

Things Series.) (London and New York: A. Melrose, Ltd.) 6s. net.

Human Embryology and Morphology. By Sir A. Keith. Fourth edition, revised and enlarged. Pp. viii+491. (London: E. Arnold.) 30s. net.

The National Physical Laboratory: Report for the Year 1920. Pp. 132. (London: H.M. Stationery Office.) 5s. net.

Espace, Temps et Gravitation: La Théorie de la Relativité généralisée dans ses Grandes Lignes. By Prof. A. S. Eddington. Ouvrage traduit de l'Anglais by J. Rossignol. Pp. xii+262+iv+149. (Paris: J. Hermann.) 28 francs.

Liverpool Marine Biology Committee. Memoirs on Typical British Marine Plants and Animals. No. xxiv.: *Aplysia*. By Nellie B. Eales. Pp. viii+84+7 plates. (Liverpool: University Press.) 4s. 6d.

Memoirs of the Geological Survey. Special Reports on the Mineral Resources of Great Britain. Vol. xviii.: Rock-Salt and Brine. By Dr. R. L. Sherlock. Pp. vi+123+2 plates. (London: E. Stanford, Ltd.; Southampton: Ordnance Survey Office.) 5s. net.

Some Wemba Words: Some Meanings and Explanations. By E. B. H. Goodall. Pp. 140. (London: Oxford University Press.) 7s. 6d. net.

The Treaty Settlement of Europe: Some Geographic and Ethnographic Aspects. By Prof. H. J. Fleure. (The World of To-Day.) Pp. 83. (London: Oxford University Press.) 2s. 6d.

Diary of Societies.

THURSDAY, JUNE 30.

INSTITUTION OF CIVIL ENGINEERS (Engineering Conference), at 10 a.m.—W. W. Grierson: The Use of Reinforced Concrete on Railways.—H. J. Fereday: Impact Tests and Allowances.—A. H. Hall: The Influence of the Automatic and Semi-automatic Machine on the Skill and Resourcefulness of the Mechanic and Operator.—A. Musker: Mechanical Appliances and Labour in Loading and Unloading Ship's Cargoes.—Prof. W. E. Dalby: The Elastic Limit.—Prof. E. G. Coker: The Effect of Scratches in Materials.—C. P. Sandberg: Damage to Tires and Rails caused by Brakes or Slipping Wheels.—G. Hatton: The Existing Practice of Inspecting Work and Materials.—M. E. Denny: The Design of Fabricated Ships from the Labour-saving Point of View.—J. C. Telford: Economy of Labour on Shipbuilding as effected by Fabricated Ships, etc.—E. R. Mumford: Recent Tank Research in Screw Propellers.—E. H. Richards and M. G. Weekes: Straw Filters for Sewage-purification.—J. Haworth: Activated Sludge.—J. D. Watson: De-watering Sludge.—J. Dalziel: Battery Locomotives.

INSTITUTION OF MECHANICAL ENGINEERS, at 10.15 a.m.—Conference on the Means of Improving the Thermal Efficiency of Heat Power Plants.—H. E. Wimperis: Internal-combustion Engine Theory, with relation to Higher Economy.—F. Samuelson: High Steam-Pressure and other Means of increasing Economy of Steam-Engines.—E. V. Evans: Chemistry of Combustion.—A. Hutcheson and F. Bainbridge: Blast-Furnace Gases.—D. Wilson: Boiler-house Management (General Causes of Boiler Inefficiency).—Prof. W. A. Bone: Low Temperature Carbonisation.—H. Dunell: Engine-house Management (General Causes of Steam-Engine Inefficiency).—A. E. L. Chorlton: Super-Compression.

ROYAL SOCIETY, at 4.30.—Sir J. J. Dobbie and Dr. J. J. Fox: The Absorption of Light by Elements in a State of Vapour. The Halogens.—Prof. W. A. Bone and the late W. A. Haward: Gaseous Combustion at High Pressures. Part II. The Explosion of Hydrogen-Air and Carbon-monoxide-Air Mixtures.—Prof. A. E. H. Love and F. B. Pidduck: Lagrange's Ballistic Problem.—J. Proudman: The Principles of Internal Ballistics.—R. H. Fowler: A Simple Extension of Fourier's Integral Theorem and Some Physical Applications in particular to the Theory of Quanta.—Capt. D. Brunt: The Dynamics of Revolving Fluid on a Rotating Earth; and other papers.—The following papers will be read in title:—Takeo Shimizu: A Preliminary Note on Branched α -ray Tracks.—Takeo Shimizu: A Reciprocating Expansion Apparatus for detecting Ionising Rays.—Prof. R. W. Wood: The Time Interval between Absorption and Emission of Light in Fluorescence.

FRIDAY, JULY 1.

