



GREATEST OCEAN DEPTH—This picture reveals how the ocean bottom looks 20,800 feet under the surface, the greatest ocean depth ever photographed. It was made in the Sargasso Sea, approximately 1,000 miles seaward of Cape Hatteras, N. C., by Navy Hydrographic Office scientists. The picture reveals a blank mud bottom, pocked with holes made by unidentified marine creatures. The dark object is part of the light source used for making the photograph.

GENERAL SCIENCE

U. S. Research Policy Allows Soviet Challenge

➤ **RUSSIA'S** SERIOUS challenge to the West's lead in the armaments race is in great part due to de-emphasis of pure scientific research in the United States, Dr. John Green, head of the aeronautics division of the Canadian Defense Research Board, said.

Aviation history is marked by spurts of progress following discoveries by the "ivory tower" scientists. Development of the principles of streamlining and jet engines are examples of such research. Refinement of design by engineers, he said, is popularly confused with pure research. Engineers can only produce a slow, steady progress.

He urged more large grants to top scientists with no strings attached so they can spend their time on theory.

The next big advances in aviation will come in the fields of boundary layer control and sharp angle take-offs, Dr. Green told the Aviation Writers Association meeting in Toronto.

Boundary layer control is a system to increase the buoyancy of airplanes.

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MEDICINE

Death of Heart Bits

Enzyme test shows whether tiny pieces of a heart have died after a non-fatal heart attack. Death of liver tissue after poisoning and jaundice also revealed.

➤ A **BLOOD** test showing in three or four minutes whether bits of the heart have died after a heart attack was reported by Drs. John S. Ladue and Felix Wroblewski of Sloan-Kettering Division of Cornell Medical College and Memorial Center, New York, at the American Medical Association meeting at Atlantic City, N. J.

The test also shows whether bits of heart have died in an attack of rheumatic fever.

Death of liver tissue in such conditions as carbon tetrachloride poisoning and two kinds of jaundice, or hepatitis, are also revealed by this test.

It is not a test of the function of these organs and does not show infections or cancer unless these have caused acute damage to heart, skeletal muscle, liver or kidney.

The test is for an enzyme called GO-T, short for glutamic oxaloacetic transaminase. This enzyme is concerned with transfer of nitrogen in the formation of the amino acid, glutamic acid. Besides being found in heart, muscle, brain, liver and kidney tissue, the enzyme shows in the blood serum.

To make the test, serum is mixed with the chemicals the enzyme normally transforms when tissues are injured. GO-T activity decreases in the injured tissue and increases proportionately in the blood serum. So when the test shows an increase of GO-T activity in blood, it is a sign of tissue injury or death.

When patients are given "frozen sleep," or hypothermia, for operations inside the heart, they can be quickly warmed to normal by diathermy. Use of these very short waves that penetrate deep within the body is one feature of hypothermia used by Dr. Henry Swan and associates at the University of Colorado Medical School, Denver.

Another measure they showed at the meeting was giving neostigmine to prevent the dangerous heart jitters, called fibrillation, which is sometimes a complication in hypothermia.

Successful Grafting

➤ A **KIND** of vaccination process makes possible successful grafting of tissues from a donor, in mice at least. The method is to inject, before the grafting, suitable preparations of tissue or antisera in the tissues to be grafted. This apparently gets the body used to the foreign tissue to be grafted and so prevents the "hostile" reaction to the graft that keeps it from taking. The method was shown by Dr. George D. Snell and associates of Jackson Memorial Laboratory, Bar Harbor, Maine.

Apparently children are more susceptible to injury from radioactive fallout after an A- or H-bomb explosion, Comdr. Robert A. Conrad, Naval Medical Research Institute, Bethesda, Md., reports.

This finding came from study of the 239 Marshallese and 28 Americans accidentally exposed to radioactive fallout after a nuclear explosion test in March, 1954.

Six-month follow-up studies showed all exposed persons had recovered.

Eating or inhaling material exposed to fallout did not seem to be a long term hazard. Exposure seemed to have no effect on pregnancy.

Skin cancer may later develop in these people because many were young, giving more time for cancer to develop, and they were exposed to tropical sunlight for long periods. However, the Navy doctors who studied them point out that the original skin damage from the fallout was superficial, making cancer development seem less probable.

Sterility Overcome

➤ A **SMALL** group of sterile men who were not helped by other treatment improved in fertility when given heavy doses of male sex hormone, Dr. Charles W. Charny of the Albert Einstein Medical Center, Philadelphia, reported at the meeting of the American Medical Association in Atlantic City, N. J.

The doses of male hormone given for four months were so heavy that they depressed the sperm-forming function of the reproductive organs. The hormone treatment was then stopped and in the successful cases there was a "rebound" about four or five months later at which time sperm production started again, at a level greatly above that before treatment.

Of 92 men reported on, 17 had sufficient improvement to be considered "greatly benefitted." Wives of five became pregnant.

So far Dr. Charny has treated 152 infertile men, but data on all but 92 were too incomplete to report.

Although the group is small, Dr. Charny said the "salvage" could be considered impressive since most of the men had either been treated unsuccessfully before or had been excluded from treatment because none was available.

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The *badger*, like the skunk, has a scent gland that can be fired by raising its stubby tail, but the odor is not nearly as offensive and is not used for defense as much as for courtship.