behavioral sciences

Brain damage in drug abusers

Physicians at the University of Southern California Medical Center in Los Angeles have examined a number of drug abusers diagnosed as victims of stroke. The stroke often resulted in paralysis, inability to speak, or death. Calvin L. Rumbaugh, R. Thomas Bergeron, Harry C. H. Fang and Ruth McCormick report on their work in the November RADIOLOGY. The most common finding, after cerebral angiography (visualizing the blood vessels of the brain by X-ray), was that portions of small arteries had closed.

"We are reasonably sure there is a relationship between the cerebral vascular changes we are demonstrating and drug abuse, but we are not sure about which drug or combination of drugs may be responsible," the researchers say. They are also uncertain about the role of infection. Patients' histories indicate that in the case of intravenous injection a variety of means for dissolving the drugs, from tap water to urine, was used. In the case of overdose, various home remedies such as intravenous injection of milk or mayonnaise may have been used as antidotes.

Megavitamin treatment for schizophrenia

Schizophrenia may be a result of vitamin deficiency, Canadian psychiatrist Abram Hoffer told a joint conference of the schizophrenia associations of Canada, America and Great Britain in London. Hoffer has treated 2,000 schizophrenics with massive doses of vitamins and claims more than 90 percent recovery for those who had been sick for less than one year.

Treatment consisted of one gram of nicotinic acid or nicotinamide (vitamin B_3) after each meal plus one gram of ascorbic acid a day. Standard treatment with tranquilizers, antitension compounds and antidepressants was used as necessary. Treatment continued until the patient was free of symptoms. In some cases, however, the vitamin regimen had to be continued for prolonged periods and dosage increased.

Hoffer, now in private practice in Saskatoon, said, "If we were to add to our diet at least one gram a day [of vitamin B_3], we could, in the next decade or two, see a very significant decrease in the extent of this disease."

Illusory test results

Clinical psychologists and psychiatrists often use psychological tests in their decision making. The two most widely used tests are the Rorschach inkblot and the draw-a-person tests. Both are projective—based on the assumption that a person projects part of his personality when he responds to an ambiguous situation. In the November PSYCHOLOGY TODAY Loren J. Chapman and Jean Chapman of the University of Wisconsin say that these tests are not always valid and "the average clinician may project his own preconceptions and assumptions into his description of the patient."

Clinicians and students were tested, and it was shown in both groups that previous associations often produced illusory correlations between symptoms and test signs. The researchers conclude that "clinicians are subject to the same illusions as everyone else . . . and must be made aware of the illusory correlations if they are to compensate for them."

earth sciences

Super-thick sediments

The floor of the Bay of Bengal is covered by a thick blanket of sediment eroded from the slopes of the Himalaya Mountains and carried to sea by the Ganges River.

This fan-shaped sediment deposit, says Joseph R. Curray of Scripps Institution of Oceanography, is more than 10 miles deep in some places—"one of the thickest sediment columns in the world." Curray and two colleagues, Russell W. Raitt of Scripps and David G. Moore of the Naval Undersea Research and Development Center in San Diego, made this discovery as part of a recently concluded 15½-month Scripps expedition into the Pacific and Indian Oceans.

The researchers determined by seismic refraction that the maximum thickness of the sediment is about 54,000 feet. The Bay of Bengal Deep-Sea Fan covers an area of some 2 million square miles; its mud and sand sediments are thickest under the continental shelf just offshore of the Ganges River delta. The surface of the fan is scored by a network of submarine channels, some as wide as 10 miles.

Moving Madagascar

The task of finding a plausible pre-drift position for Madagascar, an old continental fragment, has been particularly frustrating. Three possible solutions have been suggested: that Madagascar has remained in its present position and was once connected to Africa by a former land bridge, that it has drifted eastward, or that it has moved south and slightly east.

J. R. Heirtzler and R. H. Burroughs of Woods Hole Oceanographic Institution report that new seismic reflection profiles offer a possible explanation. East-west traverses by the research vessel Chain discovered a ridge-like feature running north-south they write in the Oct. 29 SCIENCE.

If Madagascar had drifted eastward, the ridge could be a spreading axis, but the morphology and magnetic anomalies are not consistent with this interpretation. Nor is the ridge consistent with the theory of a stationary Madagascar. If Madagascar has moved southward, however, the feature could be a fault caused by the movement, the researchers suggest.

Defogging the Panama Canal

Some 180 times a year the Panama Canal must be closed because of fog, causing a loss of 10 percent of its operating time. With increases in canal traffic, this loss may become critical.

Lothar H. Ruhnke of the National Oceanic and Atmospheric Administration's Atmospheric Physics and Chemistry Laboratory has collected data on canal fog, including size and type of fog particles and measurements of airborne particles that could act as nuclei for condensation of water vapor. Ships themselves, he found, may add to the problem, since they provide both condensation nuclei and water vapor from combustion of hydrocarbons in their power plants.

The next step will be to test several potential methods of fog dissipation, such as seeding, creation of artificial convection, electrostatic precipitation, or simply blowing the fog away. At the same time, Ruhnke hopes to develop computer models of fog formation processes to improve fog forecasting.