MEDICINE

Patient Survives Removal Of Both Adrenal Glands

➤ A CASE in which both vital, cortisone-producing adrenal glands have been removed from a patient with high blood pressure and diabetes is reported by Drs. D. M. Green of Chicago, J. N. Nelson and G. A. Dodds of Seattle and R. E. Smalley of Billings, Mont., in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Oct. 7).

The patient is a young married woman who developed diabetes at the age of six and high blood pressure at the age of 20, eight years before the operation. The high blood pressure condition was severe and getting worse. For two years before the operation she had attacks of headache, intense nervousness, flushing of the face and blindness. Her ankles were swollen, she had trouble breathing and pain around her heart. Her kidneys also were affected. Because of the severity of her condition and the evidence from scientific research that abnormal adrenal gland function plays a part in high blood pressure, and even in diabetes, the patient, her husband and the doctors decided to undertake the drastic operation.

When seen nine and 15 months after the operation her heart and blood pressure were normal, she could read without eyeglasses, the kidney disease had been arrested and the diabetes was markedly improved. She still had to take insulin, however.

Her skin had darkened because of the Addison's disease produced by removal of the two adrenal glands. This disease which used to be invariably fatal was kept under control by use of adrenal gland hormones.

The doctors reporting the case do not recommend removal of both adrenal glands as a treatment for either malignant high blood pressure or diabetes. But they point out that this operation in a limited number of otherwise hopeless cases might lead to better understanding of the two diseases and to their treatment by chemical blocking agents.

Science News Letter, October 14, 1950

CHEMISTRY

Garbage-Filled Gravel Pits Goal of English

➤ ABANDONED quarries and flooded gravel pits which pockmark the English countryside are being turned back into level usable farmland, filled with England's garbage.

This would be a simple process but for one major—and literal—headache, the foul-smelling, paint-blackening gas called hydrogen sulfide. When garbage decays, particularly in water, the living organisms which break it down release great quantities of hydrogen sulfide, much to the displeasure of any one living downwind.

The British Department of Scientific and Industrial Research has begun a series of experiments, however, using the clinker ash from incinerators, acid and types of bacteria to eliminate production of this gas from underwater garbage dumps.

One method is to divide a large sinkhole into smaller lagoons with dikes built of the inert clinker. Putrescent refuse is then dumped into each lagoon so quickly that it is filled before the gas nuisance can develop. If some gas is put off, acid is added to the water to prevent further growth of the decay bacteria.

Other types of bacteria are also being tested as possible ways to eat up the hydrogen sulfide as fast as it is produced. If they prove feasible, this new form of bacteriological warfare may help to solve England's serious shortage of garbage disposal space and give the British more land for housing or agriculture.

Science News Letter, October 14, 1950

PHYSICS

Measure Velocity of Water By Sound Waves

➤ THE velocity of water in the discharge from turbines in hydroelectric plants may be measured by passing sound waves in the ultrasonic region through the water, the American Institute of Electrical Engineers was told in Baltimore.

The method of using ultrasonics for this purpose was described by W. B. Hess and S. K. Waldorf of Safe Harbor, Pa., Water and Power Corporation, and R. C. Swengel of York, Pa. They presented the results of tests made with a small duct, five by nine inches in cross section, with water velocities up to six feet per second.

The ultrasonic method, they declared, appears to have distinct advantages over existing methods of measuring the discharge of turbines in large hydroelectric stations. In carrying the method to the present state of development a great many difficulties have been overcome. It now appears that remaining difficulties may be overcome and the method applied to large scale measurements.

This method of using sound waves too high-pitched to be recognized by the human ear consists essentially of calculating water velocity from the measured phase angle between the transmitted ultrasonic signal and the signal received after passing through the body of moving water, they stated.

Instruments to pick up the sound waves after they passed through the water were placed on the wall of the water duct opposite the transmitter and "displaced some definite distance along the principal axis of flow." From this the phase angle was determined. Errors of less than two percent were obtained in measurements in the test duct.

