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Jean Baptiste Perrin

Jean Baptiste Perrin was born on September 30, 1870 in Lille, France. He studied at École Normal Supérieure and he became an assistant at school in physics. Perrin started his research on cathode rays and x-rays. He received the degree of *docteur ès sciences* (PhD) because of his thesis on cathode and Röntgen rays. He was also appointed as a lecturer in physical chemistry. Perrin later became a professor at the University of Paris. He won the Nobel Prize for Physics in 1926. He is known for the Brownian motion and the nature of cathode rays.

Jean Baptiste Perrin received the Nobel Prize in Physics for the discovery of the equilibrium of sedimentation and for his work on the discontinuous structure of matter. Perrin's earliest work was on the nature of cathode rays, and he proved that they were negatively charged particles. He also studied the effect of X-rays on the conductivity of gases. Also, he worked on fluorescence, the breakdown of radium, and the transmission and emission of sound. The work that Jean Baptiste Perrin is best known is the study of colloids and the so-called Brownian movement. His results in this field confirmed Einstein's theoretical studies in which it was shown that colloidal particles should obey the gas laws, and hence to calculate Avogadro's number N , which was the number of molecules per grammolecule of a gas. This value then calculated agreed exceptionally with other values attained by entirely different methods in connection with other phenomena such as that found by him as a result of his study of the sedimentation equilibrium in suspensions containing microscopic gamboge particles of uniform size.

Jean Baptiste Perrin was the author of many scientific papers and books. He was a member of the Royal Society (London) and the Academies of Sciences of Belgium, Sweden, Turin, Prague, Rumania, and China. He had honorary doctorates in the Universities of Brussels, Liege, Ghent, Calcutta, New York, Princeton, Manchester, and Oxford. He was appointed a member of the Solvay Committee at Brussels twice in 1911 and in 1921. He was elected to the French Academy of Sciences in 1923. Perrin also became a Commander of the Legion of Honor in 1926, and was made Commander of the British Empire and of the Order of Leopold. He was the creator of the Centre National de la Recherche Scientifique, which is an organization offering a career outside the University to most the promising French scientists. Because of this institute, Frédéric Joliot could carry out his great investigations. In addition to this, Jean Baptiste Perrin founded the Palais de la Découverte also known as the Palace of discovery; he was also responsible for the establishment of the Institut d'Astrophysique, in Paris. The construction of the large Observatoire de Haute Provence would not be there if not for Jean Baptiste Perrin.

In 1908, Perrin started to study Brownian motion, which was the irregular movement of particles that were suspended in a liquid. Einstein's mathematical analysis of this phenomenon proposed that the particles were being moved around by the randomly moving water molecules surrounding them. Perrin carefully observed the method of sedimentation of these particles and provided an experimental confirmation of Einstein's equations using the newly developed ultra microscope. His observations also allowed him to estimate the size of water molecules and the size of atoms along with their quantity in a given value. This was the first time the size of atoms and molecules could be calculated accurately from definite visual observations. Jean Baptiste

Perrin's work helped higher the level of atoms from useful hypothetical objects to observable things whose reality could no longer be denied.

Jean Baptiste Perrin later was an officer in the engineer corps during the 1914-1918 War. He escaped to the United States when the Germans invaded France in 1940. He died there on the 17th of April, 1942. Jean Baptiste Perrin's remains were transported to his country After the War in 1948 and was buried in the Panthéon.

Works Cited

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