

PSYCHIATRY

Vitamin B₁ Makes Insulin Shock Treatment Safer

Research By Pioneers in Field Show That "Protracted Shock" Can Be Predicted, Prevented or Even Produced

VITAMIN B₁ (thiamin) is now being used to make the insulin shock treatment for mental disease safer and more effective, it is reported by a California investigator and three physicians at Harlem Valley State Hospital, where this dramatic treatment was pioneered several years ago. (*American Journal of Psychiatry*, September)

By far the most dangerous complication which may occur in giving the insulin shock treatment is when the patient goes into a state of "protracted shock," failing to come out of it until damage to the brain has occurred or perhaps even death.

Yet when patients can be brought out of this dangerous state, it is sometimes found that they have been cured of their mental diseases.

Now it has been found possible to predict "protracted shock," prevent it, or even to produce it at will, it is reported by Dr. Jacob P. Frostig, of the University of California Medical School, and Drs. I. Murray Rossman, William

B. Cline, Jr., and Oscar Schwoerer of Harlem Valley State Hospital.

So far no dependable methods have been found for terminating the condition once it has developed, so these physicians have made no use of their knowledge of how to produce it for therapeutic purposes.

Insulin, when given in shock doses, follows a special course in its effects on the central nervous system. First, the cortex of the brain is affected, then the basal ganglia and hypothalamus, then the midbrain and finally the medulla oblongata. Various recognized symptoms accompany the successive involvement of these parts of the nervous system.

Study of cases of protracted shock revealed that this condition occurs only after the medulla oblongata has been involved for some time.

The dangerous protracted shock can be prevented, these physicians conclude, in three ways. The treatment can be terminated as soon as the signs of medullary involvement occur. If the symptoms

should develop too rapidly to be prevented, the patient can be given an injection of glucose into the veins. In the case of patients who show a special tendency to the protracted shock, vitamin B₁ will prevent it if given regularly.

Even after protracted shock has developed, they found, injections of the vitamin in doses of from 3,000 to 10,000 units will shorten the period of unconsciousness.

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AERONAUTICS

Parachutist Makes Record 30,000-Foot Leap

AVETERAN parachutist, Arthur H. Starnes, who has made more than 300 jumps from airplanes during the past 16 years, made the longest leap on record at an airport near Chicago, on Friday, Oct. 24. He dropped from a plane at the stratosphere altitude of more than 30,000 feet, and did not pull the ripcord of his parachute until he was less than 2,000 feet above the earth.

Self-recording instruments strapped to his body wrote their robot stories of his stone-like drop, for scientists to decipher after he came to earth. Mr. Starnes had his own story to tell of his sensations and experiences during his long fall. He says that his senses and mind function more rapidly and keenly than normal at such times; the old notion that a falling man becomes unconscious proves to be pure fable.

Combined instrumental readings and personal narrative will yield data to the scientists from the University of Chicago and Northwestern University who watched the performance from the ground. Some parts of the information are expected to be of importance from the national defense angle.

Within or upon the electrically heated flying suit, with specially constructed oxygen helmet, which Mr. Starnes wore, there were the following instruments:

A recording pneumograph, to tell how often and how deeply he breathed during the fall.

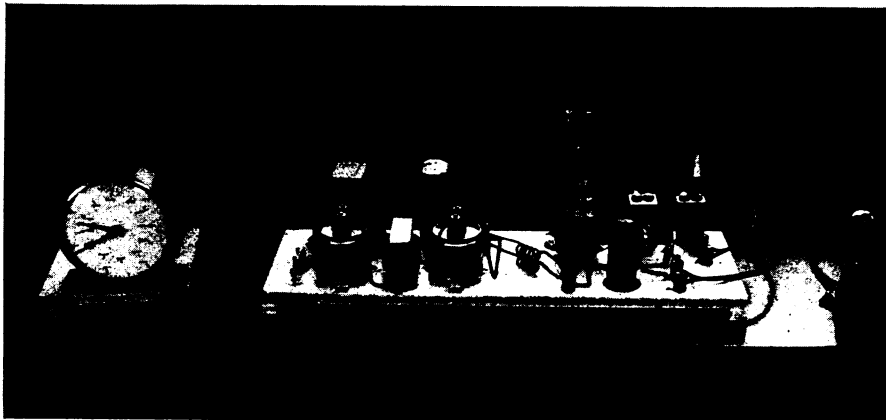
A special radio set that sent a record of his heartbeats to a receiving set at the flying field.

A barograph, which traced the story of his drop in terms of altitudes traversed.

An altimeter strapped to his wrist, to tell when to pull the cord.

An automatically started stopwatch, to time the fall.

A motor-driven motion picture cam-



HOMEMADE SUNSHINE RECORDER

This complicated looking apparatus was made from an 89-cent alarm clock and from parts taken from a secondhand radio that was bought for \$2. Including a few other items, the total cost was less than \$15, plus the ingenuity of Drs. V. G. Sprague and E. M. Williams of Pennsylvania State College, who made it. It is a sunshine recorder. The clock is not used as a time-piece but as a counter. The balance wheel has been removed. The light falls on an electric eye producing a current which gradually charges a condenser. When the condenser is full, it discharges through an electromagnet which moves the escapement one tooth. Thus the clock counts up during the day the amount of sunshine that has been received.

era, which showed number and direction of spins and tumbles, as it alternately photographed clouds and earth.

