MEDICINE

# Fits Produced As Protection Against Epileptic Seizures

## Shocked Electrically into Seizures in Safety of Physician's Office, Epileptics May Be Spared Dangers

A SORT of vaccination against epileptic fits to protect both public and patient against sudden seizures in traffic, at work and under other dangerous conditions, is about ready for practical use.

The epileptics are literally shocked through the brain, electrically, into their seizures which occur safely in the privacy of a physician's office.

Dr. Lothar Kalinowsky and Dr. Foster Kennedy, New York psychiatrists, suggested this new method to the American Neurological Association meeting at Atlantic City. It upsets ideas physicians have had about this disease.

Shocks of over 100 volts are deliberately administered to the brains of patients. This electric shock treatment is identical to that used in treating schizophrenia (dementia praecox). Dr. Kalinowsky originally introduced in this country this other electric shock treatment

Producing one fit to protect a person from having another one later is a novel idea. Physicians have supposed epilepsy to be a sort of self-perpetuating disease—

each fit making the patient more susceptible to the next.

In the experiments by Dr. Kalinowsky and Dr. Kennedy, the epileptics first went for a period without the luminal they had been taking to prevent seizures. Then each was given a 60-volt electric shock. This failed to produce a fit, although 60 volts is enough to bring on a fit in some non-epileptics—85 volts being the average amount necessary. Gradually the current was stepped up. Only when 100 volts was reached did a fit result.

After the first convulsion, it was necessary to step up the current even more to produce a second one. This time it took 115 volts.

One patient had such a high threshold of sensitivity to the shock that convulsions could not be produced even with the highest current used in the electric shock.

When a convulsion occurs, however, it is always at maximum strength. Stepping up the current more makes no change in its intensity. That is purely a matter of muscular development.

The fits produced are identical in every way with ordinary epilepsy, the experimenters found.

Low currents produce a "petit mal" state, a familiar occurrence in epileptics. Increasing the voltage produces a real convulsion after a latent period. Stepping it up still more brings on the seizure with a very short or no latent period. All these gradations between a short petit mal and a generalized convulsive seizure are comparable to what happens in epileptics.

Various neurological measurements and observations of patients in intentionally produced fits are throwing entirely new light on epilepsy, ordinarily so difficult for physicians to observe. Opportunity for scientific study is particularly rare in the case of petit mal which comes on without warning and sometimes even without the knowledge of the patient.

Science News Letter, June 21, 1941

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#### Unborn Infants May Get Deadly Brain Disease

NBORN infants may contract a deadly brain disease from their mothers who are themselves apparently

#### TRAINING CLASS

Making a picturesque sight with their equipment are these four apprentice welders, taking part in the U. S. Steel Corporation's program of training workers for skilled jobs, to meet defense requirements.



immune, Dr. Abner Wolf, Dr. David Cowen and Dr. Beryl H. Paige of Columbia University College of Physicians and Surgeons state (*Science*, June 6). The disease is a form of encephalomyelitis, and it is caused by a parasitic onecelled animal known as Toxoplasma.

In some cases, the luckless babies are born dead, in others, perhaps even more unfortunate, they survive only to run the gantlet of crippling or fatal disease after they are born.

The three doctors are making efforts now to find means of detecting the infection in seemingly healthy mothers, in order to prevent its occurrence in their children. It is hoped, they add, that serological tests and eventually a curative agent will make this possible.

Science News Letter, June 21, 1941

MEDICINE-PSYCHIATRY

### Infantile Paralysis Victims May Get Disease Again

### American Neurological Association Hears Reports of Animal Experiments; Alcohol Disease Occurs in Fish

RECOVERY from one attack of infantile paralysis is no insurance against further assaults by this dread disease, Dr. Howard A. Howe, Johns Hopkins University, and Dr. David Bodian, University of Chicago, told the meeting of the American Neurological Association in Atlantic City.

They reported experiments with animals that show that immunity resulting from the disease is local, just where the virus has travelled along the fiber pathways of the nervous system. Animals convalescing from an attack which affected the brain were able to contract the disease again through the nose. And two monkeys that had had an attack of infantile paralysis confined to a limited section of the spinal cord, contracted

another typical case of the disease in the previously uninvaded portion of the central nervous system.

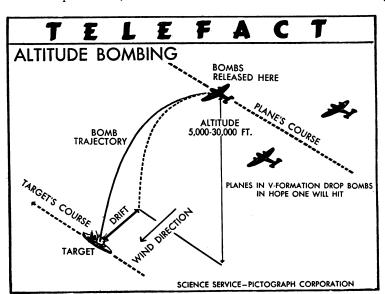
Science News Letter, June 21, 1941

#### Fishes Need Vitamins, Too

**E**VEN fishes and foxes may need their vitamins, too.

Allowed to over-indulge in a diet of raw fish, both these creatures were observed to develop spontaneously a disease identical with the alcoholic disease caused in man by lack of thiamin (vitamin B<sub>1</sub>), it was revealed at the meeting.

Both the foxes and the fishes can be cured of their trouble by the vitamin, Dr. Leo Alexander, of Boston, and his associates Drs. Robert G. Green, C. A. Evans and Louis E. Wolf told the meeting.



The human disease, known as Wernicke's disease, has been produced experimentally in animals by Dr. Alexander and other colleagues when they fed them a diet deficient in vitamin B<sub>1</sub> but over-abundant in other vitamins, particularly riboflavin, nicotinic acid or vitamins A and D. The excess of the other vitamins, they concluded, had so raised the vitamin B<sub>1</sub> needs that the resulting deficiency was greater than it would have been otherwise.

What happens to the blood chemistry in thiamin deficiency or Wernicke's disease, was described to the meeting by another group: Drs. Herman Wortis, Norman Jolliffe, Martin H. Stein, and Ernest Bueding. In both these conditions, the blood's pyruvic acid is invariably increased.

When normal individuals are fed glucose, the blood pyruvate is increased, but returns to normal within three hours. In Wernicke's disease this increase is very high and the return to normal is delayed. Feeding thiamin to the patient brings the blood chemistry back toward normal.

Although Wernicke's disease is always associated with lack of thiamin, these investigators said, their observations indicate that it is also due to lack of other nutritive essentials.

Science News Letter, June 21, 1941

#### Mental Treatment Safer

THE mentally ill may be shocked back to sanity by metrazol without the danger of severe convulsions if two drugs reported to the neurologists prove effective in clinical use.

A safe drug, easily prepared, which may be used with metrazol to make the convulsions less severe and reduce the danger of the patients' breaking their own bones through violent contractions, has been sought and found by Dr. B. J. Alpers and Dr. H. E. Yaskin, Philadelphia psychiatrists. It is magnesium sulphate (Epsom salts), they reported. This familiar drug, given just before the metrazol, protects the patients from fractures, softens the convulsions and in some cases even abolishes entirely the violent muscular contractions.

The other chemical, pyridine, and some of its derivatives, were reported by Dr. Lewis J. Pollock of Chicago with Drs. I. Finkelman and Eli Tigay.

These chemicals, the investigators suggested, are able to prevent or reduce the severity of the metrazol convulsions by counteracting toxins in the patient.