1896 and was solely responsible for it until 1927, since which time he has collaborated in its continuation.

In recognition of his services to science, Dr. Bauer was the recipient of many honors. The honorary degree of D.Sc. was conferred on him by the University of Cincinnati and by Brown University. He received the Charles Lagrange prize (Physique du Globe) of the Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique, the Georg Neumayer Gold Medal, and the insignia of Commander of the Second Class of the Norwegian Order of St. Olaf, and was appointed Halley Lecturer at the University of Oxford in 1913. He was also an honorary member of Sociedad Cientifica Antonio Alzate of Mexico, and of Royal Cornwall Polytechnic Society of England, and corresponding member of Göttingen Academy of Sciences, Portugal Royal Academy of Sciences, Batavia Academy of Sciences, Société de Géographie de Lisbonne, Russian Academy of Sciences, and Institute of Coimbra, Portugal.

Dr. Bauer served as United States delegate to the Brussels (1919) meeting of the International Research Council and to the Rome (1922), Madrid (1924) and Prague (1927) meetings of the International Union of Geodesy and Geophysics. During 1919 to 1927 he was secretary and director of the Central Bureau and during 1927 to 1930 he was president of the Section of Terrestrial Magnetism and Electricity of the International Union of Geodesy and Geophysics. Dr. Bauer was a member of the International Meteorological Organization since 1928. He also took from 1917 a prominent part in the National Research Council of the United States and in the American Geophysical Union, being chairman of the latter union from 1922 to 1924.

The breadth of his scientific contacts was indicated also by the large number of scientific societies both at home and abroad of which he was a member. Among these were the American Philosophical Society, American Academy of Arts and Sciences, American Physical Society, American Association for the Advancement of Science, American Geographical Society, Washington Academy of Sciences, Philosophical Society of Washington, Deutsche Meteorologische Gesellschaft and Gesellschaft für Erdkunde zu Berlin.

It is not too much to say that the work of Dr. Bauer has had a large directive influence on the development of terrestrial-magnetic investigation during the past forty years and that the activities of the department which he founded have splendidly realized his vision.

Dr Bauer is survived by his widow, Mrs. Adelia Doolittle Bauer; a daughter, Mrs. Dorothea Weeks, of West Chester, Pennsylvania; a sister, Mrs. Caroline Bauer, of Cincinnati, Ohio, and a brother, Dr. W. C. Bauer, dean of the Engineering School, Northwestern University, Evanston, Illinois.

J. A. F.

WILHELM OSTWALD

WITH the death of Wilhelm Ostwald there passes the last of the great triumvirate which discovered and developed the theory of solutions and the theory of electrolytic dissociation. The younger generation has a different perspective and adds Nernst's name to the list, very properly.

Three of these, van't Hoff, Arrhenius and Nernst, were really great thinkers, and Ostwald was a great protagonist and an inspiring teacher. So far as the effect on the scientific world is concerned Ostwald has been like Abou Ben Adhem. Ostwald has really outlined his own great value to the world in the book entitled "Great Men."

"When the prospective genius has done his great work and has communicated it to the world, one likes to think that he can go quietly to bed and wake up famous the next morning. There are one or two cases in which that is about what has happened, as in the case of Darwin, whose fundamental book was sold out within a few weeks of its appearance. This is a very rare case, however, and belongs rather in a class by itself, because it was a piece of work which had been going on for years and which was written up because of the external reason that Wallace had reached the same general conclusion. Also, the world was to some extent ready for it.

"In the overwhelming majority of cases, the earth continues to revolve at its normal rate even when the most startling thought has been put forward, and very often the work of getting the new idea accepted is scarcely less than that of originating it. In many cases the man who had the idea is not able to get it accepted and this task falls to the lot of another man who may be less clever, but who speaks a language which makes the world conscious of the treasure which had been offered to it in obscure words."

There are plenty of illustrations in modern chemistry of the truth of these words of Ostwald. The theory of stereochemistry was developed independently by van't Hoff in Holland and by LeBel in France; but it is very much of a question whether either of these men could have got the theory accepted in any reasonable time. Nobody will dispute that the work essential to the adoption of the theory was done by Johannes Wislicenus in Germany. The experiments of Pfeffer on osmotic pressure and of Raoult on the lowering of the freezing-point were very interesting; but nobody knew just what they meant. It was van't Hoff who furnished the theoretical explanation which was lacking and who thereby

enabled Raoult and Pfeffer to get the credit which was properly due them. The theory of osmotic pressure was due to van't Hoff, the theory of electrolytic dissociation to Arrhenius, and the modern theory of electromotive force to Nernst; it was Ostwald who fought the battles which resulted in the acceptance of these views. Avogadro was put across by his countryman, Cannizzaro; Gibbs by Roozeboom and by Ostwald; Donnan by Jacques Loeb; and Darwin to a great extent by Huxley.

