Pioneer of Wave Mechanics Honored

Physics

One of the modern Alices in the wonderland of the lower physics, Duc de Broglie, scientific scion of a proud French family and member of the French Academy by scientific right as he is royalist by inheritance, is wearer of the Nobel laurels for physics for 1929.

In this high award, physicists see a compliment to a new way of looking at the phenomena of light, electricity and other stuff of which the universe is made. For Duc de Broglie was the pioneer in the development of that most modern branch of physics "wave mechanics", which the German physicist, Schroedinger, developed to an even greater extent.

The theory of wave mechanics as propounded by de Broglie and Schroedinger makes the differences between water and radiation a shadowy borderland. An electron, the unit of electricity and the smallest particle of matter, becomes a sort of manifestation of a group of waves, while waves of light or other radiation at times take on the properties of particles. And then at other times matter is best explained as acting like waves of radiation.

All this is disconcerting to those who learned about light, X-rays, and other radiations some years ago when they were considered wave motions. Despite the new wave mechanics, the classical wave theory of radiation accounts for ordinary optical phenomena with satisfaction and for practical purposes it is not thrown overboard. Yet wave mechanics explains some mysteries unsolved by earlier conceptions and therefore the physicist is in the position of having more than one fundamental law. He uses the one that fits best, confident in the hope that future progress will destroy their apparent inconsistencies.

One daring prediction made by Duc de Broglie when he first developed his wave mechanics a few years ago was fulfilled by the discovery of the American physicists, C. J. Davisson and L. H. Germer, that electrons, particles of matter, act like waves in the same sense that light and X-rays are waves.

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Prize for Sugar Studies

Chemistry

Studies of yeasts, sugars and the fermentation of sugars, carried on over many years, won the 1929 Nobel Prize in chemistry for Dr. Arthur Harden and Prof. Hans von Euler.

Dr. Harden, professor of biochemistry in London University and head of the biochemistry department at Lister Institute, has published a book on alcoholic fermentation, besides reports of his many chemical studies, some of which were in the field of vitamins.

Professor von Euler is director of the new biochemical institute of the Stockholm High School, which is really a university, where he has been professor of chemistry for some years. Like Dr. Harden, Professor von Euler has made studies of vitamins also, although his main interest has been in the field of enzymes and sugars. He has published two books on the chemistry of enzymes, besides hundreds of reports of studies conducted alone and in collaboration with others.

The studies of Dr. Harden and Professor von Euler have not heretofore attracted wide attention in this country. They are reported to have found laws which seem to cover the actions of enzymes or catalysts.

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Prize for Thermionics

Physics

The man who discovered the fundamental laws connecting the production of electricity from a hot wire with the temperature of the wire, a phenomenon utilized today by every tube radio set, received the 1928 Nobel prize, just awarded this year. He is Prof. Owen Willams Richardson, director of research in King's College, London, who from 1906 to 1913 was professor of physics at Princeton University in this country.

He is considered father of the branch of physics which he christened "thermionics," which deals with the effect that heat has on matter in generating electrically charged particles, called ions or electrons. While Prof. Richardson's work for which he has received the Nobel prize was done in the interests of the pure advancement of knowledge, his laws find intense practical application in the design of electron tubes now so widely used in radio, the talkies and other applications of physics to industry.

Science News-Letter, November 23, 1929

The first European stood on the brink of the Grand Canyon of the Colorado River eighty years before the Pilgrims landed at Plymouth Rock.