currents seemed to him to point to a reason for the existence of a warm region, like that which Herr Hann found for the high temperature of the Föhn wind, namely, that in descending the cold air becomes condensed, and by condensation raised in temperature. From 4 P.M. on the 4th to 5 P.M. on the 5th of November, 1874, readings of the temperature were taken by four observers at Innsbrück (575 metres), Rumer Alpe (southern slope, 1,227 metres), Heiligwasser (northern slope, 1,239 metres), and at the summit of the Blaser (2,240 metres). The mean temperatures for the twenty-four hours at these stations were respectively, 2·16, 7·06, 4·26, and − ·64. The lowest night temperature at Innsbrück was − 2·8; on the Rumer Alpe, + 2·4. The minimum was reached at Innsbrück, just before sunrise, but on the Rumer Alpe at 3.30 A.M.; at sunrise at this elevation the thermometer marked 4·4. At Heiligwasser the same kind of relation was noted, and temperature rose after 4 A.M.; but the maximum by day was much lower than at Innsbrück. The high temperature at this station was not due to heating of the ground by sunshine, for a thermometer fixed on the surface of the soil never rose above 1° C. The wind blew uninterruptedly towards the valley, down the mountain side. There remains but one explanation, namely, that the increasing pressure raises the temperature of the air as it descends. Prof. Kerner proceeds to a more detailed analysis of the distribution of currents over hill and valley both by day and by night, illustrating his theory by diagrams. After sunset the ground of the valley and the air above it cool rapidly by radiation. The air thus made specifically heavy cannot flow off, but rests like a lake at the bottom of the valley. The current which has flowed down the mountain sides being raised in temperature, glides over this stratum, and rises about the middle of the valley, to rejoin the polar wind aloft. By day the air ascends from the valley up the southern slope, and is replaced by a current descending the opposite mountain face. Obviously, the phenomenon of increasing temperature with increasing height must be most striking where the ridges and valleys stretch from west to east, and during periods of polar wind, when the sky is clear and radiation strong.

Der Naturforscher, January.—This number contains an account of observations by M. von Schleinitz, on board the *Gazelle*, when on the transit expedition to Kerguelen's Land, of changes of temperature and specific gravity of water in the southern Indian Ocean. His conclusions are briefly these:—1. Ocean currents, with the exception of the currents caused by regular winds, are due to differences in absolute specific gravity of different parts of oceans, and a small difference produces a strong current. 2. The differences in saltness of tropical and cold seas (in relation to absolute specific gravity), acting oppositely to the temperature differences, moderates ocean currents, which would otherwise be so strong in meridional directions that navigation would be impossible. 3. There is probably a zone where the differences in saltness compensate the differences in temperature, so that waters of different temperature and different saltness may be near each other in equilibrium, *i.e.*, without perceptible current. In the western part of the Indian Ocean this zone is between 40° and 45° S. lat.—There is a notice of two recent series of researches by M. Voigt and M. Groth (conducted by quite different methods), on the elasticity of rock salt; it is shown that in regular crystals the co-efficient of elasticity, and therewith the velocity of sound, is a function of the direction; and that both vary, in accordance with Neumann's theory, symmetrically with reference to the planes of symmetry of the crystal.—M. Frank calls attention to the action of light on the opening of some catkin-like blossoms.—From experiments by M. Luchsinger, it appears that glycerine injected under the skin of animals has an arresting action on the fermentative formation of sugar from the glycogen of the liver.—The remaining papers do not call for notice here.

