

MEDICINE

Transistorized Device Monitors Heart

➤ A SMALL, transistorized device that provides an instantaneous and continuous monitoring of the heartbeat during surgery and non-surgical emergencies has been developed by scientists and doctors at the Veterans Administration Hospital, Hines, Ill.

Named the "Cardiac Monitor," the meter warns the doctor that the heart is not working properly and that emergency treatment is indicated. In use, the device has provided an immediate diagnosis of irregular heart action and may anticipate stoppage of the heart. It has even been able to monitor the heart rate during profound shock when the patient was clinically pulseless, the VA reported.

The cardiac monitor uses the same electrodes used in an electrocardiograph, the machine that measures the heart's electrical impulses. These electrodes are strapped on the forearms of the patient and pick up the same impulses. The impulses are fed into the monitor, amplified by the transistor circuit, and indicated on a meter.

The entire unit weighs only three pounds and is about the size of a coffee can. It is powered by four standard flashlight batteries.

The monitor was designed and developed by Drs. Ervin Kaplan, Bernard Abrams, Robert Simpson and Archer Gordon, and by Theodore Fields and Joseph Kenski of the hospital.

Science News Letter, March 2, 1957

GENETICS

Sickle Cell Gene Found in Two Cases in Indonesia

➤ THE SICKLE CELL, cause of a special kind of anemia, has been found for the first time in Indonesia.

Two cases of carriers of this abnormal hemoglobin are reported in the British scientific journal *Nature* (Feb. 16) by Dr. Lie-Injo Luan Eng of the department of parasitology and general pathology, University of Indonesia, at Djakarta.

The two cases were found during an examination of 4,000 samples of blood collected during a mass survey in different islands in Indonesia.

One case was born in west Java. His father was also born in west Java and was of mixed Chinese-Indonesian blood. His mother was a pure west Javanese. So far as was known, no mixing of blood with other races occurred in the family history.

The second case was an Indonesian soldier from Padang, Sumatra. So far as he knew, he was a pure Indonesian.

Ordinarily, the sickling gene is found only among Negroes originally from Africa. It has been found in Greeks, Italians and Arabs, but in those cases there was evidence of an admixture of African blood in older times.

Dr. Lie-Injo finds it difficult to account for these two cases in Indonesia. Of course, it is possible that somewhere in the family history there was some ancestor derived from the African Negroes, but that seems unlikely.

Another possibility is that somewhere in Indonesia the sickling gene is not rare and that one or another ancestor of the two carriers had some connection with such an area.

Some anthropologists are of the opinion that the oldest population of Indonesia were Negritos who were related to the Negroes of Africa. It is also believed that there are some areas in Indonesia where traces of the Negrito ancestry are still present.

Presence of the sickle cell gene is associated with a resistance to malaria, so that persons who survive in regions heavily infested with malaria mosquitoes are most often carriers of the sickle cell gene. This leads to a heavy incidence of the sickling gene in those areas.

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MEDICINE

Hog Pancreas Drug Aids Skin Disease Fight

➤ NEW hope for victims of psoriasis, one of the oldest known and commonest diseases of the skin, is coming from a drug called Lipan, soon to be generally available without a prescription.

Lipan is a defatted preparation taken from the pancreas of hogs and contains the fat-splitting enzyme lipase. It is reported either to remove completely the skin lesions caused by the disease or to keep them at a minimum, when it is used with a low fat diet.

Dr. Frank C. Combes, professor of dermatology and syphilology, New York University Post Graduate Medical School, New York, has been testing the drug for several years.

Dr. Combes believes that an important factor in the disease is faulty fat metabolism. He reported on a group of more than 100 patients who all showed "appreciable evidence of disturbance in fat metabolism with, in many instances, abnormal liver function tests."

In 65% of these patients, Dr. Combes was able to get a "complete remission" of the lesions or keep them at a minimum.

This was accomplished by giving the patients Lipan capsules and keeping them on a low fat diet.

Psoriasis has baffled dermatologists for years and its exact causes have never been fully known. Many specialists believe that a combination of factors are responsible for it.

