

NEUROLOGY

Search for Brain Damage

Damage to brain from infectious diseases may cause behavior problems in children, neurologists' meeting told. Report chemical aids multiple sclerosis victims.

► **SEARCH FOR** brain damage due to some infectious disease in children with behavior problems, Dr. Arthur R. Timme of Los Angeles advised physicians at the meeting of the American Academy of Neurology in Virginia Beach, Va.

Brain damage is particularly to be suspected in children who are restless and do not pay attention, or who seem to be half asleep instead of paying attention, and in children who fly into rages over trifles.

The part of the brain involved in learning to concentrate and pay attention and in learning to control anger when we cannot have our own way is the part likely to be damaged by infectious diseases, Dr. Timme pointed out.

Behavior disorders have long been known to follow attacks of encephalitis, sometimes called sleeping sickness. But when the encephalitis is mild or when it has been a complication of some other disease, such as measles, it may have been overlooked altogether, or may not be suspected as the cause of behavior difficulties appearing some time later.

With proper diagnosis, medicines and training, such children can be helped to overcome their behavior difficulties, Dr. Timme said.

The medicines he suggests are phenobarbital and whole pituitary gland substance. Small doses of phenobarbital given over a long period seem to lessen the readiness to fly in a rage when thwarted. The pituitary preparation seems to enhance the effect of the phenobarbital, perhaps by stimulating circulation in the whole pituitary region of the brain.

When parents, teachers and doctor look on the annoying behavior as a symptom of a sick child rather than the misdeeds of a naughty child, there is an important psychological effect which helps in training the child.

Evidence that the medicines also help, however, comes from relapses seen during control periods when the medicines are withheld.

Multiple Sclerosis Help

► **A CHEMICAL** that overcomes spasms of the blood vessels is helping some patients with the disabling nerve disease, multiple sclerosis, three Cleveland physicians reported at the meeting.

The physicians are Drs. Guy H. Williams, Jr., L. J. Karnosh and Howard J. Tucker of the Cleveland Clinic.

Tetraethylammonium chloride is the name of the chemical, they reported. It has been used previously for patients with high blood pressure.

"Under no circumstances," the doctors stated, "do we consider tetraethylammonium chloride to be specific in the treatment of multiple sclerosis."

At most, they explained, it appears to be only a palliative treatment, giving relief but not cure, particularly in the acute phase of the disease. Only moderate to no improvement can be hoped for in the chronic stage. It is possible, they reported, that when given in the early stage of a bout of the disease, the chemical may prevent formation of new "scars" in the central nervous system.

In spite of their very cautious view of the drug, they reported that in some cases "startling changes" were seen within one or two days after giving the chemical.

One "very notable case" was that of a 20-year-old girl who had paralysis of the legs. Within one to two hours after her first dose of the chemical, she could move her legs, which she had not been able to do for several weeks before.

Other patients have reported strange skin sensations, such as pricking or burning or crawling feelings, were less intense, or that visual disturbances such as seeing double improved or that muscular coordination in the hands was better after two or three injections.

Use of the chemical depends on the theory that some of the trouble in multiple sclerosis is a disorder of blood vessels, either a spasm of the vessels or a change in the tone of the blood vessel walls. The cause of the disease, however, is still unknown.

Brain Fat Dangerous

► **A UNIQUE** but fairly frequent brain disease, often mistaken for other conditions, is the sudden plugging of a blood vessel in the brain by fat.

It is important in blast injuries, "concussion," air casualties and battle injuries as well as in accidents in civilian life, Dr. A. Silverstein of Philadelphia reported at the meeting.

"In our present atomic age it becomes a very timely subject for research," he declared.

Jarring of the skeleton accompanied by multiple bruises is the type of injury most likely to cause the condition. Such injuries apparently change the normal emulsified fat into globules big enough to plug blood vessels, Dr. Silverstein explained.

Following the first step of injury with or without shock, the patient may pass through the following phases: 1. lucid intervals varying from hours to days; 2. sudden start of lung symptoms with fever, rapid pulse and difficult breathing; 3. brain symptoms of stupor, delirium and confusion which may occur without the lung involvement; 4. various neurologic signs such as convulsions and muscular rigidity. Finding free fat in the urine or sputum and many small hemorrhages over the upper chest and the linings of nose, throat and eyes may help in diagnosing the condition.

The medicolegal as well as military significance of the condition make it important, Dr. Silverstein stressed, for doctors to be on the alert for it.

The problem also, he said, "presents an ideal opportunity for research in the human being relating to the important problem of cerebral anoxia." This is the state of oxygen lack in the brain, cause of "black-outs" in airplane pilots and important in other conditions also.

Science News Letter, April 21, 1951

CHEMISTRY

Concentrated Liquid Ozone Proposed as Rocket Fuel

► **CONCENTRATED LIQUID** ozone was proposed as a rocket fuel at the meeting of the Electrochemical Society in Washington, D. C., by Prof. Clark E. Thorp of the Illinois Institute of Technology. He reported on advances made at the Institute by which ozone can be handled with safety.

Ozone is a form of oxygen with three atoms to the molecule instead of two as in ordinary life-supporting oxygen. Ozone, except in very dilute quantities, is dangerous to human life but it is used in safe quantities in water purification, air-conditioning and as a bleaching agent.

By demonstrating that ozone can be safely manufactured, Prof. Thorp stated, the door has been opened for tonnage production. During World War II, German scientists worked overtime on an ozone-propelled rocket designed to bombard New York City from European launching platforms. But they were unable to discover the secret of handling ozone without spontaneous detonation.

By replacing oxygen tanks with containers of liquid ozone, both planes and submarines would gain additional space with no sacrifice in oxygen volume, he stated. Oxygen containing ozone gives off more usable oxygen per unit of volume.

Ozone is made by bombarding oxygen with high speed electrons. At the Institute laboratory, "We used to have about one unscheduled explosion a day until we learned that ozone could be made to behave by removing certain thermal, mechanical, electrical and chemical sensitizing influences," he stated.

Science News Letter, April 21, 1951