Jahrbücher für Wissenschaftliche Botanik. Herausgegeben von Dr. N. Pringsheim. Zehnter Band, Drittes Heft, Mit. 11, Tafeln (Leipzig: Verlag von Wilh. Engelmann, 1876).—The present number of Pringsheim's well-known "Year-book" contains three papers, all of great value. The first is by Dr. George Winter, on the genus Sphæromphale and its allies (with three plates). Kœrber in criticising the Schwendener-Bornet theory of lichens, stated that Sphæromphale had only greenish-brown microgonidia, and that the spores did not produce hyphæ. Both these statements are shown to be erroneous, and after a careful anatomical and morphological examination of numerous original specimens, dried and recent, of Sphæromphale and its allies, he groups them together under a single species, *Polyblastia umbrina* (Whlnbg.), Winter, and adds nearly three pages of synonyms!—an eloquent tribute to the species-making capabilities of modern Lichenographers.—The second paper is by Dr. A. Engler, Contributions to the knowledge of the formation of the anther in Metasperms. This paper, which is illustrated with five plates, describes the following subjects: (1) the anthers and pollen of the Mimoseæ; (2) the anthers of Orchidaceæ; (3) the anthers of Asclepiadaceæ; (4) on the so-called introrse and extrorse anthers; (5) on certain apparent departures from the type in the formation of stamens; and (6) on the homologies between stamen and carpel.—The third paper is by Dr. J. Reinke, Contributions to the knowledge of Fucaceæ and Laminariæ (with three plates). The anatomy and external construction of several genera and species are detailed, the most interesting portion of the paper being the paragraphs devoted to secondary circumferential growth in Fucaceæ, and to the formation of adventitious buds.—The illustrations are excellent as usual, and the high character of the *Jahrbücher* well sustained.

Bulletin de l'Académie Royal des Sciences, Nos. 9 and 10, contains an article by Van Beneden on the Pachyacanthus in the Museum at Vienna. The description of other marine mamifers in other museums is to follow, and the whole are to form an introduction to the descriptions of the allied fossil forms discovered in excavations near Antwerp.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, April 6.—"Experiments on the Friction between Water and Air." By Dr. Ritter von Lang. Communicated by N. Story Maskelyne, F.R.S., Keeper of the Mineral Department, British Museum.

The method adopted for estimating the mutual friction of water and air consisted in connecting a glass tube of 8 centims. in length and 0·72 internal diameter with the pipes which supply Vienna with water at a pressure of four atmospheres. Arrangements for securing a vertical position for the tube ensure a perfectly continuous jet, devoid of any broken surface; and a tube surrounding this jet, with its axis coinciding with that of the jet, acts as an aspirator into and along which air is drawn through a lateral feeding-tube. The amount of this in-drawn air corresponding to the fall of a given amount of water was determined by observing the rate at which a film of soap was borne along the feeding-tube; and the velocity of the water causing the in-draught was calculated from the diameter of the water-column and the quantity of water discharged along it in a given time; but after having once determined the form of the slightly conical water column, the amount of water discharged was the only datum required for the calculation.

The influence of a greater or less section of the air feeding-tube on the volume of the aspirated air was carefully determined, while also the absence of any appreciable retardation due to the soap-film was established.

Neglecting the slightly conical character of the surface of the water-column, and assuming (as the result of experiments in which the motion of a smoke-cloud was observed) that the movement of the air was throughout in lines parallel to the axis of the tube along which it flowed, and showing that the pressure does not vary along the length of the tube, the author proceeds to discuss the hydrodynamic equations expressing the conditions of the problem (the motion of the air being uniform and independent of time), and represents the volume of air A passing through the tube in a second as

$$A = W\left[\frac{R^2 - r^2}{2r^2(\log R - \log r)} - 1\right],$$

W being the weight of water, in grammes, discharged in a second, r the radius of the jet in turns of the micrometer-screw (6·8 turns of which correspond to 1 centim.), R being the radius of the aspirating tube.

The results obtained by observation accorded well with those given by this equation, so long as the value of R did not exceed the limit within which the suppositions regarding the motion of the air hold good.

The question whether the results might not be brought into even closer accord with theory by the assumption that a slipping action takes place between the air and the water-jet on the one hand, and between the air and the tube on the other, instead of the assumption previously made that the air adhered

alike to the water and to the tube in its passage. The result of the calculation, however, led to no nearer approximation; and finally, experiments with other materials for the tube and other gases (namely, coal-gas and carbonic anhydride) were made without resulting in any marked difference from the results obtained with air and glass.

