

CANTOR LECTURES.

Monday evenings, at 8 o'clock (unless otherwise announced) :—

JOHN THEODORE HEWITT, M.A., D.Sc., Ph.D., F.R.S., Emeritus Professor of Chemistry, East London College, "Synthetic Drugs." Three Lectures.

LECTURE I.—DECEMBER 1.—Introductory—Simple aliphatic compounds—Alcohols, Formaldehyde, Paraldehyde—Ketones and derivatives such as Sulphonal—Veronal and other compounds derived from Urea—Non-aromatic cyclic compounds, e.g. the derivatives of Borneol.

LECTURE II.—DECEMBER 8.—Phenol, Salicylic Acid and related substances—Derivatives of aromatic amines and amino-phenols, e.g. Phenacetin—Compounds of heterocyclic structure, Antipyrine, Flavine, etc.

LECTURE III.—DECEMBER 15.—Modified alkaloids, e.g. Heroin, Euquinine—Organic compounds of Arsenic (Atoxyl), Salvarsan), Antimony, Mercury and other metals—Conclusion.

CAPTAIN H. HAMSHAW THOMAS, M.B.E., M.A., F.G.S., Fellow of Downing College, Cambridge, and formerly of the Royal Air Force, "Aircraft Photography in War and Peace." Three Lectures.

LECTURE I.—JANUARY 19.—**The Taking and Production of Aerial Photographs.**—Development of the Aeroplane Camera during the War—Types of Photographs obtained—Dark-room work.

LECTURE II.—JANUARY 26.—**The Employment of Aerial Photographs in War.**—The Interpretation of Photographs—Types of Intelligence furnished—Artillery work—Effects of Air Photography on Strategy.

LECTURE III.—FEBRUARY 2.—**The Use of Aerial Photography in Exploration and Survey in Times of Peace.**—Comparison of a Photograph with a Map—How Maps may be Compiled or Improved—Application to Exploration—Things Concealed and Revealed—Surveys for Special Purposes—Limitations and Future of the Method.

CHARLES FREDERICK CROSS, B.Sc., F.R.S., F.C.S., "Recent Research in Cellulose Industry." Three Lectures.

LECTURE I.—FEBRUARY 16.—**Compound Celluloses.**—(A) Lignocelluloses—(1) Jute: Heart Damage of Baled Jute—Bearings on Problems of Constitution and Formation, and on Industries—Special Treatment of Jute and Jute Fabrics for Decorative and "Useful" Applications. (2) Esparto: As a Special Type of Lignification—New Researches. (3) Woods: Lignification and De-lignification—Relations of Lignone to their "Aromatic" by-products. (B) Cuto-Celluloses, a Special Chemistry of Raffia—The Question of Natural Cellulose Esters, and a Technical Ideal.

LECTURE II.—FEBRUARY 23.—**The Cellulose Industries.**—Cotton Spinning—Investigations of Factors of Process and Qualities of Products—Raw Cotton and (normal) Bleached Cotton—Artificial Silk, Controlled Hydration of Celluloses by Chemical Process and a Critical Re-investigation of Paper-making Processes—Twisted Paper Yarns.

LECTURE III.—MARCH 1.—**Cellulose and Derivatives.**—Nitrates—Acetates—Progress of Research and Industry—Specific Volumes of Cellulose and Hydrates—Data of Fundamental Importance, Scientific and Industrial—The Problems of Constitution.

WALTER ROSENHAIN, B.A., D.Sc., F.R.S., Superintendent, Department of Metallurgy and Metallurgical Chemistry, National Physical Laboratory, "Aluminium and its Alloys." Three Lectures.

LECTURE I.—APRIL 12.—Production of Aluminium—Raw Materials—Purification—Reduction Process—Purity Attainable—Deleterious Impurities—Properties of Pure Aluminium in the Cast and Rolled State—Uses of Pure Aluminium—Its Advantages and Defects.

LECTURE II.—APRIL 19.—Aluminium Alloys—Combination of Strength and Lightness—"Specific Tenacity"—Alloys with Copper, with Zinc, and with Zinc and Copper—Constitution, Micro-structure and Physical Properties in Cast and Wrought States—More Complex Alloys—Containing Magnesium—Limitations to the Use of Magnesium—"Hardening" Alloys.

LECTURE III.—JUNE 7.—Special Uses of Aluminium Alloys—Castings for Automobile and Aeroplane Parts—Castings for Aero-engines—Pistons and Piston Alloys—Properties at High Temperatures—Automobile and Aero-cylinders—Other Engine Parts—Structural Uses—Rigid Airships, Aeroplane Spars and Wing-coverings—Possible Future Developments.

ARTHUR THOMAS BOLTON, F.R.I.B.A., F.S.A., Curator, Soane Museum, "The Decoration and Architecture of Robert Adam and Sir John Soane, 1785-1837." Three Lectures.

LECTURE I.—MAY 3.—The First Lecture deals with the general position in English Architecture at the time of Robert Adam's return from Italy in 1758, and describes the revolution of taste that he brought about. The leading ideas of his scheme of architecture and decoration, now known as the Adam style, are fully discussed.

LECTURE II.—MAY 10.—The Second Lecture continues the subject in greater detail through a selection from the most characteristic works by Robert Adam, dealing more particularly with the interiors and decoration of his famous houses.

LECTURE III.—MAY 17.—The Third Lecture is devoted to Sir John Soane and traces his relations to the movement begun by Robert Adam and to the Greek and Mediaeval Revivals. Soane's ideas on architecture and decoration are discussed in relation to his more important works. In conclusion, it is pointed out that three-quarters of a century is covered by the work of Robert Adam and John Soane.

JUVENILE LECTURES.

Wednesday Afternoons, January 7 and 14, 1920, at 3 o'clock :—

LOUGHNAN PENDRED, M.I.Mech.E., Editor of the *Engineer*, "Railways and Engines."