

GENERAL SCIENCE

Nobel Prizes Are Awarded In Physics, Chemistry, Medicine

One American, Dr. C. J. Davisson, Among Those Who Are Honored; Others Are English, Swiss, Hungarian

See Front Cover

A DECADE ago two physicists, one an American, Dr. C. J. Davisson of Bell Telephone Laboratories, the other Prof. G. P. Thomson of Imperial College, London, discovered that electrons, the basic and smallest particles of matter, act like waves of light or X-rays.

They showed that crystals scatter them. They confirmed experimentally the theory of wave mechanics that won for Prince Louis Victor de Broglie the Nobel laureate in physics in 1929.

This year's Nobel prize in physics is shared by Davisson and Thomson, a world acclaimed honor worth to each of them about \$20,000 in cash and much more in prestige.

Today this diffraction of electrons is being put to practical use. As a tool of science it compares, in its field, with X-ray analysis. X-ray diffractions by crystals are powerful tools to probe the depths of metals and other crystals. The special merit of electron diffraction is the analysis of the surface of crystals and the structure of very thin films of materials. X-rays are useless for such surface and thin film studies. They are so piercing that they go right through the sample without disclosing sought-for information. Electrons—far less piercing—are stopped, scattered and reflected by crystal surfaces and thin films and thus are vitally useful for this type of research.

Only a few weeks ago it was suggested that the methods of electron diffraction might well be used as a potent tool for biological research in studying the very thin films which separate cells of the animal and human body.

Quite independently the two new Nobelists made the same discovery in 1927. Dr. Davisson, who worked jointly with Dr. L. H. Germer, found high speed electrons were scattered by a crystal of nickel. Prof. Thomson, then at the University of Aberdeen, shot low-speed electrons through a screen composed of a film of pure gold, far thinner than the sheerest gold leaf. Drs. Davisson and Germer published first. Drs. Davisson and Germer are shown on the front cover.

Prof. Thomson is son of Sir J. J. Thomson, famous dean of British physicists who in 1906 won the Nobel prize in physics, and who in 1897, just 30 years before his son showed the electron was wave-like, discovered the electron itself, one of the greatest discoveries of all time.

Prof. Thomson was only 35 years old and Dr. Davisson was 46 when they made their discoveries in 1927.

Interviewed over long-distance telephone, Dr. Davisson with scientific caution said that he really should "wait until official notification" before commenting on his honor. He hoped the press would make mention of Dr. Germer's participation in the discovery. And he emphasized the practical application today of what a decade ago was just the demonstration of an interesting phenomenon.

Science News Letter, November 20, 1937

CHEMISTRY

Chemistry Award Goes To Karrer and Haworth

THE 1937 Nobel award in chemistry is shared by Prof. Paul Karrer of the University of Zurich, Switzerland, and Prof. W. N. Haworth of Birmingham University in England.

Prof. Karrer worked out the chemical formula for vitamin A, the growth vitamin found in cod liver oil, butter, carrots and other yellow-colored foods. This vitamin, Prof. Karrer subsequently discovered, is closely related to ionone, the basic material of all violet perfumes. Turning his attention to the next vitamin in the alphabet, Prof. Karrer worked out the formula for vitamin B₂, sometimes called the appetite vitamin because of its appetite-stimulating quality. Under Prof. Karrer's direction a pharmaceutical supply house was able to make synthetic vitamin B₂. American physicians had a chance to see the sixty grains of brownish crystals which then constituted the entire world's supply of this synthetic vitamin at the 1935 meeting of the American Medical Association.

Research on vitamin C, the scurvy-



PROF. PAUL KARRER

One of those honored with Nobel Prize in Chemistry.

preventive, and on the class of chemicals known as carbohydrates, which comprise sugars and starches, was the basis for Prof. Haworth's sharing the Nobel Prize award. A chain of glucose units, arranged as rings, he discovered, make up the cellulose molecule. Cellulose is the principal constituent of wood, cotton, flax and other textiles.

Science News Letter, November 20, 1937

MEDICINE

Medical Nobelist Found Anti-Diabetes Chemical

THE 1937 Nobel prize in physiology and medicine award to Prof. Albert Szent-Gyorgyi, noted biochemist of Francis Joseph University, Szeged, Hungary, will undoubtedly win wide approval in scientific circles because he had been at the forefront of research upon the chemical constitution of the vitamins and other organic chemicals concerned in health and disease.

The award was made "for his discovery of the biological processes of oxidation with special regard to vitamin C and the fumaric acid catalyses."

He was the first to obtain vitamin C or ascorbic acid, as it is known chemically, in crystalline form. Vitamin C is the preventive of scurvy. Only this year he reported the discovery of a new vitamin, christened with the letter P, which is closely related to vitamin C and, like it, is found in lemons and paprika.

A new way of treating diabetes may result from another of Prof. Szent-Gy-