China.—Sir S. S. Saunders communicated a paper "On the habits and economy of certain Hymenopterous Insects which nidificate in briars; and their parasites." The insects were exhibited at the last meeting, and Sir Sydney Saunders further exhibited a specimen of a *Raphiglossa*, which he had suffocated with cyanide of potassium, whilst asleep, showing the remarkable position of the insect during repose, as described in the paper.—Mr. Butler communicated a list of the species of *Galeodides*, with description of a new species in the British Museum.

PHILADELPHIA

American Philosophical Society, March 7.—Hector Orr made a communication on the microscopic slide of Mr. Holman.—Dr. Leiler exhibited a modification of apparatus for showing the vibration of molecules in light.—Prof. J. P. Lesley presented a map of the subterranean portions of the collieries of Wilkesbarre, Pennsylvania.—Prof. P. E. Chase read a paper on Planetaxis, the relation of the rotation of the sun and interior asteroids to the sun-spot period, and on the relative velocities of light and gravity.

March 21.—Prof. P. E. Chase pointed out the precise acordance of the wave-length of the Fraunhofer F line with the wave-length of the F note in the 26th musical octave. The other Fraunhofer lines also correspond very closely with the musical notes which are designated by corresponding letters. If this accordance indicates that the luminiferous æther is a material medium, it appears that Winnecke's estimate of the sun's distance is the most accurate of those that have been based on astronomical observations.—Prof. Persifor Fraser exhibited an apparatus for the better manipulation of the lime-light.—Mr. Holman exhibited a slide for the microscope, designed for the better observation of substances suspended in fluids, especially the different corpuscles of the blood. The slide contained two concavities on its face, which were connected by a groove, and covered by a thin plate of glass. It was highly sensitive to changes of temperature.—A resolution was adopted recommending the passage of a bill by the Legislature of Pennsylvania, inaugurating a new Geological Survey of the State.

April 4.—Prof. P. E. Chase showed that, by making the differences symmetrical at each extremity of the planetary series, the supposed failure of Bode's law in the case of Neptune was only apparent, and that it gave the rule a higher generality. He also gave two new planetary series, based, like his modification of Bode's law, on laws of oscillation. If the mean distance of Neptune be divided by successive powers of the ratio of a circumference to its diameter, the points of division will fall in alternate planetary orbits, Saturn, Asteroid, Earth, Mercury. The last term of this first series brings us to the orbital axis of the centres of gravity of the sun and Jupiter. The second series is in regular harmonic progression. Taking Jupiter's perihelion distance as the unit,

$$\frac{1}{3},\ \frac{1}{6},\ \frac{1}{7},\ \frac{1}{8},\ \frac{1}{11},\ \frac{1}{13},\ \frac{1}{15},$$

respectively designate orbital positions of Mars, Earth, Venus, ?, Mercury's aphelion, Mercury's mean, Mercury's perihelion. Saturn, Uranus, and Neptune are also in harmonic progression beyond Jupiter. If we express this spheral harmony by musical intervals, they are generally such as to produce chords between any two adjacent planetary positions. But where quarter tones occur, the discordant vibrations seem to have broken up or disturbed the tendencies to planetary aggregations, thus aiding in producing the asteroidal belt, giving Mars and Mercury their diminutive masses and great eccentricity, and obliterating the theoretical planet between Mercury and Venus.—Prof. W. C. Kerr, State Geologist of North Carolina, communicated a paper on Topography of the Earth's surface, as affected by the rotation on its axis. He pointed out that the rivers of southern and eastern North Carolina flowed towards the ocean in a south-easterly direction, and that their south-western banks are elevated and bluffy, while the north-eastern descend very gradually to the water. They flow through, yielding materials of the cretaceous and tertiary formations, and have apparently undergone change of location, in the course of which they have excavated their south-western banks.—Prof. Kerr exhibited some mathematical reasons why this change might have been effected by the earth's rotation.—Prof. E. D. Cope read a paper on the flat-clawed carnivora of Wyoming. This group embraced two genera, *Mesonyx* Cope, and *Synoplotherium* Cope, which bore some resemblance in dentition to *Hyænodon*. In both the claws were broad, flat, and fissured above, and without projecting endinous insertion below, and hence little prehensile use. In *Mesonyx* the astragalus has two distal facets; in *Synoplotherium* the scaphoid and lunar bones were distinct. The genera were thought to be of aquatic habit.

PARIS

Academy of Sciences, June 30.—M. de Quatrefages, president, in the chair.—During the meeting the Academy proceeded to elect a Foreign Associate in the place of the late Baron Liebig. Sir Charles Wheatstone obtained 43 votes, M. d'Omalius d'Halloy, 2; Sir C. Wheatstone was therefore declared duly elected.—The following papers were read:—Reflexions on Lagrange's memoir on the problem of three bodies, by M. J. A. Serret.—A comparison of the refraction indices of several isomeric compound ethers, by MM. Pierre and Puchot. The authors have found these indices sensibly the same when calculated for temperatures equally distant from the respective boiling points of the bodies in question.—On the analytical theory of the satellites of Jupiter, by M. Souillart.—Researches on the reflexion of solar heat at the surface of Lake Leman, by M. L. Dufour.—On the transplantation of the marrow of bones in sub-periosteum amputations, by M. Félizet.—New observations concerning the presence of magnesium round the entire disc of the sun, by M. Tacchini.—On the want of agreement between the old theory of the thrust (*poussée*) of earth and experiment, by M. J. Curie. This was a paper dealing with fortification.—Note on magnetism, by M. J. M. Gaugain.—On the cooling and freezing of alcoholic liquids and wines, by M. Melsens.—On the decomposition of metallic carbonates by heat, by M. L. Joulin.—On the calculus of the moments of inertia of molecules, by M. G. Hinrichs.—On the production of glycerin starting from propylene, by MM. Friedel and Silva.—On a glycerin of the aromatic series, by M. E. Grimaux.—On the estimation of sugar by Barreswil's method, by M. Loiseau.—Erythrophenic acid, new reaction of phenol and aniline, by M. Jacquemin.—On crystallised mercurous iodide, by M. P. Yvon.—A summary of the state of silk culture in 1873, by M. E. Guérin-Méneville.

DIARY

FRIDAY, JULY 11.

QUEKETT CLUB, at 8.

SATURDAY, JULY 12.

BOTANIC SOCIETY, at 3.45.

TUESDAY, JULY 15.

BRITISH HOROLOGICAL INSTITUTE, at 8.30.—Anniversary.

PAMPHLETS RECEIVED

ENGLISH.—Official Guide-Book to the Brighton Aquarium: W. Saville Kent, F.Z.S.—Third Annual Report of Devon and Exeter Albert Memorial Museum Schools of Science and Art.—Quarterly Weather Report of the Meteorological Office, Part III., July to September, 1871.—Reports and Proceedings of the Miners' Association of Cornwall and Devon for 1872-3.

AUSTRALIAN.—Notes on the Climate of Victoria: Robert L. J. Ellery.—Record of Results of Observations in Meteorology, Terrestrial Magnetism, &c. taken at the Melbourne Observatory during February 1873: Robert L. J. Ellery.

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