

MEDICINE

Vein Grafts as Remedy

Water on the brain may some day be treated through use of vein grafts, experiments with animals show. Method must still be perfected for use on humans.

► VEIN GRAFTS may some day in the future be used to remedy water on the brain, known medically as hydrocephalus.

Experiments with animals pointing toward this possible future treatment of human patients were reported by Dr. Brian Blades of George Washington University School of Medicine in Washington at a conference on blood vessel grafts held at the National Institutes of Health.

Dr. Blades emphasized that the work is still experimental and there are "a lot of wrinkles to be worked out" before the method can be used on humans.

The vein grafts are used to connect the subarachnoid space around the spinal canal with a portion of the small intestine in order to drain off the excess fluid which constitutes the water on the brain condition. Heretofore surgeons have tried to remedy hydrocephalus by making new openings into the ventricles of the brain or have tried to reduce the amount of fluid secreted by an operation on the choroid plexus in the

brain. Occasionally these operations have produced cures.

When water on the brain is caused by an obstructing tumor, it can be cured by removal of the tumor if done early enough. The condition is sometimes caused by infection, such as meningitis, and sometimes by congenital abnormality.

When vein and artery grafts are used to repair damaged blood vessels, they can be quite long, Dr. Blades and Dr. William S. McCune, also of George Washington University School of Medicine, find. Grafts consisting of the entire aorta of a dog, and extending almost nine inches in length, have been successful, they reported.

Proper nourishment of the graft is important in keeping it effective as a blood vessel, they emphasized. The graft will get most of its blood for nourishment from tissues around it rather than from the blood running through its bore, their experiments show.

Consequently they advise bedding the graft in blood-rich tissues.

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AGRICULTURE

More Food From Cotton

Better fed and healthier South foreseen through use of improved cottonseed meal produced by heat treatment under carefully controlled conditions.

► MORE FOOD from cotton, and a better fed and healthier South, are foreseen through use of an improved cottonseed meal in hog and poultry feed.

Cottonseed meal, the material left after cotton seeds have been squeezed of their oil, is a high protein food. Inexpensive, protein-rich rations for animal feed are scarce all over the country, but they are particularly in demand in the South. Heat treatment under carefully controlled conditions, a process developed by U. S. Department of Agriculture scientists, brings about the improvement in cottonseed meal.

Farmers in the South are now limited in their use of cottonseed meal in poultry feed to 9% of the total protein intake. Before the end of 1952 it is expected that the improved cottonseed meal will be available and that it can be fed interchangeably with the soybean protein that now makes up about 60% of diet protein for poultry.

Present use of cottonseed meal in poultry and hog feed is limited because the feed

contains substances that check the growth of these animals. One of the substances is gossypol, the yellow pigment in cotton seeds. Gossypol produces off-colored yolks in the eggs from chickens that have been fed too much of it.

Scientists are trying to find out what other substances in the pigment, or color, glands of cotton seed are responsible for the meal's growth-inhibiting effects. The heat treatment ties up the inhibitors, binding them with the protein so they are not available to the animal.

If the processing temperature is too high, however, some of the protein value is also destroyed. The new commercial process depends on careful control of the amount of heat, enough to kill the growth-inhibiting substances, but not enough to destroy the protein content. No new equipment is required by the processing plant to use the new method.

Since southern farmers must now import soybean meal, the improved cottonseed meal

will mean much cheaper hog and poultry feed bills. Thus more animals can be raised on the same amount of money spent for rations.

Cottonseed meal from this year's crop is now undergoing final tests on farms. Next year's cotton crop, if present tests are as successful as it is believed they will be, can be processed in the new way, Dr. George W. Irving, assistant chief of the U. S. Department of Agriculture's Bureau of Agricultural and Industrial Chemistry, told SCIENCE SERVICE. Although ton quantities of experimental lots are now being produced in several mills, the improved meal is not yet available commercially.

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BIOPHYSICS

Most Powerful X-Ray Attack on Cancer Begun

► THE WORLD'S most powerful cancer-fighting X-ray machine, a 70-million-volt medical synchrotron at the University of California School of Medicine, San Francisco, has gone into operation.

The 16-ton instrument, built by General Electric, was made to test the possibility that its ultra-high energy radiations may be more effective in treating deep-seated cancers than X-rays in common use that range up to a million volts.

Work with betatrons in the 20-million-volt range at the University of Illinois indicates that it is possible to put a higher dose of radiation in deep-seated tumors than with lower voltages. Theoretical calculations indicate that at 70 million volts the effect may be even more pronounced.

Dr. Robert S. Stone, director, and Dr. Gail D. Adams, associate director, of the Radiological Laboratory which houses the new machine, emphasize that there is no certainty the synchrotron will prove more efficient.

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INVENTION

Boiled Water and Tea Extract Tobacco's Nicotine

► A SCIENTIST of Argentina received United States patent 2,582,075 for a process of extracting nicotine from tobacco with the use of boiled water and the ordinary tea used as a beverage. His name is Mentore Severi and his address is Buenos Aires.

The process requires many days of soaking. The tobacco is softened for a period of five to ten days in water that has previously been boiled and which is drawn off and renewed every 24 hours. Then it is soaked for 12 hours in an infusion of tea. Another treatment of boiled water followed by a tea infusion follows. The tobacco, when dried, is practically free from nicotine and its original appearance has not been changed.

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