Mathematical Society, April 13.—Prof. H. J. S. Smith, F.R.S., president, in the chair.—Prof. Henrici, F.R.S., having taken the chair, the President gave an account of a note—"Sur une théorème d'Eisenstein"—by M. Charles Hermite. This is the celebrated theorem, considered by M. Heine, on the development in a series of the roots of an algebraic equation $f(y, x) = o$. M. Heine has added the very important remark that we can make all the coefficients of such a development, supposed commensurable, integers, with the exception of the first by changing x into $k\,x$ (Crelle, Band 48, p. 267). M. Hermite's communication gives a simplified proof of this. —Prof. Smith then spoke on the aspects of circles on a plane or on a sphere. He pointed out the connection between his results and those obtained by Prof. Cayley in his researches on trees. He next made some remarks on a problem in crystallography.—Mr. Tucker read part of an abstract (drawn up by Dr. Hirst, F.R.S.) of a paper on correlation in space, by Prof. Rudolf Sturm, of Darmstadt. The paper is connected on the one hand with Sturm's previous one on projectivity in space (*Math. Ann.*, vol. vi.), and on the other with Dr. Hirst's papers on the correlation of two planes, and two space. (*Proc. of Math. Soc.*, vols. v. and vi.)

Chemical Society, Prof. Andrews, F.R.S., in the chair.—A paper on the manufacture of sulphuric anhydride, by Dr. R. Messel and Dr. W. Squire was read by the latter. The authors prepare the anhydride by decomposing ordinary sulphuric acid at a white heat into water, oxygen, and sulphurous anhydride, removing the water by suitable means and then passing the mixed gases over platinised pumice heated to low redness; the oxygen and sulphurous anhydride then reunite to form sulphuric anhydride.—After this paper there was an adjourned discussion on Dr. H. E. Armstrong's paper on systematic nomenclature read at the last meeting, in which Prof. Odling replied at length to the criticisms on the article recently published by him on the same subject in the *Philosophical Magazine*.

Royal Astronomical Society, April 12.—Mr. Wm. Huggins, D.C.L., president, in the chair.—J. Bagnold Smith, Sir David Solomons, W. T. Smedley, Wm. Durrad, Wm. Allsup, and the Rev. Joseph Ferguson were elected Fellows of the society.—Mr. Penrose described an instrument for calculating the sides and angles of spherical triangles. It consisted of two wooden semicircles which could be fixed at any angle, and a graduated arm moving on a universal joint which slid along one of the semicircular arcs. The graduated arm was made use of to measure the cord of the third side of the triangle. Mr. Penrose showed how the instrument might be made use of for roughly checking calculations in spherical trigonometry. He thought that it would also be of use in expeditiously reducing observations in which no great degree of accuracy was required. The instrument was very portable and might be made still more so if the graduated semicircles were divided on brass instead of on wood, as in the instrument he showed. A paper by the Rev. T. W. Webb was read describing some observations of the two exterior satellites of Uranus which had been made by Mr. Isaac Ward of Belfast. Mr. Ward's instrument is a refractor of only 4·3 inches aperture, but he had apparently succeeded on some dozen evenings during the months of January, February, and March, in picking up both the outer satellites Titania and Oberon. A table was given comparing the position angles and distances as estimated by Mr. Ward with those taken from Mr. Marth's ephemeris of the satellites. It was stated that the estimates of Mr. Ward had been made without any previous reference to the ephemeris, the coincidences were such that there seemed little room left for doubt that Mr. Ward had in each instance been successful in picking up the satellites. Mr. Lassell said that he had not seen the satellites with his own nine-inch. It was quite possible that the extraordinary sharpness of Mr. Ward's eye might have enabled him to pick up the satellites; there were records which could not be doubted of persons who had observed the satellites of Jupiter with the naked eye. He thought that if any one else made use of the same telescope they would certainly not be able to detect the satellites.—Mr. Green drew the attention of observers to the visibility of the dark limb of Venus during the coming quadrature; he had on many occasions thought that he perceived the dark limb on a brighter background, but on placing the bright limb of the planet behind a dark bar in his eye-piece, he had entirely lost sight of the dark limb. He wished that other observers would try the same experiment during the coming quadrature. The meeting adjourned till May 12.