Science News Letter, October 14, 1950

IN SCIENC

VETERINARY MEDICINE

Find Cocker Spaniel With "Blue Baby" Heart

➤ A COCKER spaniel with the rare condition called a "blue baby" heart is reported by doctors at the State College of Washington in Pullman, Wash.

The dog had difficulty in breathing. When it became excited, it would faint. Its skin had a bluish tinge. In human beings, these signs would indicate one of several defects of the heart which have come to be labeled "blue baby" conditions.

The veterinarians found that a duct between two chambers of the spaniel's heart, which should have closed soon after birth, had remained open. Blood which normally would have passed through the lungs before going to the body by-passed the lungs through this opening, and the body was robbed of vital oxygen in the bloodstream.

As in humans, such congenital heart conditions in animals are quite rare, the veterinarians said. Several cases in cattle were also reported, but from 2,000 post-mortem examinations at the Washington veterinary medical school, only six serious heart irregularities were discovered.

Science News Letter, October 14, 1950

ICHTHYOLOGY

Find 79 New Varieties Of Fish at Bikini Atoll

➤ SMITHSONIAN Institution scientists revealed that at least 79 new types of fish were discovered at Bikini Atoll before and after A-bomb tests in 1946.

Dr. Leonard P. Schultz said atomic radiation had nothing to do with the sudden appearance of so many new varieties, although some of the preserved fishes brought back from Bikini remained radioactive for as long as a year.

The tremendous scientific project known as Operation Crossroads made Bikini and its surrounding waters the most studied island in the Pacific, Dr. Schultz said. For scientists in all fields, the summer-long sojourn on the lonely atoll was a windfall.

The work of sorting and identifying the Smithsonian fish collection is still far from complete. A total of 481 different species have been distinguished so far.

Some of the fish are fantastic in appearance. One of the smallest fish in the world, a coral-dweller little more than half an inch long, was found. The Smithsonian also got a giant puffer, a cardinal fish with a belly stripe that lights in the dark, and flatheads which were ostriches in reverse—they lived completely covered by sand except for their mouths.

Science News Letter, October 14, 1950

E FIELDS

MEDICINE

Standardization of Test Tube Dads Urged

➤ MORE care and standardization in selection of test tube fathers is urged by Dr. Murray Russell of Beverly Hills, Calif., in a report to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Oct. 7) in Chicago, Ill.

The demand for artificial insemination is increasing, he points out. War injuries which have increased the ranks of relatively and absolutely infertile men constitute part of the reason for the increased requests physicians are getting for this procedure. Difficulties and objections to adoption also account for the increase.

"In the past it was not uncommon," Dr. Russell points out, "for a donor to be chosen at random from among university students or hospital interns. He was, and still may be, approached at the last moment for the donation without examination, blood studies or determination of his fertility.

"Many so chosen were never fathers. This haphazard choosing oftentimes ended in failure of insemination with loss of valuable time, money and effort. It was fraught, also, with risk to the potential mother of transmission of venereal or hereditary diseases and incompatibilities of blood types."

Items which Dr. Russell says should be checked in selecting donors are: complexion, height, weight, color of eyes and hair, schooling, intellectual background, religion, family background, presence or absence of such diseases as asthma, diabetes and allergies, frequency of twins and triplets in the donor's family, complete medical and venereal history, number of children sired and their state of health, occurrence of premature births, stillbirths and miscarriages of the donor's natural wife, urinalysis, serologic tests, Rh blood typing and semen analysis.

Science News Letter, October 14, 1950

ENGINEERING

Brains Aid Cancer Detection Test Search

➤ ELECTRONIC calculating machines are helping in the search for early cancer detection tests, Dr. Gilbert W. King of Arthur D. Little, Inc., Cambridge, Mass., chemical engineering firm, reported in Endicott, N. Y.