Persons under stress frequently get recurrences of the disease, a fact which points to a psychological basis as well as a physical one.

Lipan is being produced by Spirt & Company, Waterbury, Conn.

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IN SCIENCE

ZOOLOGY

Desert's "Villains" Not So Tough

➤ FEAR of some of the desert's fiercest-looking "villains" has been greatly exaggerated, Dr. Raymond Cowles, zoologist at the University of California at Los Angeles, said.

He pointed out that the bite or sting of large desert scorpions, black widow spiders, trap-door spiders and tarantulas, although harmful, is not gravely dangerous to the life of normal, adult human beings except in cases of special allergies.

The sting of the large desert scorpion may seem painful to some but to others may be less severe than that of a bee, Dr. Cowles noted.

The much smaller Durango scorpions found in southern Arizona and south into Mexico, however, have caused numerous deaths, particularly in Mexico.

The bite of the black widow is excruciatingly painful, Dr. Cowles said, but seldom lethal.

The fearsome-looking tarantula is probably the most overrated creature of all as to its fierceness. It cannot inflict serious wounds nor is it aggressive. In fact, tarantulas make good pets, responding well to captivity.

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ANTHROPOLOGY

Cooking Fire in Cave Is 43,000 Years Old

➤ DINNER was cooking some 43,000 years ago and undoubtedly cave men sat down to eat. That is shown by the most ancient of radiocarbon dates yet determined for a site occupied by human beings.

Dr. Carleton S. Coon, anthropologist of the University Museum, Philadelphia, dug up charcoal from the ancient cooking fire in Syria in 1955 and sent it to the New Zealand government's station near Auckland. There Dr. G. J. Fergusson used a new radiocarbon dating method to find the age of the cooking fire.

He found the fire was burning 43,000 years ago, plus or minus 2,000 years. This is believed to be the oldest radioactive carbon date yet found for a site occupied by human beings. Methods used previously would not date material that far back.

The charcoal was found associated with flints and other man-made tools typical of a late Old Stone Age culture. The cave is now called by the picturesque name of "The Heifer's Outwash."

Dr. Coon announces his finds in his new book, "The Seven Caves."

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CE FIELDS

MEDICINE

Nobel Prize-Winner Studies Heart Failure

► HEART failure and its relationship to increased amounts of carbon dioxide in the body is being studied by Dr. Dickinson Richards of the College of Physicians and Surgeons, Columbia University, winner of the 1956 Nobel Prize for his work with Dr. Andre Cournand, also of Columbia University, on heart catheterization.

In progressive failure of the lungs there is not enough "blowing off" of carbon dioxide gas from the lungs, and this overworks the heart by forcing it to drive blood through the damaged lung, he told members of the annual science writers tour sponsored by the New York Heart Association.

This backing up of carbon dioxide, after the lungs can no longer adequately eliminate it, presents a number of complicating effects on the body, he explained.

Normally, carbon dioxide exists in the body in two forms. About one-twentieth of the total amount is in the form of gas in solution, and the rest exists as bicarbonate, the same common salt as bicarbonate of soda, he said.

This bicarbonate is one of the essential salts in all tissue and part of the entire system of water and salts that make up tissue fluids, he added.

When poor ventilation is taking place in the lungs, more carbon dioxide gas is retained and the increased pressure of it causes the kidneys to also retain the bicarbonate. When these two processes continue for any length of time, the total carbon dioxide in the body increases markedly, Dr. Richards said.

By measuring all the changes in the salt-water balance as carbon dioxide retention progresses, Dr. Richards hopes to discover whether or not these changes are important in the development of the heart failure and edema or water retention in the tissues, that is so often the end stage of failing lungs.

Dr. Richards' work is being supported by a grant from the New York Heart Association.

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ASTRONOMY

United States and Russia Exchange Data on Sun

► THE UNITED STATES and Russia for the first time are exchanging information on the sun and radio sending and receiving conditions.

For the next four days, such scientific information as the appearance of sunspots

on the solar surface is being regularly broadcast between Fort Belvoir near Washington and Moscow. The sessions are dry-runs for the International Geophysical Year, which starts July 1, when the exchanges will be made daily for 18 months.