Geological Society, April 5.—Prof. P. Martin Duncan, F.R.S., president, in the chair.—James Mansergh, M. Inst. C.E., was elected a Fellow of the Society.—On the bone-caves of Creswell Crags (second paper), by the Rev. J. Magens Mello. In this paper the author gives an account of the continuation of his researches upon the contents of the caves in Cresswell Crags, Derbyshire. The further exploration of the Pin Hole cave described in his former paper,[1] furnish a few bones of Reindeer, *Rhinoceros tichorhinus*, and other animals, but no more remains of the Arctic Fox, which were particularly sought for. Operations in this cave were stopped because the red sand in which the bones were found towards the entrance became filled with limestone fragments, and almost barren of organic remains. The author then commenced the examination of a chambered cave called Robin Hood's cave, situated a little lower down the ravine on the same side. The section of the contents of this cave showed a small thickness of dark surface-soil, containing fragments of Roman and mediæval pottery, a human incisor, and bones of sheep and other recent animals; over a considerable portion a hard limestone breccia, varying in thickness from a few inches to about 3 feet; beneath this a deposit of light-coloured cave-earth, varying in thickness inversely to the breccia, overlying a dark-red sand about 3 feet thick, like that of the Pin Hole, but with patches of laminated red clay near the base, and containing scattered nodules of black oxide of manganese, and some quartzite and other pebbles, which rested upon a bed of lighter-coloured sands containing blocks of limestone, probably forming part of the original floor of the cavern. The hard stalagmitic breccia contained a great many bones, chiefly of small animals, but with some of reindeer, and teeth of *Rhinoceros tichorhinus*, hyæna, horse, water vole, and numerous flint-flakes and chips, and a few cores. Some of the flakes were of superior workmanship. A few quartzite implements were also found in the breccia. The cave-earth contained a few flint implements, but most of the human relics found in it were of quartzite, and of decidedly palæolithic aspect. There was also an implement of clay-ironstone. The animal remains chiefly found in the cave-earth were teeth of horse, *Rhinoceros tichorhinus*, and hyæna, and fragments of both jaws of the last-mentioned animal. Bones and teeth of reindeer and teeth of cave-lion and bear also occurred. The red sand underlying the cave-earth contained but few bones, except in one place, where antlers and bones of reindeer and bones of bison and hyæna occurred. At another part a small molar of *Elephas primigenius* was found. A large proportion of the bones had been gnawed by hyænas, to whose agency the author ascribed the presence of most of the animal remains found; but he remarked that no coprolites of hyænas had been met with. The following is a list of the animals whose remains occurred in this cavern:—*Felis leo* (var. *spelæa*), *Hyæna crocuta* (var. *spelæa*), *Ursus arctos*, *U. ferox*, *Canis familiaris*, *C. lupus*, *C. vulpes*, *Elephas primigenius*, *Equus caballus*, *Rhinoceros tichorhinus*, *Bos bison*, var. *priscus*, *Bos longifrons*, *Capra hircus*, *Sus scrofa*, *domesticus*, and *ferox*, *Cervus megaceros*, *C. tarandus*, *Arvicola amphibius*, and *Lepus timidus*.—On the mammalia and traces of man found in the Robin Hood Cave, by Prof. W. Boyd Dawkins, F.R.S. The author noticed the various species of animals discovered by Mr. Mello during the researches, the results of which are given in the preceding paper, and drew certain conclusions from their mode of occurrence as to the history of Robin Hood's Cave. He considered that the cave was occupied by hyænas during the formation of the lowest and middle deposits, and that the great majority of the other animals whose remains occur in the cave were dragged into it by the hyænas. That they served as food for the latter is shown by the condition of many of the bones. During this period the red sand and clay of the lowest stratum was deposited by occasional floods. The red loam or cave-earth forming the middle stratum was probably introduced during heavy rains. The occupation of the cave by hyænas still continued, but it was disturbed by the visits of palæolithic hunters. The remains found in the breccia indicate that the cave was inhabited by man, and less frequently visited by hyænas than

