in Hicksville, N.Y. This was part of the psychologist's motivation in undertaking perhaps the most ambitious study yet purporting to connect the relatively early loss of a parent with genius development.

Reporting in the March AMERICAN PSYCHOLOGIST, Eisenstadt presents a series of statistical comparisons that he says support the genius-parental loss link. His basic population of "eminent" individuals consists of 573 persons who were given at least one column of space in the 1963 *Encyclopedia Britannica* and those with one column or more in the 1964 *Encyclopedia Americana*.

The backgrounds of those persons reveal that one-fourth had lost at least one parent by age 10; 34.5 percent by age 15; 45 percent by age 20; and 52 percent by age 25. In comparison, an analysis of the 1921 census of England and Wales shows that just 12.4 percent of the general population

there lost a parent by age 9; and only 16.6 percent by age 14. And data from the Metropolitan and Icelandic life insurance companies (covering periods during the first third of the 20th century) indicate that considerably more eminent people lose a parent by their mid-teens than do the rest of the population.

Eisenstadt further contrasts the genius group with juvenile delinquents and psychiatric hospital patients. He finds that it "appears that the rate of orphanhood among the eminent is even greater than that among delinquents given over to courts and state institutions for care." However, the incidence of parental loss and orphanhood among certain psychotic, severely depressed or suicidal patients is comparable to that of the geniuses, he reports.

Despite "the lack of true control groups," Eisenstadt says the data point to an apparent link between parental loss and genius. In addition, he presents a theory that "neatly explains... similarities between the genius and the psychotic."

Basically, he suggests that although the potential genius and the psychotic both may lose a parent at an early age, the genius then undergoes a "creative mourning process" — a form of overcompensation that drives the person to the heights of achievement and creativity. For another person, though, the bereavement reaction "can have the effect of stunting personality growth and producing the concomitant antisocial acts, destruction of social relationships and even the taking of one's own life," Eisenstadt says. □

245