14 which he will give in universities through the country in the next three weeks. The lectureship is sponsored by Sigma Xi, national honorary society for the promotion of research in science. Election to membership in Sigma Xi is equivalent—among scientists—to membership in Phi Beta Kappa in general academic life.

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PHYSICS

Fast Electrons Added To List of Atomic "Bullets"

FOR the first time anywhere scientists at the University of Notre Dame have demonstrated that an electron—lightest of all atomic particles—can produce an atomic disintegration.

Prof. George B. Collins, Dr. Bernard Waldman and William R. Polye of the Physics department have shot swift flying electrons from the Notre Dame atom smasher into atoms of the chemical element beryllium. (*Physical Review,* Feb. 15). Out of the impact each beryllium atom, of mass nine, was turned into two atoms of helium, each with mass four, and into a neutron of mass one. The energies of the electrons used as "bullets" in the research were 1,720,000 electron volts.

The experiments are highly important to science because they indicate another way in which neutrons can be created by atomic bombardment. Neutrons are the massive, neutral particles used so widely in the current splitting of uranium with the release of vast amounts of atomic energy.

Previously scientists have been unable to effect transmutation of the elements and atomic disintegration with electrons. Cores of hydrogen atoms, known as protons; deuterons; and neutral particles, the neutrons, have been employed.

Prof. Eugene Guth, of Notre Dame, made the mathematical calculations forecasting that high energy electrons might disintegrate beryllium in a way which these experiments have now confirmed.

The actual train of events in the bombardment, reports Prof. Guth, is that beryllium of mass nine, when struck by the electron, forms beryllium of mass eight, plus a neutron, plus a low energy electron. The beryllium, mass eight, almost instantly breaks down into two helium atoms, each with atomic mass four.

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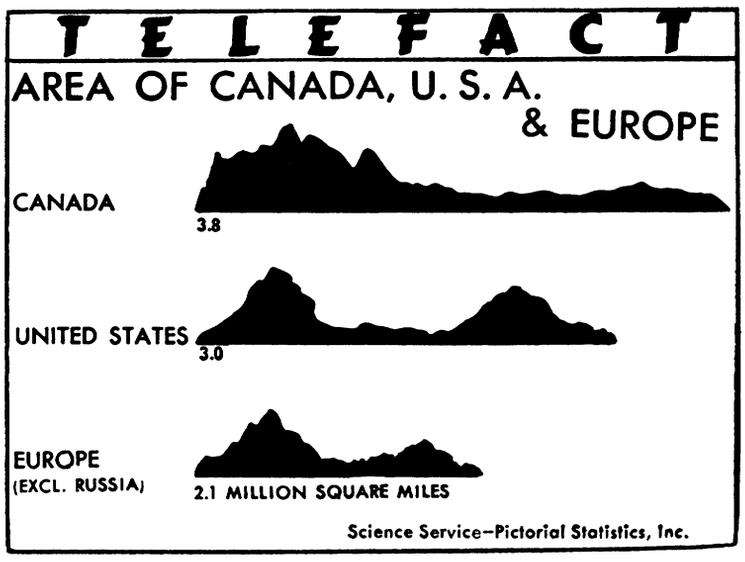
Jamestown Island, famed in Virginia history, is really about a dozen islands cut apart by creeks.



MEDICINE

Blue Dye May Have Role In Sulfanilamide Treatment

When Patients Turn Blue, Injection of Methylene Blue Restores the Oxygen-Carrying Hemoglobin of Blood

WHEN patients getting sulfanilamide treatment turn blue, as a number of them alarmingly do, it may be helpful to inject into their veins a blue dye, methylene blue. Dr. William B. Wendel, of the University of Tennessee College of Medicine, makes this suggestion on the basis of investigations he has made there and at Washington University School of Medicine, St. Louis.

Dr. Wendel has just reported details of his investigations to the scientific publication, the *Journal of Clinical Investigation*. Associated with him in part of the investigations were Dr. Alexis F. Hartman of Washington University and Dr. Anna Dulaney of the University of Tennessee.

Methylene blue is the same dye that was widely heralded a few years ago as a life-saving antidote in cases of carbon monoxide and cyanide poisoning. According to Dr. Wendel's studies, the dye may find a new field of usefulness by making sulfanilamide treatment less hazardous for some patients, especially those having heart and respiratory involvement, and by making it possible to give larger doses of sulfanilamide, thus extending its usefulness in combating infections.

Dr. Wendel believes that the reason some patients turn blue when under sulfanilamide treatment is because some of the oxygen-carrying hemoglobin of their blood is converted into methemoglobin, which cannot carry oxygen. As a result the tissues of the body are at least partially suffocated. If this condition went far enough it would end fatally.

When methylene blue is injected into the veins, the methemoglobin disappears rapidly from the blood and is replaced by an equivalent amount of hemoglobin, Dr. Wendel reports.

Medical scientists are not all agreed that development of methemoglobin is the cause of the blueness (cyanosis is the technical term) of some patients during sulfanilamide treatment. Dr. Wendel points out that the frequency of methemoglobin development following sulfanilamide treatment has not been determined, but he and his associates found at least traces of this chemical in the blood of approximately 98 out of 100 patients who were getting sulfanilamide. He therefore believes the use of methylene blue as an aid to sulfanilamide treatment is worth trying, although he cautions that small amounts of the dye should be used and that it should be injected slowly and carefully into the veins.

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