MEDICINE

Vaccine Protects Soldiers Against Cootie-Borne Typhus

Harvard Research Valuable in Fighting Wars; Can Be Made Rapidly on Large Scale When Needed

PRACTICAL large-scale production of a vaccine that will protect against typhus fever of the European type, louse-borne disease that menaces armies, is the accomplishment of a research group at Harvard Medical School headed by Dr. Hans Zinsser, author of "Rats, Lice and History."

Since cooties and the ill they spread may kill or disable more soldiers than bullets, the typhus vaccine is probably more important than the invention of a new anti-aircraft gun or a new kind of pill-box defense. No immunization against typhus was available during the World War. Dr. Zinsser first demonstrated the possibility in 1930.

One bacteriologist and two technicians in a week can produce over a quart of the vaccine sufficient for 300 complete immunizations. Production can be expanded by increasing equipment and personnel, whenever the need arises.

Little embryo chicks in partially hatched eggs and a germ food made from seaweeds, agar, are used for growing the Rickettsiae, the germs that cause typhus fever, which are used in making the vaccine.

In Dr. Zinsser's team working on this problem are Dr. John F. Enders and Dr. Harry Plotz, a guest worker from the Pasteur Institute, Paris.

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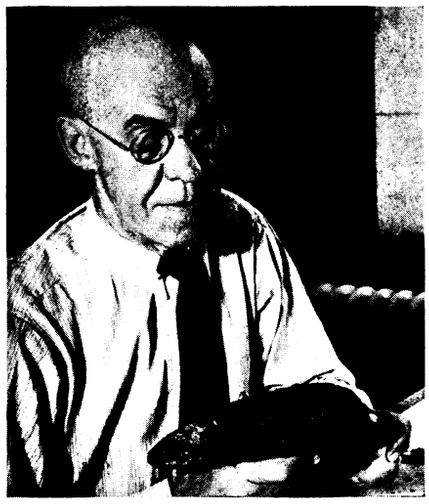

UNUSUAL

Eighty million years old, looking a good deal like a herring, this well-preserved fossil fish, here being inspected by Charles W. Gilmore of the U. S. National Museum, was found near Oacoma, S. D., by a rancher. The fish still retains its original shape quite perfectly. Most fossil fish are crushed by the rock layers in which they are found buried.

PSYCHIATRY

Electricity Through Head Is New Shock Treatment

Treatment Developed in Rome Is Easier on Patients Than Metrazol or Insulin; Said To Be Without Danger

USE of electric shock treatment for mentally sick patients is announced to the medical world by Dr. Lothar Kalinowsky, of Rome, through a report to the medical journal, *Lancet,* (Dec. 9)

The treatment is like the now widely-used insulin and metrazol shock treatments. Instead of injecting either of these shock-inducing drugs, an electric current is passed through the patient's head to induce the fits, or convulsions, which restore the patient to sanity, for a time at least.

The electric shock treatment is said to be much easier on the patient, and also on the nurses and attendants, than the metrazol or cardiazol shock treatments. Nor is there any danger from the amount of current used to induce the fits.

"Several thousand fits have been produced on some hundred patients, partly treated in the Rome clinic and partly reported from other institutions, without any accident whatever," Dr. Kalinowsky states in his report of the electric convulsion method.

The number of patients treated is still too small and the time since treatment is too short to allow definite conclusions as to the curative value of this method, he says.

"According to information given by several institutions it can only be said," Dr. Kalinowsky reports, "that the number of recovered and improved cases of schizophrenia corresponds at least to that of the remissions of cases which, in the same clinics, were treated with cardiazol (metrazol)."

All the disagreeable sensations patients complain of with metrazol treatment are said to be missing with the electric shock method. The patient always loses consciousness and awakens slowly, with no memory of the experience. No fractures, dislocations or ruptured muscles have ever been seen, though Dr. Kalinowsky admits that they could occur.

Electrodes are put on both sides of the patient's forehead, animal studies having shown that the temples are the best place for the treatment. Currents of 70 to 110 volts and 300 to 600 milliamperes are generally needed to produce fits. The shock is given for one-tenth of a second.

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MEDICINE

Find New Weapon Against Influenzal Meningitis

A POWERFUL serum for fighting dangerous influenzal meningitis is in prospect as a result of studies by Drs. Hattie E. Alexander and Michael B. Heidelberger of the College of Physicians and Surgeons, Columbia University, and Presbyterian Hospital in New York City. (*Journal of Experimental Medicine,* Jan. 1)

Influenzal meningitis is not due to the virus that causes influenza, but to another kind of germ, called Haemophilus influenzae, type B. The disease attacks small children chiefly. It is rare in adults or even in children over eight years old. It is highly fatal. The mortality rate was 99%, but within recent years use

of an anti-serum has reduced this to 75%, according to reports from some institutions.

Using rabbits instead of horses to make the anti-serum, and employing other advances in serum-making technic, Drs. Alexander and Heidelberger have prepared an anti-serum which increases from five to 10 times the antibody content, or disease germ fighting substances, in rabbits' blood.

