

CHEMISTRY—MEDICINE

Anti-Blood Clotting Agent Clue to Thrombosis Treatment

Chemical Society Hears Reports of Heavy Nitrogen, Super-Gasolines, Method for Removing Fluorine

PREVENTION of dreaded blood clots, often fatal condition known medically as thrombosis, may now be nearer at hand. This appears from research reported by Dr. Edwin Chargaff of the College of Physicians and Surgeons, Columbia University, at the meeting of the American Chemical Society in Rochester, N. Y.

The mechanism of blood-clotting is one of science's still unsolved mysteries. Hemophilia or bleeders' disease is one result of defect in this mechanism and thrombosis is another.

By combining a small amount of sulfuric acid with a wax-like substance found in the brain, Dr. Chargaff obtained a substance which very markedly checks the clotting of blood, he reported at the meeting of the American Chemical Society. The material is called cerebroside sulfuric acid, and this is the first time it has been made in the laboratory.

Sulfuric acid is also found in heparin, the most powerful anti-blood clotting substance known. It was originally discovered in the liver by Dr. W. H. Howell of the Johns Hopkins University. In purified form, heparin injections have prevented thrombosis formation to a considerable extent in animals, Drs. C. H. Best, Arthur Charles and Campbell Cowan of the University of Toronto recently reported.

Study of the eventual practical application of Dr. Chargaff's latest discovery is now under way.

Heavy Nitrogen

First heavy hydrogen. Then heavy water. Now heavy nitrogen. That is the thumbnail research summary of the work of Prof. Harold C. Urey, Columbia University chemist who has already received the 1934 Nobel Prize in Chemistry for his investigations in the intricate field of chemical isotopes.

Heavy nitrogen, latest chapter in this scientific program, has now been separated in quantities sufficient for chemists to use it as a "tracer" in chemical experiments.

After two years of intensive research Dr. Urey and his colleagues, Dr. John

R. Huffman, H. G. Thode and Marvin Fox, have so perfected their apparatus for producing heavy nitrogen that they can produce two-tenths of a gram of the precious heavy isotope of nitrogen every 24 hours. An isotope is a variety of an element which is chemically identical with the usual form but which has a slightly different weight.

In physiology heavy water molecules—composed of oxygen and hydrogen atoms in the form of the heavy hydrogen isotope—have already been used to learn how long the water is retained by the body. English experiments have shown that about 50 per cent. of the water molecules, drunk at any time, may be retained in the body for days.

Similarly the atoms of the new heavy nitrogen isotope can also be used as tracers. At the same meeting investigators from the Columbia University School of Medicine, under the direction of Assistant Prof. Rudolf Schoenheimer, reported that the heavy nitrogen helps to establish the fact that absorption of hippuric acid, or benzoylglycine, is possible directly through the intestinal walls of the body. This knowledge helps answer one question on the little understood matter of the body's chemical disposal of a waste product.

The new heavy isotope of nitrogen has an atomic weight of 15 instead of atomic weight 14 for the normal kind. Only one nitrogen atom in every 263 is of the heavy variety. The original discovery of the heavy nitrogen isotope was made in 1929 by S. M. Naude of the University of Chicago. Thus, it has taken some eight years to attain the present production, even though it may seem, at first glance, to be a very small quantity.

Super-Gasoline

Super-gasolines that four years ago were so rare they cost \$30 a gallon will next year be made in a production of over 18,000,000 gallons. The government is purchasing that amount for the Army, Navy and other branches to increase the performance of airplanes in the federal air services by 30 (*Turn to Page 188*)



DR. EMMA P. CARR

CHEMISTRY

Mt. Holyoke Chemist Is First To Win Garvan Medal

FOR HER long continued and intricate investigations in the far ultraviolet wavelengths, Dr. Emma P. Carr, head of the chemistry department at Mt. Holyoke College, will be the first recipient of the Francis P. Garvan gold medal, established to honor outstanding women chemists.

Dean Frank C. Whitmore of Pennsylvania State College and president-elect of the American Chemical Society meeting here made the announcement. Actual presentation of the medal, named in honor of the president of the Chemical Foundation, will not be made until the spring meeting of the Society.

Dr. Carr's spectrographic studies are in the far ultraviolet region of the spectrum, where the ultraviolet shades off into the X-ray region. All the measurements are made in special vacuum spectrographic apparatus which was provided through funds of the National Research Council.

The Rockefeller Foundation granted financial aid which permitted Dr. Carr to study the absorption spectra of what chemists call the unsaturated hydrocarbons.

Her researches have led to important contributions to the knowledge of molecules used by the petroleum chemists.

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