The visiting committee consists of Roger Wolcott, William C. Endicott, Theodore A. Havemeyer, Mrs. L. A. Frothingham, Charles L. Hutchinson, Richard T. Crane, Jr., Henry F. du Pont, Galen L. Stone, Henry S. Hunnewell, Albert C. Burrage, John E. Thayer, Mrs. Harold I. Pratt and Henry H. Richardson.

THE ELECTRON IN CHEMISTRY

SIR JOSEPH THOMSON gave a course of five lectures on "The electron in chemistry" before the Franklin Institute, Philadelphia, during the week of April 9. The topics treated were as follows:

Lecture 1: The atomic theory had little effect on the progress of chemistry as long as nothing was known about the structure of the atom. The discovery of the electron showed that atoms have a structure and gave a clue to its character. The arrangement of the electrons in the atom. Number of electrons in the atom. Electronic isomers. Active nitrogen. Instability of configuration when electrons are too crowded. Eight the maximum number of electrons which can be on the outer layer of an uncharged atom. This result involves a periodicity in the properties of the atoms of the different elements, such as is expressed by Mendeleef. Periodic law. Valency. The size of atoms. Specific inductive capacity. Work required to abstract an electron from an atom. Methods for testing the configuration of electrons in an atom.

Lecture 2: The combination of atoms to form molecules. Physical interpretation of chemical "bonds." Double bonds. Union of two similar atoms to form a molecule. Union of two or more dissimilar atoms. "Positive and negative" valencies. Arrangement of electrons in octets. Comparison with the results of the old valency rules. Stability of systems of octets. Instability chains in octets in general. Stability of CH_2 chains. Polar molecules. Importance of these in chemical reactions. Problem of the water molecule. Arrangement of the electrons in chlorides, chlorates, perchlorates, carbonates, sulphates, sulphites, nitrates, nitrites. Connection between the arrangement of the electrons and the acidic or basic properties of the compound.

Lecture 3: Mechanism of chemical combination. Active molecules. Their occurrence in such reactions as the combination of hydrogen with chlorine or of oxygen with hydrogen. Afford a physical basis for Thiele's theory of partial valencies. "Molecular compounds." "Residual affinity." Double salts. Electron theory gives a physical basis for Werner's coordination theory. Mechanism of electrolytic dissociation. Structure of the ions in liquids. Catalytic action. Variable valency and homologous elements.

Lecture 4: Connection between variable valency and the magnetic properties of the elements. Magnetism of chemical compounds. Magnetism of oxygen. Dia-magnetism affords a method of checking the configuration of the atom and the migration of the electrons in chemical combination. The electron theory of solids. General considerations. Calculation of the energy of a solid.

Lecture 5: The calculation of the electron theory of the compressibility of the elements in a solid state. Critical periods of vibration for solids. Latent heat of evaporation. Compressibility and specific inductive capacity of salts. The structure of metals, salts and insulators. Electrical conductivity of metals.

PRESENTATION OF THE JOHN SCOTT MEDAL AWARDS

THE City of Philadelphia, through its board of directors of city trusts, made the annual presentation of the John Scott Medal Awards at a special meeting of the American Philosophical Society on the evening of April 10. The awards were as follows:

To Sir Joseph Thomson, O.M., F.R.S., master of Trinity College, Cambridge, for his researches on the physics of the electron.

To Francis William Aston, D.Sc., F.R.S., of Trinity College, Cambridge, for his development of the mass-spectrograph and his studies of isotopes; to be received by his Excellency the British Ambassador or his representative, H. C. Chilton.

To C. Eijkman, M.D., of the University of Utrecht, for his researches on dietary diseases; to be received by His Excellency the Minister from the Netherlands.

To Arthur Louis Day, Ph.D., Sc.D., director of the Geophysical Laboratory of the Carnegie Institution of Washington, for his researches on optical glass.

Dr. Hobart A. Hare represented the board. Responses were made by Sir Joseph Thomson, by Mr. H. C. Chilton on behalf of the British Ambassador for Professor Aston, by the Minister from the Netherlands for Professor Eijkman, and by Dr. Day.

The awards are made annually by the City of Philadelphia from the income of the John Scott fund upon recommendation of an advisory committee of five, consisting of representatives from the National Academy of Science, The American Philosophical Society and the University of Pennsylvania. The former body is represented by William B. Scott, of Princeton; Theobald Smith, of Princeton, and Henry H. Donaldson, of the Wistar Institute, Philadelphia; the American Philosophical Society by Samuel M. Vauclain, of Philadelphia, and the University of Pennsylvania by Arthur W. Goodspeed, of Philadelphia.

SCIENTIFIC NOTES AND NEWS

GEORGE LINCOLN GOODALE, professor of botany at Harvard University from 1873 until his retirement as professor emeritus in 1909, president of the American Association for the Advancement of Science, died on April 12, in his eighty-fourth year.

ALICE CUNNINGHAM FLETCHER, assistant ethnologist of the Peabody Museum, Harvard University since 1882 and the holder of the Thaw fellowship of the museum since 1891, has died, aged seventy-seven years.

THE University of Pennsylvania, at a special convocation on April 11, conferred the honorary degree of Doctor of Science on Sir Joseph Thomson, master of Trinity College. Sir Joseph, after concluding his lectures before the Franklin Institute, returned to Engand on April 14 on the *Homeric*.

IN the Paris Academy of Sciences M. Louis Gentil, professor of physical geography at the Sorbonne, has been elected to succeed the late M. Favé. M. Gabriel Bertrand, professor of biological chemistry at the Sorbonne and the Pasteur Institute, has been elected to succeed the late Georges Lemoine.

IT is stated in *Nature* that the Mueller medal and fund have been awarded to Mr. J. H. Maiden, government botanist of New South Wales and director of the Botanic Gardens, Sydney, in recognition of his botanical work. The medal was founded in memory of the late Baron von Mueller, government botanist of Victoria, and is awarded at each meeting of the Australasian Association for the Advancement of Science which this year met at Wellington, New Zealand.

FOUNDERS' Medal of the Royal Geographical Society has been awarded to Knud Rasmussen, the Danish explorer, for his explorations and research in the Arctic in the last twenty-five years.

THE University of Manchester will confer its honorary doctorate of science on Professor Niels Bohr, Copenhagen; Professor F. G. Hopkins, Cambridge; and Mr. W. B. Worthington, president of the Institution of Civil Engineers, 1921-1922.

DR. W. A. MURRILL, supervisor of public instruction at the New York Botanical Garden, with which he has been connected for 20 years, has been awarded a gold medal by the Holland Society of New York, for his distinguished service in the science of mycology. The presentation took place at the meeting of the society in the Hotel Astor on April 6, and was followed by an address by Dr. Murrill on "Fungi and their relation to forestry."

AT the annual meeting of the Chemical Society of Great Britain Professor W. P. Wynne, Firth professor of chemistry in the University of Sheffield and dean of the faculty of pure science, was elected president for the ensuing two years to succeed Sir James Walker, who addressed the meeting on "Symbols and formulae." There were present Professor Henri Le Chatelier, representing la Société Chemique de France, and M. Paul Kestner, representing la Société de Chimie Industrielle.

A NUMBER of chemists of the Northeastern Section of the American Chemical Society entertained at dinner on April 7, at the University Club, Boston, J. C. Irvine, principal and vice-chancellor, University of St. Andrews; F. G. Donnan, professor of physical chemistry, University College, London; Th'e Svedberg, professor of physical chemistry, University of Upssala, and Professor E. C. Franklin, of Stanford University, president of the American Chemical Society.