Early Science at the Royal Society.

November 9, 1664. Sir Anthony Morgan promised to draw up a report concerning his majesty's power to give a grant of Chelsea College [Referring thereto, Oldenburg wrote: "Our council is now pressing to have an end of Chelsea College, which we doubt not will prove good; in which case Mr. Howard will be the society's gardiner, without admitting of any competitor, and Dr. Wilkins the weeder"].

1681. The Society was acquainted that Mr. Hodges was in a short time going to the East-Indies to reside at Haukly, upon the river Ganges; and that he was very ready to serve the Society in what he was able in that place.

November 11, 1663. Sir Robert Moray presented from prince Rupert to the Society an instrument of his highness's invention for casting any platform into perspective. It was ordered that the president, Dr. Wilkins [and others] wait upon the prince on the Friday following, and return him the humble thanks of the Society; and to shew him an instrument of Dr. Wren's invention for casting any natural object into perspective. Mr. Hooke suggesting that additions might be made to the invention, so that it might incline and recline, and be fitted to draw likewise solid bodies in perspective, and to describe all kinds of dials, was desired to bring in these additions. In the meantime it was ordered, that the prince's instrument should remain simple, as it was then, without any alteration thereon.—Sir Robert Moray mentioned a new use to be made of thermometers, viz., to know by their help the degrees of heat in a man's body in fevers, etc., by putting it into a man's hand, or mouth, or urine, etc. The physicians present conceived that there would be little certainty in it.

November 12, 1662. Dr. Charlton promised to provide a pike against the meeting for dinner, in order to show every sound tooth moveable.

1668. Mr. Oldenburg read a letter from Monsr. Huygens, in answer to what he had lately written to him by order of the Society, desiring him that if he did not think fit to print what he had discovered on the subject of motion, he would impart to them his theory of it, together with such experiments, as he grounded his theory upon. Monsr. Huygens' answer was, that he was ready to communicate to the society those rules and theorems, which he had found out in all the species of motion.

November 13, 1672. Mr. Locke being called upon for his sulphur-ball, which he promised at the last meeting to produce at this, excused himself, that he had forgot it, promising to bring it at the next.

November 14, 1666. Sir Robert Moray produced a loadstone digged up in England in Devonshire, brought from thence by the sons of Sir William Stroud for the king; which was committed to Mr. Hooke for the repository.

1678. Dr. King upon occasion of discoursing of pearls and bezoar-stones related, that he had often found pearls in the stomach of an oister; and conceived them to be generated as the bezoar-stones in the stomach of a goat.

November 15, 1682. There was a discourse with regard to great age. Mr. Hooke took notice of what Sir Christopher Wren had formerly acquainted the Society, that the people at Hudson's Bay commonly live to 120 or 130 years of age; and till that age are very lusty, and commonly go to hunting, which, when they are no longer able to do, they usually invite all their kindred, and lie down and resign themselves to be strangled by the eldest of those, who survive, and who takes the care of government in his father's stead.

Societies and Academies.

LONDON.

Royal Microscopical Society, October 15.—R. S. **Clay** and T. H. **Court**: The development of the Hooke microscope. After referring to the description of Hooke's original instrument in his justly famous "Micrographia" (1665) and to the account given by Sturm in his "Collegium Curiosum" (1776) of his experiments with an English Hooke microscope which had been lent to him, attention was directed to the important improvement of the instrument due to Helvelius and described by him in his "Machina Coelestis" (1673), namely, the screw fine-adjustment. All previous writers ascribed this addition to Marshal, whose celebrated instrument is first described in Harris' "Lexicon Technicum" (1704) (though it had almost certainly been constructed and used so early as 1693). The failure of earlier writers to mention the important share which Helvelius had in the development of the microscope is most probably due to the extreme rarity of the "Machina Coelestis."

PARIS.

Academy of Sciences, October 16.—M. Guillaume Bigourdan in the chair.—A. **Lacroix**: Short account of the second general meeting of the International Geodesic and Geophysical Union, held at Madrid on October 1-8.—Charles **Rabut**: Scientific rules for the reinforcement of constructions in masonry.—Paul **Montel**: Complex families.—Maurice **Gevrey**: Certain linear integro-differential equations of the second order.—André **Bloch**: A theorem of M. Borel and a generalisation of the Picard-Landau theory.—E. M. **Antoniadi**: Some changes recently observed on Mars with a telescope of 83 cm. aperture, at Meudon Observatory. These changes are shown on reproductions of eight drawings taken at different dates.— — **Lyot**: The polarisation of the planet Jupiter.—R. **Dugas**: A system of points of variable mass.—Louis de **Broglie**: A theorem of M. Bohr.—W. P. **Allis**: The damping of the oscillations of a Hertzian resonator. The decrement of the free oscillations of a resonator is the sum of two terms, one of which corresponds to the Joule effect, the other, δ_H, to the radiation. It is shown experimentally that δ_H is inversely proportional to the square of the wave-length.—C. **Marie** and G. **Lejeune**: The influence of colloids on the cathode overvoltage of hydrogen and metals.—René **Audubert**: Photovoltaic phenomena. Details of experiments on the effect of light on the electromotive force of cells the electrodes of which consist of metals carrying a skin of another substance, such as copper oxide, copper bromide, silver chloride, silver sulphide.—Henri **Lafuma**: The corresponding temperatures of solid bodies. Discussion of a recent communication by M. Brodsky on the same subject.—M. **Bourguel**: A general method for the preparation of true acetylenic hydrocarbons. The acetylene hydrocarbon ($R . C{\equiv}CH$) taken as a starting-point is converted into its sodium derivative (by sodium amide), methylated with methyl sulphate. The resulting hydrocarbon, $R . C{\equiv}C . CH_3$, by heating with sodium amide, is converted into the sodium derivative of the isomer $R . CH_2 . C{\equiv}CNa$; this gives readily the hydrocarbon $R . CH_2 . C{\equiv}CH$, the next higher homologue of the original $R . C{\equiv}CH$. The yields are high, and details of the application of the method to cyclohexylpropine are given.—E. **Caille** and E. **Viel**: Transformation of the iodostibinates of nitrogenous organic bases into crystallised iodomercurates.—de la