Use of the new, powerful anti-serum in human cases has not yet been reported. The potency of the material has been measured in terms of antibodies, disease germ fighting substances, found in rabbits' blood, after injection of the new serum. The value of the new anti-serum for treating desperately sick babies remains to be determined.

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ARCHAEOLOGY

Egyptians' Art Queer? Ours Would Be to Them

DON'T look down on ancient Egyptians because they painted such flat, queer-looking pictures with no good modern perspective. They had their reasons.

The Egyptian artist aimed to explain a situation, says Dr. Dows Dunham, noted Egyptologist of the Museum of Fine Arts, Boston.

Like a modern architect drawing house plans, the Egyptian meant to get every essential detail into his drawing. Hence the stiff diagram look of Egyptian art.

The Egyptian went farther. He showed that a king was important, and his children and servants less so, by making the king a big figure and those around him small. He devised ways of drawing clothing which would enable him to show curves of the body, yet make it clear that the body was really hidden by garments. Hobble skirts worn by women in Egyptian paintings do not mean that hobble skirts were the fashion. Nor did Egypt's women wear only half a waist in their dresses, as painters' technique might lead you to wonder.

Good reason for this drawing style: Tomb paintings had a religious value, providing symbols which would enable the dead to reconstruct for use original objects used during life. A pictured door with no handle could not be opened, Egyptians reasoned.

It would bewilder an Egyptian to see a modern painting of a garden—just top halves of trees over a wall, leaving out the fish pond and flowers on the other side!

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MEDICINE—CHEMISTRY

Discovery Refutes Report Of Difference in Cancer Cells

Revolutionary Finding Reveals That Both Right-Handed And Left-Handed Amino Acids Occur in Healthy Tissues

THE OLD idea that only "right-handed" amino acids occur in the living, healthy body, and the new idea that "left-handed" forms of these chemicals are indicators of cancer, have been refuted in the latest of Uncle Sam's researches upon disease.

This revolutionary chemical discovery has just been made by Dr. J. M. Johnson, biochemist at the National Cancer Institute, and by Dr. Dean Burk, of the National Cancer Institute, in collaboration with Drs. Fritz Lipmann, Otto K. Behrens and Elvin A. Kabat at Cornell University Medical College, New York City.

The discovery refutes the widely hailed finding of a fundamental chemical difference between cancer and normal tissue. This finding was first announced by Prof. F. Kögl and Dr. H. Erxleben, of the University of Utrecht, and other scientists have since reported finding the same difference.

The difference was believed to lie mainly in the kind of glutamic acid existing in cancer tissue. Glutamic acid is one of the amino acids which are building blocks for tissue protein in the body. In cancer tissue, glutamic acid occurred in a so-called left-handed form, Drs. Kögl and Erxleben reported. This means that it could turn a beam of polarized light to the left.

Chemists ever since the time of Emil Fischer, the great German scientist who at the close of the last century discovered amino acids like glutamic acid, have taken it for granted that the glutamic acid occurring in nature was a right-handed acid, turning the beam of polarized light to the right, although the unnatural forms of other amino acids had been prepared in the laboratory. So the discovery by Drs. Kögl and Erxleben was hailed as opening the way to a chemical attack on the great killer, cancer.

Using the method of Drs. Kögl and Erxleben, Dr. Johnson extracted glutamic acid crystals from a rat cancer, from the same rat's liver, and from the liver of a healthy animal that had no cancer. He examined the crystals and, unlike Drs. Kögl and Erxleben, found the natural form in the first crop of crystals from both cancer tissue and normal tissue.

"Go back and examine the mother liquor," his chief, Prof. Carl Voegtlin, director of the National Cancer Institute, told him.

The mother liquor is the material that was left after glutamic acid had crystallized out. A little glutamic acid was apparently still present in this liquor, however. Dr. Johnson discovered in this mother liquor, from both normal and cancer tissues, not only the natural glutamic acid, but the unnatural form of it.

Dr. Burk and associates, working in the biochemical laboratory of Prof. Vincent du Vigneaud at Cornell, used another method for observing unnatural amino aciods in cancer and in normal tissue. They used an enzyme which is specific for and only acts on the unnatural, left-handed forms of amino acids. When this enzyme is added to digested cancer or normal cells in the test tube, any unnatural amino acids present are changed by the oxygen of the air into other chemicals, but the natural forms are not touched. Analyses showed that in all cancer and normal tissues examined there were the same small amounts of unnatural amino acids attacked by the enzyme.

Discovery that glutamic acid and other amino acids exist partly in their unnatural form opens the way for new lines of chemical research, although it shows that malignancy, or cancer, is not characterized by the presence of amino acids of unnatural form.

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● RADIO

Dr. Sidney D. Kramer, executive secretary of the General Advisory Committee of the National Foundation for Infantile Paralysis, will discuss the possibilities of eventual discovery of the cause and prevention of this disease as guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, January 25, 4:15 p.m., EST, 3:15 CST, 2:15 MST, 1:15 PST.

Listen in on your local station. Listen in each Thursday.