[1] See Quart. Journ. Geol. Soc., vol. xxxi. p. 679.

before. The presence of vertebræ of the bare in the breccia would imply that the hunters who occupied the cave had not the dog as a domestic animal. After a discussion of the relations of the animals forming the fauna of the cave, the author proceeded to describe the traces of man found in it, which consist of fragments of charcoal, and implements made of antler and mammoth tooth, quartzite, ironstone, greenstone, and flint. The distribution of these implements in the cave represents three distinct stages. In the cave-earth the existence of man is indicated by the quartzite implements, which are far ruder than those generally formed of the more easily fashioned flint. Out of 94 worked quartzite pebbles only three occurred in the breccia, while of 267 worked flints only 8 were met with in the cave-earth. The ruder implements were thus evidently the older, corresponding in general form with those assigned by De Mortillet to "the age of Moustier and St. Acheul," represented in England by the ruder implements of the lower breccia in Kent's Hole. The newer or flint series includes some highly-finished implements, such as are referred by De Mortillet to "the age of Solutré," and are found in England in the cave-earth of Kent's Hole and Wookey Hole. The discovery of these implements considerably extends the range of the palæolithic hunters to the north and west, and at the same time establishes a direct relation in point of time between the ruder types of implements below and the more highly-finished ones above.—Notes on the gravels, sands, and other superficial deposits in the neighbourhood of Newton-Abbot, by Horace B. Woodward, F.G.S. The writer pointed out that most of the deposits termed Upper Greensand in the immediate neighbourhood of Newton-Abbot, were in reality intercalated with coarse gravel-beds, containing, among others, fragments of greensand, chert, and chalk-flint. He considered that the only traces of greensand *in situ* were probably on the summit of Milber Down and east of Combe Farm, deposits which were identified by Mr. Godwin-Austen. But he could not agree in the identification of greensand at other localities in the Bovey Valley, considering the few fossils found to have been derived from, and with much other material to have been evidently due to the denudation of chalk and greensand. He pointed out the geographical distribution of these beds of sand and gravel, which extend from the hill-tops bordering the Bovey Valley to near the bottom of the valley, but do not descend into any outlying valleys. He likewise alluded to the peculiar dip into the valley which affects these beds in several places, and observed that sometimes they rested on the Bovey clays and lignites. He thought some connection in their method of formation might be traced with somewhat similar deposits on the Haldon and Black Down Hills. He pointed out the "Head" at the bottom of the valley was sometimes not to be distinguished from the older gravels, from which, however, it was largely derived. He alluded to the discovery of bones, a bronze spear-head, and a wooden doll or idol in this deposit; observing that they indicated the rapid accumulation of gravel, and that this indication was one out of many that might be given, that our modern river-gravels are to a great extent made up of older gravels. In conclusion the writer alluded to some of the deposits now forming on the margin of the Teign estuary, and which are identical in character with the Triassic breccia.—On certain alluvial deposits associated with the Plymouth limestone, by R. N. Worth, F.G.S. The author adduced certain deposits found in fissures and caverns of the Plymouth limestone, as furnishing evidence in opposition to the views advocated by Mr. Belt in his paper on the drifts of Devon and Cornwall.[1] The best examples occur at Plymouth Hoe, where the chief deposit fills a large "pocket" in the limestone, and consists (beneath the turf) of a bed of clayey soil, containing pebbles and small boulders, beneath which are patches of white and red clay, containing a few pebbles, and overlying a large quantity of siliceous sand. Similar, but slightly varying deposits, not unfrequently occur in association with the limestone; and these are regarded by the author as the remains of considerable deposits which once occupied large areas in the valleys of South Devon; and if they are not the lowland gravels of Mr. Belt, the latter are not represented in the district. The author states that there is evidence of the contemporaneity of these deposits with those of the Oreston caves; and he adds that they furnish no proof of cataclysmal action, but of orderly deposition, the bulk of the pebbles and gravels being inland nearer the source of the *débris*, and further off the sands and clays in fairly regular succession. The author further explains the presence in Cornwall of stanniferous gravels only in valleys opening to the south, by reference to the position of the watershed in that county, which has only two rivers running to the north, whilst on the south-east rivers abound.

