Early Science at the Royal Society.

July 17, 1661. Sir Paul Neile having mentioned, that the king had, within four days past, desired to have a reason assigned, why the sensitive plants stir and contract themselves upon being touched; it was resolved, that Dr. Wilkins, Dr. Clarke, Mr. Boyle, Mr. Evelyn, and Dr. Goddard, be curators for examining the fact relating to those plants.

July 20, 1664. Notice being given, that some ships were ready for Guinea, it was desired, that such, as had inquiries to be made in those parts, might prepare them against the next meeting.

1687. Mr. Hooke shewed the experiment of vibration of the rods, as a pendulum, which was by suspending a large Indian-cane of about thirty feet long by two pack-threads about eight feet in length: by which it was plain how the weight of such rods or poles for communication of traction or pulsion at a distance might not only be made to move freely and with ease, but also be in the nature of a sway. The same thing was also tried with a large scaffold-pole of about forty feet long.

July 22, 1663. Sir Robert Moray mentioned, that the king had made an experiment of keeping a sturgeon in fresh water in St. James's Park for a whole year: it was moved to kill it, and to see how it would eat.—He related that prince Rupert had made a new kind of gunpowder, in strength so far exceeding the best English powder, that trial being made with a powder-trier, it was found to be in the proportion of 21 to 2. It was desired, that a trial of it might be made before the society.

1669. The society being made acquainted by Mr. Oldenburg, that Mr. Edward Diggs intended to go shortly to Virginia, and offered his services for philosophical purposes; it was ordered that the inquiries formerly drawn up for that country should be recommended to him.

July 23, 1662. The amanuensis was ordered to translate from the French Monsieur Huygen's letter to Sir Robert Moray, dated at the Hague, July 14, 1662, containing some objections to some parts of Mr. Boyle's "Defence of the doctrine touching the spring of the air" against Franciscus Linus and Mr. Hobbes.

1684. Upon a complaint of Mr. Flamstead, that he had been reflected upon by Mr. Hooke in the minutes of the society, it was ordered that a line should be drawn through the places complained of, and that there should be written on the side, "cancelled by order of council": and that the journal-book should be brought to the next meeting of the council, who should see it done.

July 24, 1679. Mr. Haak produced a book intitled "Propositions of Optic Glasses," printed at the theatre at Oxford. Mr. Hooke who had read somewhat of the book, said, that he had not found anything in it, which was new, and that it contained some propositions about the place of the image, which were not true: that it came far short of the theory of optics now well known, which he conceived to have been first well understood by Kepler, and highly improved by Des Cartes.

July 25, 1667. The experiment of opening the thorax of a dog made at the last meeting not having succeeded, it was ordered to be made again at the next; and Dr. King was desired to bring in writing an account of that whole operation, though it failed.

July 26, 1682. Dr. Grew read a letter from Dr. Coga, Vice-chancellor of the university of Cambridge, wherein he mentioned, that Hevelius's last book was not to be found in that university.

Societies and Academies.

LONDON.

Physical Society, June 13.—Mr. F. E. Smith in the chair.—G. E. **Bairsto**: On a method for the synchronous and instantaneous illumination of objects rotating or vibrating at very high speeds. It is capable of giving instantaneous photographic records, and gives a precision of the order of half a microsecond. It is much more precise and able to give a more intense spark than any contact breaker and coil method.—E. A. **Owen**, N. **Fleming**, and Miss W. E. **Fage**: The absorption and scattering of γ-rays. The absorption and scattering of γ-rays from radium filtered through 23 mm. of lead have been measured in magnesium, aluminium, zinc, tin, and lead. Assuming that the mean effective wave-length of the radiation employed is 0·021 Å, the experimental results are consistent with the following statements: (i.) When γ-rays traverse matter, the characteristic radiations of the absorbing medium are excited; (ii.) the atomic fluorescent absorption coefficient of γ-rays depends upon the wave-length of the incident radiation and the atomic number of the absorber according to the law $\tau/\rho.\omega = K\lambda^3 N^4$, which holds for X-rays; (iii.) the radiations which accompany this fluorescent absorption are the characteristic radiations of the K, L, M, . . . series of the absorbing elements; (iv.) the absorption of γ-rays in light elements is due almost entirely to scattering; (v.) the pure atomic scattering absorption coefficient is proportional to the atomic number of the absorber; (vi.) in addition to fluorescent and scattering absorption, a true absorption exists, the atomic coefficient of which is proportional to the atomic number. Compton's formulæ would account for the experimental results if the wave-length of the incident radiation were 0·020 Å. Jauncey's formulæ would require the wave-length to be 0·029 Å.—W. N. **Bond**: The flow of compressible fluids, treated dimensionally. The method of dimensions treatment that is applicable to the pressure gradient at a point in a system through which non-compressible fluids of finite viscosity are passed, is extended by means of the thermo-dynamical equations for gas flow to the case where appreciable changes in density of the fluid occur, but where no heat passes across the walls of the system. The theory is developed in detail only for the case of flow through a straight parallel-walled tube, and has been tested by experiments in which water and air at high velocities pass through small tubes. The air in some experiments had a velocity of more than two-thirds of the velocity of sound in the air. Errors due to moisture, pulsating flow, heat conduction through the walls, and proximity to the entrance to the tube are small; an error of moderate amount is attributed to the partial neglect of the variation of the variables over the transverse section of the tube.—D. B. **Deodhar**: Note on Israj, a remarkable Indian stringed instrument.

Aristotelian Society, June 16.—Prof. T. Percy Nunn, president, in the chair.—A. D. **Lindsay**: Sovereignty. The theory of sovereignty is the storm-centre of political theory. For one school it is inherent in the very conception of government, for another it is nothing but a stone of stumbling, an anachronistic theory to be got out of the way as the essential preliminary to any solution of social questions. Austin approaches the doctrine of sovereignty with the purpose of defining law. Law is essentially a command and depends therefore on a distinction between the sovereign and the subjects. The originality of his theory is that he gives up all attempts to derive the