Condamine: The estimation of carbon monoxide in industrial gases. Comparative analyses with ammoniacal cuprous chloride, acid cuprous chloride, and the Damiens cuprous sulphate reagent.—Alfred **Schoep**: Dumontite, a new radioactive mineral. This new mineral is found as an enclosure in cavities in tobernite from the Belgian Congo. It is a hydrated lead uranyl phosphate.—G. **Rempp** and J. **Lacoste**: New study on the daily variation of the direction of the wind at Strasbourg.—Maurice **Lenoir**: The nucleus of the mother cell of the embryonic sac in *Fritillaria imperialis* observed during its prosynoptic evolution.—Mme. L. **Randoin** and H. **Simonnet**: The food equilibrium. Maintenance of the pigeon by means of a food regime entirely lacking the water soluble factor. — Charles **Henry**: The radiation of homeotherms and the calculation of nervous sensibilities.—Marcel **Duval**: The amount of sodium chloride in the blood of some marine invertebrates. Contrary to current views, the blood of certain marine invertebrates, particularly crustaceans, contains sodium chloride in slightly lower concentration than the external medium. As the blood and the surrounding sea-water are isotonic, it is probable that the deficiency in the osmotic pressure of the former is made up by the presence of organic substances.—Paul **Fleury**: The laws of action of laccase: influence of the reaction of the medium.—R. **Anthony** and Mlle. F. **Coupin**: A rhinencephalic convolution peculiar to certain carnivora: the *gyrus transversus areæ piriformis*. — E. **Hubault**: The presence of *Liponeura cinerascens* and of *L. brevirostris* in the upper valley of the Meurthe.

WASHINGTON.

National Academy of Sciences (Proc. Vol. 10, No. 8, August).—P. S. **Epstein**: On the simultaneous jumping of two electrons in Bohr's model. A new series in the arc spectrum of calcium ($1p - mp_1$), attributed to the simultaneous jumping of two electrons, has been discovered by H. N. Russell and F. S. Saunders. This condition can be accounted for on the principle of correspondence provided that there is coupling of electrons within the atom.—J. A. **Becker**: The Compton and Duane effects. The two effects may be distinct and their appearance or non-appearance may depend on the intensity of radiation. Using an aluminium crystal as the secondary radiator, the Compton effect (quantum shift) was obtained, and on decreasing the intensity and increasing the time of exposure of the photographic plate, the Duane shift (tertiary radiation) appeared faintly. An additional note states that measurement of the total intensity of scattered radiation in circumstances including both effects has shown that, contrary to expectation, it is proportional to the primary radiation.—E. B. **Wilson**: Coulomb's law and the hydrogen spectrum. Working from the simple equations for force, quantum condition, frequency condition, spectral law and energy, for the electron moving in a circular orbit, it is shown that either Coulomb's law holds, or the law of inverse cubes, involving a quantised force and potential energy, but with no restriction as to the size of the orbit.—Carl **Barus**: Density and diffusion measurement by displacement interferometry in extreme cases. Very high values were obtained for hydrogen; it appears that there is a static error, referred temporarily to the surface tension of the mercury in the gauge.—L. B. **Loeb** and M. F. **Ashley**: Ionic mobilities in gaseous mixtures. The behaviour of ions in gases has been ascribed to two causes: the clustering of neutral molecules about a charged molecule (cluster ion theory); and the attractive forces of a single charged molecule on surrounding neutral molecules (small ion theory). Experiments on carefully prepared ammonia give results which, when related to the concentration of ammonia, are intermediate between what might be expected from the "cluster" and from the "small" ion theories. They are in accord with the hypothesis that mobility varies inversely as the square root of the molecular weight of the gas multiplied by the dielectric constant minus one. This modification of Kaufmann's law can be derived from Sir J. J. Thomson's equations for the mobility of ions.—R. L. **Moore**: Concerning upper semi-continuous collections of continua which do not separate a given continuum.—George E. **Hale**: The spectrohelioscope (see NATURE, Oct. 25, p. 628).—M. T. **Bogert** and J. J. **Ritter**: The constitution of the so-called "Pechmann dyes," and the mechanism of their formation from *beta*-benzoylacrylic acid. These highly coloured dyes, discovered by von Pechmann more than forty years ago, have the same percentage composition as naphthaquinones, but their constitution is different. *Beta*-benzoylacrylic acid seems to be transformed to the enolic form, which then loses water and condenses to a dilactone containing the indigo chromatophore.