[1] See "Quart. Journ. Geol. Soc.," vol. xxxii., p. 80.

Physical Society, April 8.—Mr. W. Spottiswoode, vice-president, in the chair.—Mr. H. M. Klaassen was elected a member of the Society.—Prof. Foster exhibited and described an instrument for illustrating the law of refraction. It is founded on the well-known method of determining the direction of the ray after refraction by means of two circles described from the point of incidence as centre, the ratio of whose radii is the index of refraction. If the incident ray be projected to meet the inner circle, and through the point of intersection a vertical line be drawn, the line drawn from the point of incidence to the point where this meets the outer circle is the direction after refraction. This principle is applied in making a self-adjusting apparatus as follows:—A rod representing the incident ray is pivoted at the point of incidence, and projects to a point about 4 inches beyond. To this extremity is attached a vertical rod which slides through a nut in another rod also pivoted at the point of incidence. The lower extremity of the vertical rod is attached to a link, so fixed as to constrain it to remain vertical. By this means the two rods always represent respectively the incident and refracted rays, and the index of refraction can be varied by altering the position of the nut, through which the vertical rod passes, on the rod to which it is attached.—Prof. Foster then exhibited a simple arrangement for showing the interference of waves. It consists of two glass plates placed one in front of the other, on each of which is drawn the ordinary sine wave. They are supported in a frame, and behind them is a paper screen bearing lines to indicate the points of maximum and minimum displacement. The plates can be made to slide in opposite directions, and all the phenomena of wave motion generally, and the state of the air in open and closed tubes can be shown. Lastly he exhibited a method, which has been suggested by Prof. Kundt, for showing in a simple manner that the air in an organ pipe is in a constant state of alternate condensation and rarefaction. At the upper end of a closed pipe are placed two valves opening inwards and outwards respectively, and the chambers behind these are connected by india-rubber tubes with small water-guages which, for the sake of exhibition, were projected on the screen. The guages were to the eye permanently set, showing at the same time condensation and rarefaction, an appearance which was of course due to the rapidity of change. It was shown that beats cause the air to approximate to its normal density.—Prof. Guthrie exhibited and described an arrangement which he thought might be useful for determining the rate at which machinery is revolving. The instrument is analogous to one which he devised some years ago for rendering a galvanic current constant. The chamber of a manometer is connected with a small force-pump, which makes one complete stroke for every revolution of the engine. A capillary glass tube affords a means of escape for the air introduced by the pump into the manometer. If now the pump be worked uniformly, that is if the engine rotates uniformly, the pressure in the manometer will shortly attain a position of equilibrium, so that the mercury will remain stationary. But if the velocity of the engine increase, the mercury will immediately ascend, and so indicate this increase of speed. The main objection to the instrument, as exhibited, was the oscillation of the mercury, but this might be avoided in several ways which were pointed out.—Mr. Coffin referred to some works in America where he had seen a similar principle applied. The engine was connected with an air chamber, to which was applied a Bourdon's gauge, the indications of which gave an approximate measure of the revolutions of the engine.—Prof. Unwin thought there would be some difficulty in keeping the capillary orifice perfect for any length of time. He referred to a proposal made by Prof. Thomson in about 1852 to use a centrifugal pump for a similar purpose.

