



DRAWING NEW LIFE FROM THE DEAD

The life-restoring blood being injected into this patient's arm was taken from a dead body. A remarkable method of utilizing blood from victims of traffic accidents or other sudden fatalities was developed by Prof. Serge Judine of the Institute Sklifassovsky, Moscow's great emergency hospital. The value of this method for military surgery in time of war has been pointed out by General Robert U. Patterson, Surgeon General of the U. S. Army.

RADIO

Radio "Echoes" From Moon To be Sought by Thousands

WORLD-WIDE efforts to discover whether radio waves escape from the earth and are echoed back to it again from the moon and other distant parts of the solar system will shortly be inaugurated.

Prof. E. V. Appleton of the University of London, leading British investigator of the radio reflecting layers of the earth's upper atmosphere, plans to enlist the aid of thousands of radio enthusiasts throughout the world, to time echoes of powerful special signals, which it is hoped will pass through the outer layers of the atmosphere into space, and then be reflected from objects or layers within the solar system, as light is reflected from a mirror.

It is easy to tell how far a radio echo has travelled because the speed of radio waves is the same as light, which has been accurately determined.

Thus if the moon really does reflect radio echoes back to the earth, radio listeners should catch the echo in a little over two and one-half seconds after the signal is shot out into space; for the distance to the moon and back is approximately 480,000 miles, and the ra-

dio waves travel with the speed of light, somewhat over 186,000 miles a second. The distance to the moon varies, but the radiation velocity is assumed to be constant. If a "moon echo" of radio signals can be well established, it can probably be used as a research tool in astronomy, to gain better pictures of the moon's somewhat erratic travel path.

The British Broadcasting Company, which holds a government monopoly of all broadcasting in Great Britain, is cooperating with Prof. Appleton. The test signals will be sent out by the Empire Transmitter at Daventry, England. A World Radio Research League is being formed to assist in carrying out Prof. Appleton's project.

Besides a known radio echo of nearly the time-interval that would be required to get a signal to the moon and back, there are also two other puzzling long-period radio echoes, one of fifteen, the other of thirty seconds. These suggest the existence, somewhere in the solar system, of a reflecting object or layer, at a distance from the earth of approximately 2,800,000 miles, and another at double that distance.

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CHEMISTRY

Mass Three Discoveries Close Gap in Elements

CLOSING a gap that has existed in the weights of the chemical elements, evidence for the existence of both hydrogen and helium of mass three has been found in Cavendish Laboratory researches at Cambridge University.

Dr. P. I. Dee reports in a communication to *Nature* that these hitherto un-found varieties of helium and hydrogen are created when hearts of double weight hydrogen collide. Here are two new units of matter brought into existence by the smashing of heavy hydrogen particles which only three years ago were themselves undiscovered.

Tracks of water vapor left behind after flights of the particles through a cloud chamber showed Dr. Dee that from heavy hydrogen collisions there emerged a proton or heart of an ordinary hydrogen atom and a triple-weight hydrogen atom heart. They recoiled in opposite directions.

Measurements of the energy of neutrons, themselves unknown a few years ago, also show that in the transmutation the helium of mass three is formed.

Scientists have been looking for an atom of mass three for many months, as the sequence of weights of atomic particles left a place for it. There was considerable speculation as to whether it would be hydrogen or helium. Now the evidence is that both hydrogen and helium of mass three can exist.

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MEDICINE

"Polio" Germ May Enter Body Through Stomach

THE VIRUS or "germ" of infantile paralysis may enter the body through the digestive tract as well as via the nasal route, in the opinion of Dr. John A. Toomey, of Cleveland.

Dr. Toomey reported to the American College of Physicians that he was able to produce the disease in monkeys by injecting the causative virus into a part of the digestive tract from which it could easily reach the gray fibers of the nerves. He believes earlier failures to produce the disease by injections into the digestive tract were due to the fact that the experiments were not planned so as to give the virus a chance to reach the nerves before being swept out of the digestive tract.

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