Official Publications Received.

Western Australia: Geological Survey. Bulletin No. 89 (revised and amended edition of Bulletin No. 50): The Geology and Mineral Industry of Western Australia. By A. Gibb Maitland and A. Montgomery. Pp. 119. (Perth: Fred. Wm. Simpson.)

U.S. Department of Agriculture: Bureau of Biological Survey. North American Fauna, No. 47: Revision of the American Pikas (Genus Ochotona). By Arthur H. Howell. Pp. iv+57+6 plates. (Washington: Government Printing Office.) 15 cents.

The Rockefeller Foundation. Annual Report, 1923. Pp. xiii+389. (New York: 61 Broadway.)

Sultanic Agricultural Society: Technical Section. Bulletin No. 13: Experiments on the Spacing of Crops. By James Arthur Prescott. Pp. 64. Bulletin No. 14: The Effect of Water on the Cotton Plant; an Account of Experiments conducted at Bahtim on the Irrigation of Cotton. By James Arthur Prescott. Pp. 68. (Cairo.)

Department of Commerce: Bureau of Standards. Scientific Papers of the Bureau of Standards, No. 491: Theory of Determination of Ultra-Radio Frequencies by Standing Waves on Wires. By August Hund. Pp. 487-540. (Washington: Government Printing Office.) 15 cents.

University of California Publications in American Archæology and Ethnology. Vol. 21, Nos. 1 and 2: The Uhle Collections from Chincha, by A. L. Kroeber and William Duncan Strong; Explorations at Chincha, by Max Uhle. Pp. 94+24 plates. (Berkeley, Cal.: University of California Press.) 1.60 dollars.

Bulletin of the National Research Council. Vol. 9, Part 1, No. 48: Critical Potentials. By K. T. Compton and F. L. Mohler. Pp. 125. (Washington, D.C.: National Academy of Sciences.) 1.60 dollars.

Ministry of Agriculture, Egypt: Technical and Scientific Service. Bulletin No. 30 (Botanical Section): A Banana Disease caused by a Species of Heterodera. By Tewfik Fahmy. Pp. ii+11+9 plates. 5 P.T. Bulletin No. 38: A Multiple Temperature Incubator. By C. B. Williams and T. W. Kirkpatrick. Pp. iv+9. 3 P.T. (Cairo: Government Publications Office.)

Ceylon Journal of Science. Section B: Zoology and Geology. Spolia Zeylanica. Vol. 13, Part 1, September 16th. Pp. 141. (Colombo: Colombo Museum; London: Dulau and Co., Ltd.) 3 rupees.

University of California Publications in American Archæology and Ethnology. Vol. 17, No. 5: Nabaloi Tales. By C. R. Moss. Pp. 227-353. 1.75 dollars. Vol. 17, No. 6: The Stege Mounds at Richmond, California. By Llewellyn L. Loud. Pp. 355-372+2 plates. 35 cents. (Berkeley, Cal.: University of California Press.)

Report of the Aeronautical Research Institute, Tōkyō Imperial University. Vol. 1, No. 8: Kinematographic Study on Aeronautics. By Kwan-ichi Terazawa, Kichisuke Yamazaki, and Yūzō Akishino. Pp. 213-224+plates 16-18. (Tōkyō: Maruzen Kabushiki-Kaisha). 1 Yen.

Auxiliary Tables of the Survey of India. Fifth edition. Revised and extended by Dr. J. de Graaff Hunter. Part 1: Graticules of Maps. Pp. 25. 1 rupee; 2s. Part 2: Mathematical Tables. Pp. xiii+89 2 rupees; 4s. Part 3: Topographical Survey Tables. Pp. xxi+52 1.8 rupees; 3s. (Dehra Dun: Trigonometrical Survey.)

Bernice P. Bishop Museum. Bulletin 10: Report of the Director for 1923. By Herbert E. Gregory. Pp. 38. Bulletin 11: Vocabulary of the Mangaian Language. By F. W. Christian. Pp. 31. Bulletin 12: The Island of Lanai; a Survey of Native Culture. By Kenneth P. Emory. Pp. 129+11 plates. Bulletin 13: Bibliography of Polynesian Botany. By E. D. Merrill. Pp. 68. Bulletin 14: The Characters and Probable History of the Hawaiian Rat, by Gerrit S. Miller, Jr.; Ectoparasites of some Polynesian and Malaysian Rats of the Genus Rattus, by H. E. Ewing. Pp. 11. (Honolulu, Hawaii.)

Memoirs and Proceedings of the Manchester Literary and Philosophical Society, 1923-24. Vol. 68. Pp. 148 + xxxvi + vii. (Manchester: 36 George Street.) 12s.