The punch card machines are used to compare spectrum patterns of abnormal chemicals in urine which might give clues to the presence of cancer. Physicians at Massachusetts General Hospital in Boston have accumulated such patterns for nearly 500 substances that may be significant in spotting early cancer. But comparing and matching patterns by ordinary methods may take as long as a week. The punch card method completes the job in a few minutes, which is more than 350 times faster than conventional methods.

Dr. King gave details of the punch card method at a special seminar on industrial computation sponsored by the International Business Machines Corporation.

Science News Letter, October 14, 1950

SAFETY

One Hundred Million in Critical A-Bomb Areas

➤ ONE hundred million Americans live within "critical target areas" which are likely to be attacked by A-bombs should an all out war come, the National Security Resources Board in Washington, D. C., warns.

The NSRB's Office of Civil Defense sent to all state governors copies of maps indicating the critical target areas within their cities and suggesting that they immediately begin planning the civil defense of those areas.

Plans, a booklet accompanying the maps said, should be based on areas of mutual aid and mobile support. The other 50,000,000 Americans, according to the booklet, are expected to supply aid and support to critical target areas in their vicinity.

Three kinds of critical targets are indicated: Type I, industrial-metropolitan areas; Type II, industrial areas; and Type III, metropolitan areas. Some critical target areas are so secret that they are not indicated on the maps, although the booklet assumes the governors concerned will know about them and plan accordingly.

Science News Letter, October 14, 1950

MEDICINE

Obesity Considered As Disease

➤ OBESITY, or overweight, "should be regarded as a disease," states the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Oct. 7).

"Of immediate importance in the control of arteriosclerosis (hardening of the arteries) is the need for curbing obesity," the editorial states.

Research implicating the fatty substance, cholesterol, in the cause of artery hardening needs to be continued. But, the editorial warns, "it seems unwise" to ban from the diet foods containing cholesterol if there is risk of sacrificing nourishing qualities unless there is clearcut evidence for the beneficial effect on the artery condition.

Physicians are warned against misleading advertising claims proposing other substances as substitutes for the cholesterol-containing foods.

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ENGINEERING

Tarred Roads No Longer Hazard in Rainy Weather

➤ BRITISH scientists, by a new treatment for crushed stone, have ended the ruin a heavy rainfall can cause to a freshly-tarred road.

Many asphalt roads are maintained by spraying a film of tar on the road surface and covering the film with crushed stone. If it rains too soon, the wet stone will not stick to the tar. Traffic scatters the stone, and the dressing has to be done all over again.

A coating of creosote, mixed with a chemical wetting agent and applied to the stone, has been found to keep out the water. The result, tested on roads in many parts of England, is that the stone sticks to the road no matter how hard or how soon it rains after the dressing has been applied.

The new treatment, though it adds an initial expense, will save thousands of dollars by eliminating waste in highway maintenance.

Science News Letter, October 14, 1950

ENGINEERING

Robot-Controlled Tools "Plan" Like Human Beings

➤ ROBOT-controlled machine tools, automatic pilots for airplanes and the giant new mechanical computers have reached a point where they now "plan" and "act" along lines of human reasoning.

The vacuum tubes in a modern electronic amplifier affect each other much as do people who work together, Herbert K. Weiss, an Army ballistics research scientist, said in New York in a lecture sponsored by the American Institute of Electrical Engineers.

The basic principle of the new machines is "feedback control," Mr. Weiss said. Such systems give a machine a built-in plan of action. They compare the machine's progress with the desired objective, and if there is any discrepancy, adjust the machine automatically to correct the situation.

But these near-human powers are not enough. The design of feedback systems has advanced so much that machines actually have critical judgment, the Army scientist stated.

Such an electronics system, he said, may have to examine its sources of information with a sharp eye, separating true information from false and acting only on data which it, the machine, concludes is reliable.

Mr. Weiss, who works at the Army Ordnance ballistics research laboratory at the Aberdeen, Md., Proving Ground, said such powers are really very simple. They have been developed, he said, through use of basic principles in mechanical, electrical and communication engineering, probability theory and "operational mathematics."

Science News Letter, October 14, 1950