A small voice radio set within his helmet.

Military advantages of a delayed-opening drop from high altitude, Mr. Starnes points out, include (first of all) getting away from the enemy fighter

quickly, rapid descent into air levels where temperature and oxygen supply are not too low for consciousness and hence life, and lowered risk of being struck by one's own wrecked plane or its parts. If aviators can be convinced that long drops make for greater safety, he feels, combat tactics may be materially affected.

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association, first from Hudson, N. H., and now from St. Petersburg, Fla. At the age of 85, he is still adding to his grand total of 25,000 observations.

L. C. Peltier of Delphos, Ohio, known for his comet discoveries, has been observing steadily since 1918 and has nearly 60,000 observations to his credit.

E. H. Jones of Goffstown, N. H., has been keeping track of variables since 1923 and has a total of 40,000. J. M. Baldwin of Melbourne, Australia, has made nearly 35,000 observations since 1920 and R. G. Chandra, of Bagchar, India, follows with 29,000 estimates made during the past 21 years.

The volunteer astronomers banded together in the A.A.V.S.O., sponsored by Harvard Observatory, spend most of their effort keeping an estimating eye upon the fickle stars that are inconstant in their light. Small telescopes are used for this purpose and there is plenty of room in the sky for additional observers who will have special stars assigned to them as they prove their competency.

The amateurs also watch and compute occultations of the moon and search for bright, suddenly appearing novae or "new stars."

In the past year 38,043 observations of variable stars were made, with Cyrus F. Fernald of Wilton, Me., first with 3,133 observations.

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PHYSICS

Ozone Odor Detected During Auroral Display

THE ODOR of ozone was reported by several persons in the vicinity of Radburn, N. J., during the great auroral display of Sept. 18.

This unmistakable odor was noted by Prof. Malcolm E. Little, anatomist of New York University's School of Education, who has transmitted his observations to scientists specializing in such phenomena. The sensation was strongest when the auroral display was at its height, entering at the zenith with coronal light and spreading toward the horizon in sheets. Odors have been reported occasionally from earlier displays.

Some of his neighbors also detected the ozone, asking him:

"Can you tell me what the peculiar odor is?"

"Is it my imagination, or is there a sharp odor in the air?"

"Both my wife and I detect the same odor that one gets near a dynamo. Do you know the explanation?"

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VETERINARY MEDICINE

New One-Dose Vaccine Frees Hogs From Cholera

Discovery Expected To Do as Much for Hog Health As Smallpox Vaccine Has Done for Human Welfare

A DISCOVERY that will do as much for hog-health as smallpox vaccine did for humans has just received the final OK of practical farmers. For over a hundred years hog cholera has been causing greater losses in the United States than have all the other live stock diseases combined. The best answer to the problem was the serum-virus treatments, but that preventive sometimes proved worse than the disease.

Prof. William T. Boynton, professor of veterinary science at the University of California, has been working on this problem since 1917, and has finally developed a vaccine which not only gives wider, longer-lasting immunization from hog cholera but eliminates the serious drawbacks of the former serum-virus treatment.

The serum formerly used was so susceptible to deterioration from a number of causes that it was sometimes impotent when administered. Dr. Boynton's vaccine, subjected to rigid exposure tests, remained stable and effective under all circumstances.

Serum-virus inoculations were often fatal to under-condition animals, and sometimes led to a flare-up of enteritis, pneumonia, and verminous infection. The new vaccine has no adverse effects on health.

During the serum-virus inoculations growing animals were "off their feed" and had general vitality lowered so that growth was stunted temporarily. The new vaccine does not diminish the young animal's voracious appetite and hogs immunized with vaccine are ready for market two to six weeks ahead of those immunized with serum and virus.

There is no danger of spreading the

very infection which it aims to control by re-seeding the premises with the virus as the old treatment sometimes did, for the vaccine is not made from the blood of once-infected animals, but from a finely ground glandular tissue which, treated with eucalyptol, has lost its disease producing properties and yet keeps its immunizing ability.

Proved not only in the laboratory but in actual farm tests, where over 100,000 pigs have been successfully immunized on hundreds of Western and Corn Belt farms, the vaccine is well established now. Treated animals transferred to untreated farms remain healthy in the midst of a hog cholera epidemic.

It was believed at first that two injections of the vaccine were necessary to keep pigs cholera-free between weaning and maturity. It has just been announced, however, that recent tests have shown a single inoculation sufficient for immunization until pigs reach marketing age.

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ASTRONOMY

Volunteer Star Watchers Record Changing Starlight

SOME 850,000 observations of about 600 stars have been made in the past 30 years by members of American Association of Variable Star Observers, Leon Campbell, recorder, reported in his annual summary of the researches of this band of volunteer astronomers scattered all over the world.

Veteran watcher of the fluctuating light of these stars is Rev. T. C. H. Bouton, who has observed during the whole 30 years of the existence of the