

MEDICINE

New Blood Paths to Heart

Small doses of radiation directed at the heart appear to be providing new "pipes" through which fresh supplies of blood may reach the heart muscle.

SMALL DOSES of radiation directed to the heart appear to be capable of providing that important muscle with new blood supplies even after the normal pathway of blood to the heart becomes clogged.

This forward step in heart research was developed by Dr. Ivan D. Baronofsky of Mount Sinai Hospital, New York, and Dr. Elliot Senderoff, Research Fellow of the New York Heart Association. They found that radiation directed at dogs' hearts enlarged their capillaries and pre-capillary arterioles (tiny blood vessels). They found that this treatment also increased the number of capillaries, which, in turn, provided additional lines of supply to the heart.

The circulation in the hearts of the dogs was not only improved by the irradiation, but continued to show improvement after treatment stopped, the researchers reported. Extensive studies of the hearts of the dogs revealed that there was an "amazing" increase in the entire circulatory system of the irradiated hearts. In addition, they found no evidence of harmful effects.

This treatment has now been applied to humans, Dr. Baronofsky reported. The work is still in the experimental stage, however, he emphasized. The first patients have been followed only for one year. Results

indicate, however, that no harm has been done, the method has not subjected the patients to additional stress and progress so far is encouraging.

Surgical procedures now employed to increase the blood supply to the heart include "poudrage"—introduction of such irritating foreign substances as talc—grafting tissue from other areas, and joining other blood vessels to the coronary system.

Providing the heart muscle with a new supply of blood is the greatest single problem facing cardiologists today. Surgeons want a simple method of achieving this supply, because those who most need help should not be subjected to any more stress than they experience from the shortage due to the clogged arteries.

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GEOPHYSICS

High-Altitude Bomb Tests Cut Radio Reception

THE TWO HYDROGEN bombs exploded 25 to 100 miles high over the Pacific Ocean in August of 1958 are now reported to have significantly cut down radio reception on the Hawaiian Island of Kauai.

This radio listening post, operated by the Boulder (Colo.) Laboratories of the National Bureau of Standards, is situated about 700 miles northeast of Johnston Island over which the H-bombs were exploded on Aug. 1 and 12.

The discovery was made by scientists monitoring radio noise. The observed drop in this noise on certain frequencies following the H-bomb blasts means that regular radio messages on these frequencies would have a harder time getting through to the island. It tends to support speculation that high H-bomb bursts could be used strategically to disrupt radio communications temporarily.

It is believed that a highly ionized region was formed high above the earth when the H-bombs exploded, and that this ionized region lasted several days after each test and greatly increased the ionospheric absorption of certain radio waves. Normally, the ionosphere would not absorb as many radio waves and would reflect more to earth.

Recordings were made of the atmospheric radio noise received on the island for a period before and after the first explosion on Aug. 1. The pre-blast pattern showed that highest noise levels were recorded at night. Normally they fell off rapidly between 4:00 and 8:00 am.

In the hour after the blast, which occurred about midnight, the received radio noise dropped sharply at a time when it should have been rising or holding steady. On the frequencies of 13 kilocycles and five megacycles, recovery of near normal reception occurred in a matter of hours. But from 51 kilocycles through 2.5 megacycles, the disturbance continued to last until the second H-bomb was exploded on Aug. 12. It took until Sept. 1 for reception on some radio frequencies to return to the normal pattern.

These H-bomb tests also have been reported as causing a bright artificial aurora seen at Apia Observatory in the New Hebrides Islands, and temporarily changing the earth's magnetic field.

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BIOLOGY

Rabbits Used in New Corn Rust Tests

RABBITS have now been given the assignment of helping scientists identify strains of corn rust. University of Wisconsin researchers David Beno and Arthur Flangas said that in the new process a rabbit is injected with a strain of rust (fungus). The rabbit produces antibodies against the infection, and blood serum is then drawn and stored by type, as in a blood bank.

When corn rust is found in a field, a sample of the fungus on the plants and some of the serum are used to determine, according to the reaction of the antibodies, what strain of rust is present. The two researchers said the rabbit's role is to speed the rust identification. With the new test, this requires only two days, compared with two weeks or longer with growing plant tests.

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OXYGEN FROM THE ROOM—This transportable oxygen unit draws air from the atmosphere, filters out contaminants, extracts oxygen and furnishes this gas to the patient. Developed by Aerojet-General Corporation's Chemical Division, Azusa, Calif., it is expected to be widely used in hospitals and ambulances.