

GENERAL SCIENCE

Metrazol Treatments Cure By "New Deal of Nerve Ends"

Some of Old Nerve Endings and Junctions in Sick Brains Are So Injured by Drug That They Are Replaced

DISCOVERY that metrazol "cures" sufferers from the usually hopeless mental disease, schizophrenia or dementia precox, by bringing about "a new deal of nerve endings" within the brain was announced by Dr. Carl C. Speidel, University of Virginia anatomy professor, at the meeting of the American Philosophical Society in Philadelphia.

Hundreds of mentally sick patients, doomed to a lifetime in the unreal world of the insane, have been shocked back to sanity and restored to normal life by metrazol treatments, since their introduction by Dr. Laszlo von Meduna of Budapest, Hungary. Scientists, however, have so far had no exact explanation of how the drastic treatment achieved its spectacular results.

What happens, it now appears from Dr. Speidel's investigations, is that some of the old nerve endings and junctions in the sick brains are so injured by the metrazol that they degenerate and are lost. New, healthy nerve endings and junctions then grow to replace the ones lost by degeneration. As a result of this new deal in nerve endings in the brain, the patient is equipped with brain nerves that can carry on mental functions in a normal manner.

Dr. Speidel's discovery of the new deal in nerve endings following the metrazol shock treatment was made by giving mild, moderate and severe metrazol treatments to frog tadpoles and watching the effects on the nerves of these tiny animals. Such observations cannot be made of the nerves in the sick brains of human patients, but Dr. Speidel has perfected a technic for observing directly under the microscope the living nerves of frog tadpoles as they grow and as they regenerate after injury.

When metrazol treatments were given the tadpoles, Dr. Speidel saw typical changes of irritation and injury take place in their nerves. Variable lengths of the nerve endings were lost by degeneration and in extreme cases a whole cluster of nerve endings was lost.

Slightly injured nerve fibers recovered quickly after the treatment and appeared

to be normal after a day or two. Severely injured nerve fibers which lost appreciable lengths of nerve substance by degeneration underwent the typical stages of regeneration.

"New endings grow out to establish connections which are different from those before metrazol treatment," Dr. Speidel reported.

"In other words, the metrazol treatment has brought about a 'new deal' of nerve endings.

"These observations strongly suggest that similar changes probably take place in nerve endings located within the brain at the synapses between nerve cells. On this basis the improvement in human mental conditions after metrazol injections is correlated with the breaking down of some of the old nerve endings and synapses, and the establishment of new ones."

Science News Letter, November 25, 1939

Totalitarianism Examined

TOTALITARIAN theories of war and education were put on the dissecting table by Prof. Walter Thomas Woody of the University of Pennsylvania and Prof. Hans Kohn of Smith College.

The totalitarian powers actually invert the war philosophy of Clausewitz, favorite philosopher of militarists, Prof. Kohn pointed out. Clausewitz held that war was a continuation of politics by other means, and the hard-boiled old realist Bismarck agreed with him and acted on the principle.

Totalitarians, however, go far beyond that "blood-and-iron" doctrine. They regard war, not peace, as the normal state of nations; with them politics is a continuation of war, "while what is called peace is only a pause between the real events, preparing for them, subservient to them."

Prof. Woody, taking up the question of education in totalitarian states, sees them pursuing a policy equally hostile to "the universalism which sought to unify Europe in the Middle Ages and the liberal educational principles that stemmed

from early rationalism and from naturalism of the eighteenth and nineteenth centuries."

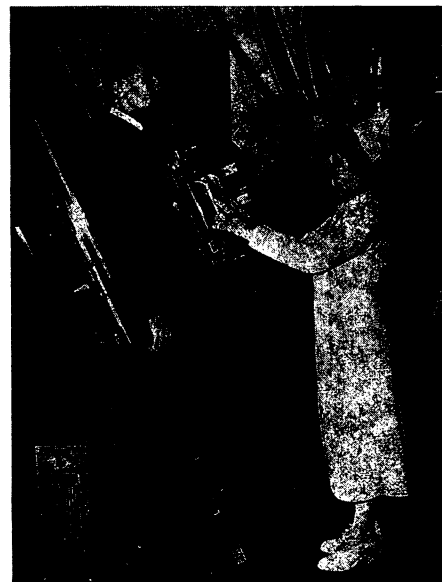
This would appear to explain the simultaneous attacks, conducted in all totalitarian countries, against organized religion on the one hand, and on the other against freedom of speech, freedom of the press, and academic freedom in the universities.

Science News Letter, November 25, 1939

War Gas Anemias Explained

THE ACUTE anemias that follow gassing with arsine, treatment with the new chemical remedy, sulfanilamide, and the anemia that accompanies jaundice of the newborn, one form of heart disease, and numerous other conditions, have been explained by discoveries reported by Drs. Thomas Hale Ham and William B. Castle, of Boston City Hospital and Harvard Medical School.

Stagnation of blood within the veins is believed to be the mechanism that causes the anemia, their studies show. This condition makes the red blood cells swell, grow fragile and finally disintegrate with loss of the red coloring matter, hemoglobin. Such stagnation of the blood normally occurs in the spleen and



X-RAY HEART BEAT

This 100,000-volt X-ray camera works automatically with nine electrical relays which make up its mechanical "brain." At its formal dedication at the Samaritan Hospital, Troy, N. Y., the visitor is having his heartbeat photographed.

other organs, but not in the veins. The function of the spleen in slowing the blood flow accounts for the beneficial effect of removing the spleen in congenital hemolytic jaundice, Drs. Ham and Castle pointed out.