Aim of the practice program, which will continue one week out of each month from now through June, is to perfect communications to the point where any station in the world can be notified of events of special interest to radio propagation conditions within 30 minutes.

The World Warning Center for the IGY is located at the National Bureau of Standards North Atlantic Radio Warning Service, Fort Belvoir, Va. This agency also acts as regional headquarters for the Western Hemisphere.

The international exchange with Russia is the second hole in the scientific Iron Curtain. Weather information is daily sent from Russia to the United States and vice versa. These broadcasts have continued virtually without interruption for the last 30 years.

All data collected during the IGY will be sent to three World Data Centers, where the information will be available to any scientist. The IGY is a world-wide scientific program aimed at learning more about the earth, its seas and atmosphere in which some 56 nations will cooperate.

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ENGINEERING

Engineering Seen More As "Ladder" Than "Class"

► AMERICA'S engineering profession is more of a "ladder" by which young men from lower-middle families climb to managerial positions in industry, than a socially-fixed "class."

This is the conclusion of Dr. Edwin T. Layton, who recently completed a doctoral dissertation at the University of California at Los Angeles on "The American Engineering Profession and the Idea of Social Responsibility."

Dr. Layton, who is now a member of the history faculty at the University of Wisconsin, believes certain social conditions have had a profound effect on the engineer's attempts to define and act upon his sense of social responsibility.

One of the most important has been vertical social mobility and its counterpart, "the philosophy of success."

Such social mobility has left its mark on the mind of the engineer in the form of three contradictory sets of ideas, says Dr. Layton. The first concerns individualistic values, a second science, and a third defines the relationship between engineering and business.

Each of these concepts, Dr. Layton believes, implies a different idea of social responsibility. And, as a result, attempts by the engineering profession to take social action have led to bitter disagreements and controversies.

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PHYSIOLOGY

Blood Donors Show Low Hemoglobin in Summer

► ALMOST TWICE as many blood donors in Los Angeles were disqualified for low hemoglobin levels in July as were disqualified in January, Drs. George W. Hervey and Sam T. Gibson, American Red Cross, Washington, D. C., and Dr. Eugene P. Adashek, University of California Medical Center in Los Angeles, report in the *American Journal of the Medical Sciences* (Feb.).

In two groups of male blood donors, 8.17% of nearly 5,000 failed to meet the minimum hemoglobin requirement in July, 1955, whereas only approximately four percent of over 14,000 did not meet it in January, 1956, indicating a strong seasonal variation, they reported.

Earlier data from mobile blood units in Connecticut showed an increase in disqualifications for low hemoglobin from January to August, 1954. At the same time there was a simultaneous upward trend in that state's official humidity figures, they reported. However, the investigators caution against considering these to be cause and effect relationships, saying that they may be merely coincidental.

"Thus, changes in nutritional habits with the approach of summer could have much to do with the increased rejections for a low hemoglobin level," they reported.

Other studies of the Los Angeles donors revealed that as a result of "self-screening," the more numerous the past donations by any one donor, the less likely he was to be rejected for low hemoglobin. Opposing this trend, however, was an increase in rejections with age.

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MEDICINE

"Wonder Drugs" Reduce Tuberculosis Cases

► THE SO-CALLED "TB wonder drugs" have reduced the number of tuberculosis patients in VA hospitals by about 3,000 within the past three years, Dr. W. B. Tucker, director of tuberculosis service of the Veterans Administration, reported.

The decrease in need for hospitalization of veterans with tuberculosis is a result of learning how to use streptomycin, PAS, and isoniazid. These drugs were brought into general use largely as a result of the VA's chemotherapy program of testing new TB drugs, Dr. Tucker reported.

The program began in 1946 in cooperation with the armed forces and has involved some 15,000 patients to date.

The average daily number of TB patients dropped from 15,675 in January, 1954, to 12,528 in December, 1956.

But the number of TB patients is expected to reach a fairly constant figure within the next year or two as the rate of decline slows, he reported.

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