Anthropological Institute, April 11.—Col. A. Lane Fox, president, in the chair.—Five new members were announced.—A note on some suggested archæological symbols for maps, by Mr. Joass, was read by Capt. Dillon.—Dr. Comrie, R.N., read a paper entitled "Anthropological Notes on the Natives of New Guinea," being the result of his observations while attached to H.M.S. *Basilisk*, engaged surveying there. The physical, social, and religious character of the Papuans were discussed, and the probable Polynesian intermixture and origin of the natives of New Guinea considered, the author inclining to the opinion that the Papuan was a pure type of race, the most characteristic fea-

ture next to language being the tape-like flattening of their hair noticeable in an ordinary lens. The paper was accompanied with a comprehensive exhibition of Papuan weapons, works of art, utensils, and articles of dress, which will remain at the Institute till their next meeting, April 25, when the discussion, in which Col. Fox, Lieut. Armit, R.N., Mr. Franks, Mr. Hyde Clarke, the Rev. A. H. Sayce, and others took part, will be continued.—Mr. Brabrook, the Director, then read a paper by Mr. B. Walker entitled "Religion, Politics, and Commerce of Old Calabar," which contained an account of the singular institution of Egbo, the principal object of which is to secure mutual protection amongst the freemen. Admission to the various grades, nine in number, is by purchase. As regards religion each district has a separate but subordinate divinity. Their commerce consists of palm oil, ebony, ivory, and barwood. The inhabitants appear to be advancing in civilisation.

Entomological Society, April 5.—Prof. Westwood, president, in the chair.—Messrs. J. W. Douglas, E. C. Rye, G. Lewis, C. Fenn, J. Dunning Kay, and W. C. Copperthwaite were elected Ordinary Members; and Mr. B. A. Bower, jun., was elected a Subscriber.—Mr. F. Bond exhibited a specimen of *Xylina lambda* taken near Erith in September last by Mr. W. Marshall, being the fifth instance of its having been taken in Britain. He also exhibited *Ebulea stachydalis*, taken by himself at Kingsbury, Middlesex, in June 1862.—Mr. Champion exhibited specimens of *Ægialia rufa*, taken by Mr. Sidebotham near Southport, and he brought examples of *Psammodius suleicollis* for distribution.—The President made some observations respecting the habits of the common gnat, in continuation of his remarks at the meeting of Nov. 4, 1872. Large numbers of females had again appeared in his house at Oxford, not a single male having been observed, and he believed they had hibernated in the house, appearing the first warm days of spring. He also remarked that Dr. Leconte's valuable collection of *Coleoptera* had been presented to the University of Cambridge, Mass.—Sir Sidney S. Saunders exhibited living specimens of *Stylops Kirbii* taken by himself at Hampstead; altogether he had found eighteen males. Mr. Enock also exhibited a row of eleven males taken on the wing at the same place and about the same time.—The Rev. A. E. Eaton stated that he was preparing a supplement to his monograph of the *Ephemeridæ* (*Trans. Ent. Soc.*, 1871), chiefly from materials in the collections of Mr. McLachlan and Mr. Albarda, and that he would be glad of any assistance that could be given him by entomologists possessing insects belonging to that group. It appeared that the deficiency in legs in *Campsurus* and some of its allies was due to their being shed with the pupa skin when the insect obtains well-developed wings, and that in some forms all the legs were thus cast off by the female.—Mr. Smith made remarks on the distribution of some genera of Hymenopterous insects from New Zealand, of which a collection had been placed in his hands by Mr. C. M. Wakefield; and was followed by Mr. McLachlan, who remarked on the gradual extinction of the endemic fauna of New Zealand, although introduced forms throve wonderfully.—The Rev. R. P. Murray stated that he was preparing a list of the species of Japanese butterflies, and that he would be grateful to any entomologist who could assist him with the loan of specimens.—Mr. McLachlan exhibited a series of *Anomalopteryx Chauviniana*, Stein., from Silesia, given to him by the discoverer of the species, Fräulein Marie von Chauvin, of Freiburg. This singular Trichopterous insect pertained to the family *Limnophilidæ*, and was remarkable for the lanceolate anterior, and abbreviated posterior wings of the male; those of the female being normal, excepting that the posterior wings were smaller than usual. Also apterous females of *Acentropus niveus* received from Mr. Ritsema, of Leyden; and a microscopic slide with a full-grown female example of *Phylloxera vastatrix* of the root form. This he had recently obtained, with many others, from a vinery near London, which was terribly infested with the insect.