Ostwald was born in Riga in 1853. In 1872 he entered the University at Dorpat; his first paper was published in 1875 and his doctor thesis in 1878. In 1881 he was appointed professor of chemistry at the Polytechnic in Riga, and here began the publication of the first edition of his "Lehrbuch der allgemeinen Chemie." This was the first book to present physical chemistry as a well-rounded subject, though not under the name that it was to bear later on. This book was one of the reasons why Ostwald was called to Leipzig in 1887 to take over the chair of physical chemistry. In this same year, but before he had moved to Leipzig, Ostwald began the publication of the *Zeitschrift für physikalische Chemie*. The laboratory at Leipzig was at first a ramshackle place; but later a new building was erected. Whether in the old laboratory or the new one Ostwald was the inspiring leader in physical chemistry for the whole world for nearly twenty years. Finally, his mind went stale so far as chemistry was concerned, and he turned to philosophy. It was as a philosopher, not primarily as a chemist, that he came to the World's Fair at St. Louis.

At that time Ostwald was tremendously impressed by the beauty of the autumn leaves and he expressed a desire to paint so many pictures that he would be known as the discoverer of the American landscape. This never happened, nor did Ostwald go back to chemistry after he resigned in 1906. After the philosophy stage had passed Ostwald spent the rest of his life working on the theory of color, and it was a great disappointment to him that the Nobel prize in chemistry was never followed by a Nobel prize in physics for the work on color.

Ostwald's minor activities covered an enormous ground. The volume entitled "The Energetic Imperative" contains his suggestions as to: An international organization of chemists; a universal language; an international coinage; the proper size of a printed page; universal disarmament; the setting of type; the improvement of schools; a new type of university; German script; the development of genius; the status of women, and a new calendar.

Ostwald's gift for leadership showed itself in the way his pupils regarded him. They were literally disciples, and the influence of the Leipzig school was predominant for years in the whole chemical world. Of late years there has been a change. The fashionable thing now is the question of the kinetics of the atom and the molecule. The drift is away from thermodynamics, and one hears regrets that Ostwald did not adopt the goose-step. It is probable, however, that the pendulum has swung too far away from Ostwald and that his scientific work will be rated more highly twenty years hence.

However that may be, Ostwald did a great work and was loved and followed by many people.

WILDER D. BANCROFT

RECENT DEATHS

DR. ROLAND THAXTER, emeritus professor of cryptogamic botany at Harvard University, and honorary curator of the Farlow Herbarium, died on April 22 in his seventy-fourth year.

DR. CARL LEO MEES, physicist, president emeritus of the Rose Polytechnic Institute at Terre Haute, Indiana, died on April 20, at the age of seventy-nine years.

THE death is announced at the age of eighty years of Guillaume Bigourdan, formerly director of the Bureau International de l'Heure, Paris.

J. H. L. VOGT, the geologist and lately professor of geology in the Technical School of Trondhjem, Norway, died on January 3.

PRINCESS VLADIMIR ANDRONIKOFF, head of the Institute for Plant Cultivation at Hohenheim, near Stuttgart, died at Hohenheim on April 1 at the age of fifty-two years.

SCIENTIFIC EVENTS

THE INTERNATIONAL CONGRESS OF MATHEMATICIANS

THE International Congress of Mathematicians will meet at Zurich, from September 4 to 12. The mornings will be devoted to general addresses delivered by invitation, as follows: Monday: R. Fueter, "Idealtheorie und Funktionentheorie"; Tuesday: C. Carathéodory, "Über die analytischen Abbildungen durch Funktionen mehrerer Veränderlicher"; G. Julia, "Essai sur le développement de la théorie des fonctions de variables complexes"; W. Pauli, "Mathematische Methoden der Quantenmechanik"; N. Tschebotarëw, "Die Aufgaben der modernen Galois'schen Theorie"; T. Carleman, "Sur la théorie des équations intégrales linéaires et ses applications"; Wednesday: E. Cartan, "Sur les espaces riemanniens symétriques";