INSTITUTION OF CIVIL ENGINEERS (Engineering Conference), at 10 a.m.—R. G. H. Clements: Road Vehicles and their Relation to Road Surfaces.—A. Dryland: Advantages of Bituminous Macadam.—C. H. J. Clayton: The Conservancy and Maintenance of Rivers from the Point of View of Land Drainage.—R. F. Grantham: The Effect of Sluices and Barrages on the Discharge of Tidal Rivers.—G. E. W. Cruttwell: The Utility of Models for Estuarial Experiments.—H. C. Reid: The Relative Advantages of Dredging and Training-walls in Estuaries.—E. Latham: The

Use of Inertia Gauges in Pile Driving.—A. L. Ball: The Bearing Power of Soils.—Sir James McKechnie: Internal-combustion Engines with Large Cylinders.—Sir Vincent L. Raven: The Mechanical Advantages of Electric Locomotives compared with Steam.—T. Crook: The Effect of the War on Mineral Supplies.—M. Deacon: The Utilisation of Exhaust Steam in Turbines.—W. U. Mountain: Steam versus Electric Winding.—S. Copper-Coles: The Relative Values of Protective Metallic Coatings for Iron and Steel.—J. Richardson: Recent Progress in Large Diesel Engines for the Mercantile Marine.—R. J. Walker and S. S. Cook: Experience with Marine Turbine Reduction-gears.—E. Sandeman: Compensation Water.—F. W. Macaulay: Pipes for Pressure Conduits.—Dr. H. Lapworth: The Relation of Run-off to Rainfall.—Economic Limits of Distribution from Coal-fired Stations.—B. Welbourn: Low-voltage Overhead Distribution.

INSTITUTION OF MECHANICAL ENGINEERS, at 10.30 a.m.—Conference on the Means of Improving the Thermal Efficiency of Heat Power Plants.—R. Nelson: Waste-Heat Utilisation.—Sir Henry Fowler: Superheating.—Dr. W. R. Ormandy: Liquid, Colloidal, and Powdered Fuels.—H. Moore: Liquid Fuels (Internal-combustion Engines).—A. W. Bennis: Automatic Stokers.—W. H. Patchell: Air Heating for Boiler Furnaces.—O. E. Stromeyer: Feed-Heating and Economisers.—Prof. W. E. Dalby: The Indicator as an Aid to Economy.

GEOLOGISTS' ASSOCIATION (in Architectural Theatre, University College), at 7.30.—H. Bury: Some High-level Gravels of North-East Hampshire.

MONDAY, JULY 4.

ROYAL BOTANIC SOCIETY OF LONDON, at 3.—Prof. A. R. Bickerton: The Generic Simplicity and Great Importance of Basic Principles in all Scientific Work. (1) The General Graphics of Science.

ROYAL INSTITUTION OF GREAT BRITAIN, at 5.—General Meeting.

ARISTOTELIAN SOCIETY (at University of London Club, 21 Gower Street), at 8.—Dr. F. C. S. Schiller: Arguing in a Circle.

WEDNESDAY, JULY 6.

ROYAL SOCIETY OF MEDICINE (Annual General Meeting), at 5.—Presentation of Gold Medal to Sir Amroth Wright.

THURSDAY JULY 7.

MEDICO-LEGAL SOCIETY (Annual General Meeting) (at 11 Chandos Street, W.1), at 8.30.—Prof. A. Louise McIlroy: Some Factors in the Control of the Birth-rate.

CONTENTS.

	PAGE
American and British Superannuation Systems	545
Lord Rayleigh's Scientific Papers	546
Studies of British Mammals	547
Forestry in France	548
Our Bookshelf	549
Letters to the Editor:—	
Co-operative Indexing of Periodical Literature.—	
Dr. F. A. Bather, F.R.S.; Prof W. M. Flinders Petrie, F.R.S.; Dr. John W. Evans, F.R.S.; Arthur Percival Newton; Stephen Gaselee, C.B.F.	550
W. Warde Fowler: A Personal Appreciation.—	
H. E. A.	551
Ionisation Potential and the Size of the Atom.—Prof. A. S. Eve	552
A Novel Magneto-Optical Effect.—Sir Oliver Lodge, F.R.S.	553
Helicopters.—A. Mallock, F.R.S.	553
A Physical Interpretation of the Energy Quantum.—	
Ian Aucken	553
University Statistics of the United Kingdom, 1919-20	554
Protective Measures against X-rays and Radium	557
Cosmogony and Stellar Evolution. I. (Illustrated.)	
By J. H. Jeans, Sec. R.S.	557
Obituary:—	
Dr. A. M. Kellas	560
Notes	561
Our Astronomical Column:—	
Occultation of Venus	566
The Total Amount of Starlight	566
Periodicity of Variable Stars	566
Royal Sanitary Institute: Folkestone Congress, June 20-25	567
The Importance of Research in the Development of the Mineral Industries. By Sir Richard Redmayne, K.C.B.	568
The Genetics of Sex. By Prof. R. Ruggles Gates	571
University and Educational Intelligence	572
Calendar of Scientific Pioneers	573
Societies and Academies	573
Books Received	575
Diary of Societies	576