Science News Letter, November 25, 1939

Religion Began With Sex

CAVE men and women in the Old Stone Age were worshippers of physical sex, it was declared in a paper offered to the Society by Prof. George A. Barton of the University of Pennsylvania. To these remote forebears of ours, sex was a religious as well as an emotional and a physical experience. Its expressions were extremely naive and direct; the complex structure of symbolisms and cults grew up much later, out of the original soil of cruder facts.

Science News Letter, November 25, 1939

Early Man in Burma

HUMAN beings on the same low level as Peking Man in China existed far to the south, in Burma, during the Ice Age, declared Dr. Helmut de Terra, noted explorer of ancient human sites in Asia. No skulls or other actual remains of this ancient race have yet been found, but the type of stone tools found "is so primitive as to suggest a low grade intelligence corresponding to the crude mental status of Peking Man . . . This type of Stone Age culture has its parallels in northern India, in China as well as in Java so that a center of dispersal may be surmised in southeastern Asia from which the most ancient technique of tool making was spread to various lands."

Science News Letter, November 25, 1939

New Theory of Diabetes

NEW knowledge of body chemistry in diabetes which contradicts previously held theories was reported by Drs. William C. Stadie, John A. Zapp and Francis D. W. Lukens, of the University of Pennsylvania.

"Over-production of sugar from fats is not the mechanism responsible for the excessive excretion of sugar in the diabetic," they conclude from their studies of chemical action in the liver of the diabetic animal.

Ketone bodies, chemicals produced when the body's chemical factory is upset by diabetes, have formerly been considered poisonous waste-products which the tissues could not use and which were

consequently excreted completely. This idea also needs "considerable revision," the Pennsylvania scientists found, as does the current theory of how fatty acids are burned and oxidized in the liver.

Science News Letter, November 25, 1939

Horse and Whale Compared

HORSE and whale were compared, as mechanisms for the release of energy, by Drs. George Crile and D. P. Quiring of the Cleveland Clinic Foundation. The horse was Equipoise, one of the most famous thoroughbreds of this generation. The whale was a white whale, representing a rather small species as whales go—average length, only 12 to 14 feet. The particular specimen examined was of almost exactly the same weight as Equipoise, both animals being a trifle under 1150 pounds.

The points that interested Drs. Crile and Quiring were the relative weights of four organs having most to do with energy release: brain, heart, thyroid and adrenal glands.

The whale's brain weight was nearly three times that of the horse's: 2355 grams as against 808.5. Its thyroid gland likewise was about three times heavier than the horse's: 108 grams as against 33.4.

The horse surpassed the white whale in weight of heart and adrenal glands: heart, 4455 grams as compared with 3181; adrenals, 46.62 grams as compared with 34.76.

Science News Letter, November 25, 1939

Growth Produces Cheer

IF THE population curve continues its present downward dive, the world is in for an age of pessimism, affecting everything from politics to religion. At least, this is what will happen if history repeats itself.

Prof. Josiah C. Russell of the University of North Carolina presented results of his studies of the general attitude and atmosphere in three great historic periods, one a time of declining population in Europe, from 200 to 900 A.D.; the second, the period of increasing population in England from 1086 to 1348; finally, the time of growth of the United States from 1789 to 1914.

In the great period of falling population, Prof. Russell found, people became pessimistic, paid less and less attention to material culture, and took refuge in religion, while the political organization became smaller and progressively decentralized, winding up in feudalism.

In the periods of rising population, on the other hand, people were optimistic, had "progressive" ideas, moved to big towns, concerned themselves less and less about religion, built increasingly large and complex political states, and generously credited "the government" with their prosperity.

Science News Letter, November 25, 1939

Maya Temple Bases Complex

PYRAMID is too simple a name for some of the complex and lofty bases on which Indians of America's Old Mayan Empire set their beautiful temples, declared Linton Satterthwaite, Jr., of the University Museum, University of Pennsylvania.

At Piedras Negras, Guatemala, where he has been excavating, a temple may have beneath it, from the ground up, a basal platform, a pyramid, a supplementary platform and a foundation platform. On the first three the Indians probably staged outdoor ceremonies connected with the temple rites, he suspects.

Science News Letter, November 25, 1939

PSYCHOLOGY—MILITARY SCIENCE

Propaganda Balloons Used in World War, Too

BBRITISH, dropping leaflets from airplanes, and Germans sending propaganda balloons over enemy territory are only following tactics developed to a high peak of efficiency during the World War by our own American Creel Committee.

Leaflets were then distributed to the Germans, at a cost of only a dollar a thousand, in balloons nine feet in diameter that carried 10,000 such messages and released them at the rate of 12 to 24 a minute, exploding when the errand was accomplished.

But balloons were not the only agency for distributing propaganda behind enemy lines, it is revealed in the new book on the Creel Committee's work by James R. Mock and Cedric Larson, *Words That Won the War*.

"The methods of trench propaganda included not only airplanes and balloons," reports this new document, "but also devices for shooting leaflets into the German lines—rifle grenades, rockets, and mortars."

"The difficulty here was that enemy artillery promptly brought reprisals against the sector from which the propaganda had come—which is as impressive testimony as may be presented that the Germans held the paper bullets in higher respect than those of metal."