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.