Early Science at Oxford.

February 8, 1683–4.—Mr. Desmasters gave us a farther account of ye expansion of Ice. He told us, that whereas the water he made use of lately (in some experiments of this kind, mention'd in the preceeding Minutes) was a sort of rough pump-water, which he has found turn milky and turbid immediately upon ye affusion of oyl of tartar *per Deliquium*; and considering also, that ye Ice made of this Water was a sort of rarified white Ice, he was hereby inclined to try, whether River water (which would readily mix with oyl of Tartar, without ye least precipitation) would, upon freezing, be expanded to ye height of ye pump-water above mentioned. In order whereunto, he fill'd a glass tube of almost an inch diameter, with river water, to ye height of 6 inches (as he had done in ye former triall,) and then putting it to freeze in a mixture of snow, and salt, it gained but $\frac{5}{8}$ of an inch, after it was frozen; whereas ye pump-water got $\frac{7}{8}$ of an inch.

Dr. Plot shew'd us some *Rosemary balls*, which are of ye nature of Mr. Lister's Rust-balls, and were dug in Staffordshire, where they lye in lumps, in some of their Marl-pits. Part of this stone apply'd to ye Magnet, after an hour's calcination.

A letter from my Lord Bishop of Ferns and Leighlin, mentioned a discourse of his Lordship's, preliminary to ye Doctrine of Sounds included in his letter. We received also a discourse from Mr. William Molyneux, concerning an optical Problem, which was read, and transmitted to ye Royal Society; Mr. Bernard is desired to peruse, and consider it, as soon as it shall be returned from ye Royal Society, and give his thoughts of it to ye company.

February 9, 1685–6.—An Abstract of ye book of Fishes composed by Mr. Willoughby and Mr. Ray, printed by ye Royal Society, was read.—Mr. Cole of Bristol communicated an account of his observations on ye Purple Fish, for which the thanks of the Society were ordered.

February 10, 1684–5.—A Letter from Mr. Aston, dated Feb. 2, was read. It affirm'd (among other things) *That mortar is always without hair*; of ye truth of which we must own our selves not as yet satisfied.

Ordered—That Mr. Maunders, chaplain to Col. Luttrel, in Dorsetshire, Mr. Thomas, minister of Chard, and Dr. Turbervile of Salisbury, be asked what information they can give of ye late cold wind, which proved so fatal in Wiltshire, and Dorsetshire, about last Christmas. Also that Mr. Maunders be desired, as his occasions will give him leave, to draw up, and send us, an account of ye *Laver*, an Herb growing on ye rocks near Dunster Castle.

An account of ye weather here at Oxford, December, January, and February last, taken by Mr. Walker, was by him presented to ye Society.

A letter from Mr. Cuningham, dated St. Leonards College, Jan. 17, 1684–5, written to Mr. President, was read; It shewed his great readiness to procure us correspondents in Scotland; and contained a letter from ye reverend Dr. Skene, Provost of our holy Saviour's College, in St. Andrewes, to Mr. President, concerning ye establishing a Communication of matters Philosophicall, between this Society and ye learned Doctor, and his friends. It was ordered, that some of our Minutes be transcribed, to be sent ye Doctor, with the humble thanks of this Society for his compliance in this matter.

Mr. Standard of Merton communicated the results of his experiments on the weights of the several parts of Hens' eggs, weighed before and after boiling. The weighings were made with a pair of scales which turned with half a grain.

Societies and Academies.

LONDON.

Royal Society, January 29.—P. M. S. **Blackett**: The ejection of protons from nitrogen nuclei, photographed by the Wilson method. Photographs have been taken of more than 400,000 alpha-ray tracks in nitrogen, using an automatic form of the Wilson condensation apparatus. A source of thorium $B + C_1$ was used, giving a mixed beam of 8·6 and 5·0 cm. alpha particles. Among the tracks were found many normal forks due to the elastic collisions between alpha particles and nitrogen nuclei. In addition, eight forks were found of a strikingly different type. These abnormal forks represent the ejection of protons from nitrogen nuclei. Each track branches into two arms, one of which clearly represents the track of the proton. Since there is only one other arm to represent the tracks of both the residual nucleus and the alpha particle itself, the two particles must be bound together after the collision. When, therefore, a proton is ejected from a nitrogen nucleus by a fast alpha particle, the alpha particle itself is captured by the residual nucleus, forming a new nucleus which should have a mass of 17 and an atomic number 8.—R. E. **Gibbs**: The variation with temperature of the intensity of reflection of X-rays from quartz and its bearing on the crystal structure. Whilst the space group to which quartz belongs is known, the positions of the atoms in the molecule remain undetermined. The oxygen atoms cannot lie in the same basal planes as do the silicon, but must interleave them at a distance *d*. Of all the four unknown parameters, the variation of *d* alone will affect the intensity of reflection from the basal plane. Reflection intensities measured from 0° to 800° C. show that marked changes occur for all the planes at the transition point.—R. W. **Gurney**: (1) Ionisation by alpha particles in monatomic and diatomic gases. In the monatomic gases—xenon, krypton, argon, neon, and helium—the amount of ionisation increases with increasing atomic number, a result to be expected from their decreasing ionisation-potentials. In the diatomic gases—hydrogen, oxygen, and nitrogen—ionisation is less than in any of the monatomic gases, in spite of the high value of the ionisation-potential of helium. The ratio of the ionisation in the gases to that in air varies with the velocity of the alpha particles. The question is discussed whether the value (33 volts) found by Geiger for the average expenditure of energy per pair of ions in air is applicable to ionisation near the end of the range. (2) The stopping-power of gases for alpha particles of different velocities. Since the stopping-power of a substance varies with the velocity of the alpha particles traversing it, the value obtained for the stopping-power of a gas by a measurement made over the whole or a large part of the range, as has usually been done, is merely an average value. Small portions of the range are here selected, so that the relative stopping-power has been measured for alpha particles of high velocity, of low velocity, and of intermediate velocity, separately. The relative values of the atomic stopping-powers tend to converge at the end of the range.—W. E. **Curtis**: The Fulcher hydrogen bands. The Fulcher lines and Allen's additions to them have been examined with the view of finding a theoretical interpretation of them. The wave-numbers of two of the strongest lines require correction by about 0·5 cm.$^{-1}$. The differences are then sufficiently regular to provide a criterion for the genuineness of the extra lines, which are in the main confirmed. The arrangement is consistent