Meteorological Society, April 19.—Mr. H. S. Eaton, president, in the chair.—T. H. G. Berrey, Assoc. Inst. C.E., H. G. Bolan, J. Bravender, J. Holden, G. A. Hutchins, F. Jackson, J. L. Johnson, B. Latham, A. G. McBeath, W. R. Maguire, A. S. Moss, C. Pink, J. R. Rogers, E. Toller, S. Tomlinson, W. A. Mc I. Valon, H. Walker, W. E. Woolley, were elected Fellows of the Society. The following papers were then read:—Velocity of the wind at Liverpool, tabulation of anemometric records, by W. W. Rundell; on the aspiration of the dry and wet bulb thermometers, by Samuel H. Miller, F.R.A.S.; on the storm which passed over the south of England on March 12, 1876, by Robert H. Scott, F.R.S.—The members of the Permanent Committee of the Vienna Meteorological Congress were present and took part in the discussion.

Victoria (Philosophical) Institute, April 3.—Mr. Howard, F.R.S., read a paper on the history of Egypt in connection with the Bible.

ROME

R. Academia dei Lincei, Dec. 5, 1875.—M. Moriggia communicated the results of experiments on the natural poisons of the body, bile and amygdaline.—M. Volpicelli gave a short necrological memoir of Wheatstone.

Jan. 2.—M. Volpicelli described the construction, properties, and applications of a constant inductor.—M. Sella gave the composition of various salt springs in Italy.—M. Capellini presented a paper on Tuscan fossil whales.—M. Castaldi communicated a note on fossils from the dolomitic limestone of Monte Chaberton, studied by M. Michelotti.—M. Cossa described the periclasiferous predazzite of Monte Somma.—M. Canizzaro reported on a memoir by MM. de Negri on the purples of the ancients; also on a memoir by M. Paterno, on usnic acid and on two new principles accompanying it in *zeora sordida*; also on one by M. Selmi, on toxicological chemical studies relating to atropine and its detection.—M. Struver communicated a memoir on the minerals of Lazio.

BOOKS RECEIVED

COLONIAL AND FOREIGN.—Verhandlungen der Naturhistorischen Gesellschaft für Natur-und Heilkunde, 2 parts (Bonn, Cohen and Sohn).—La Transfusione del Sangue, pel Dott Malachia de-Christoforis (Milan).—The Fungus Disease of India: T. R. Lewis, M.B, and D. D. Cunningham, M.B. (Calcutta).—The Soil and its Relation to Disease: Same Authors (Calcutta).—Kurze's Chemisches Handwörterbuch: Dr. O Dammer (Berlin, R. Oppenheim).—Check List of North American Ferns: J. Robinson (Salem, Mass.).—Freshwater Shell Mounds of the St. John's River (Florida, Jeffries Wyman, Peabody Academy).—Nephrit und Jadeet: Heinrich Fischer (E. Koch, Stuttgart).—Adolf Stieler's Hand-Atlas (Gotha, Justus Perthes).—List of Hemiptera of the Mississippi: P. R. Uhler.—Algebra for Beginners: Prof. James Loudon (Toronto, Copp, Clark and Co.)—Le Positivisme: André P. Gernier Baillière.—Annual Report of the Smithsonian Institution (Washington, U.S.A.)—The Vertebrata of the Cretaceous Formations of the West: E. D. Cope (Washington, U.S.A.—Daily Bulletins of Weather Reports for March 1873 (Washington, U.S.A.)

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