

Mind-body confusion

When is a psychiatric illness not a psychiatric illness? When the psychiatric symptoms are caused by an undiagnosed medical illness. And this may be the case more often than is generally believed, according to a report in the September ARCHIVES OF GENERAL PSYCHIATRY. The research was conducted by C. W. Hall, Earl R. Gardner and August F. LeCann of the University of Texas Medical School in Houston, Michael K. Popkin of the University of Minnesota in Minneapolis and Sondra K. Stickney of the Herman Hospital in Houston.

One hundred psychiatric patients took part in the study. Most had been seen originally at a large city psychiatric reception center to which they had been brought by their families or police under mental health warrants. They would have been committed to the state mental hospital, but they volunteered to be part of the research project and were admitted instead to a clinical research ward. There they were given thorough physical and psychological exams, and 46 percent were found to have previously undiagnosed medical illnesses that in the opinion of the researchers were "specifically related to their psychiatric symptoms or exacerbated them significantly." An additional 34 percent had undiagnosed physical illnesses that were unrelated to their psychiatric symptoms. Of those with physical illnesses thought to be contributing to their psychiatric symptoms, 61 percent showed rapid clearing up of psychiatric symptoms when the underlying medical disorder was treated. Among the undiagnosed physical problems were Addison's disease, arsenic poisoning, Wilson's disease, lead intoxication and vitamin or other dietary deficiencies. Such findings are not surprising, say the researchers, because most of the patients were of the lower socioeconomic class who rarely had routine medical care. However, they say, "we do believe that they are representative of those patients most likely to be committed to state mental hospitals."

The researchers conclude that "currently employed diagnostic evaluations of patients to state psychiatric hospitals may be inadequate to fully identify the medical disorders present The legal implication of failure to properly study patients for underlying medical illness is, in our opinion, profound." The battery of tests given costs approximately \$400 per patient.

Pregnancy and pain perception

For years physicians have been trying to fool Mother Nature by administering pain-killing drugs to women during labor. But it appears that Mother Nature may have her own way of dealing with the pain and stress associated with giving birth. Alan R. Gintzler of the Downstate Medical Center in Brooklyn reports in the Oct. 10 SCIENCE evidence from studies of rats that the endorphin system, which blocks painful stimuli, is activated during the final stages of pregnancy and is involved in raising the maternal thresholds to pain.

Gintzler measured pain thresholds in pregnant and nonpregnant rats by subjecting them to electric shocks. He found a gradual increase in the ability of the pregnant rats to sustain pain beginning on the 16th day before parturition. This was followed by a more abrupt increase in the pain threshold on the two days prior to giving birth. The nonpregnant rats, tested the same way the same number of times, showed no increase in resistance to pain.

When naltrexone, which is known to block the pain-killing effects of endorphins, was implanted subcutaneously in pregnant animals, there was no significant increase in pain thresholds. Gintzler says, "Endorphins therefore appear to be an important component of intrinsic mechanisms that modulate responsiveness to aversive stimuli during pregnancy."

OCTOBER 11, 1980

Industrial wastes threaten water

Every day, another 50 billion gallons of liquid wastes are dumped into industrial surface-water impoundments — pits, ponds and lagoons — according to Environmental Protection Agency estimates. A survey by the agency, published by Congress last week, indicates that more than 90 percent of the 26,000 industrial sites across the nation identified as containing liquid wastes go "virtually unmonitored." As a result, owners and operators of the more than 23,000 sites involved don't know if they might be contaminating groundwater beneath those sites.

And the EPA study provides some basis for concern that such might indeed be occurring. It identified, for example, a total of 251 sites (in 35 states) where unlined impoundments contained potentially hazardous wastes above groundwater. In each case, there were no barrier strata to confine wastes from the groundwater. In addition, potential water supply wells were located less than one mile away. Florida topped the national list with 54 such sites. South Carolina, with 23, ranked second. Close behind followed Ohio and Pennsylvania, each with 20, and Connecticut with 18.

In all, some 35 percent of the 26,000 sites — around 9,100 — were found to be unlined, potentially allowing contaminants to filter down; nearly 7,800 of them sit atop groundwater with no barrier between. Finally, 750 of those sites — containing a total of 2,600 impoundments — are within a mile of groundwater.

EPA claims its data are inconclusive and admits the survey relied in many cases on secondhand sources. As such, the agency says that it provides only a "first round approximation" of the magnitude of the problem. However, EPA's Assistant Administrator for Water and Waste Management, Eckardt Beck, testified during a July 25, 1980, hearing before the House Environment, Energy and Natural Resources subcommittee that "this survey indicates that we have got a very, very serious problem with lagoons contaminating groundwater."

Convention covers fluoridated krill

A pact to regulate both the protection and harvest of antarctic species was signed in Australia last month by representatives of 15 nations. Provisions of the Convention on the Conservation of Antarctic Living Marine Resources will go into effect one month following its ratification by a majority of the signatory powers (which include Argentina, Australia, Belgium, Britain, Chile, France, East and West Germany, New Zealand, Norway, Japan, Poland, South Africa, the Soviet Union and the United States).

Setting a harvest policy for krill is expected to lead the convention's agenda. These crustaceans are a staple for many that dine at sea, especially blue whales, penguins, fish, seals and squid. Research during the past decade has aimed at developing krill into a palatable high-protein entrant into the human diet, but research described in the *BMFT Newsletter* (published by the Bundesministerium für Forschung und Technologie in Bonn) dampens expectations that krill will make their way onto dinner menus soon.

Studies performed by Norwegian researchers and confirmed by German colleagues report krill to be high in fluorine. At concentrations in muscle of 150 milligrams of fluorine per kilogram of tissue, contamination levels in krill rank 15 to 30 times higher than in other antarctic fish and crustaceans. Too contaminated for human consumption, fluoridated krill might still provide a safe substitute for fish meal supplements in animal fodder, however, the German publication says.

Next summer, German expeditionary crews aboard the research vessels *Meteor* and *Walther Herwig* will seek to identify the source of the fluorine found in krill and to determine to what extent the contaminant is transported up the food chain.

233