volume, now conducted by Dr. Trimen, assisted by Mr. J. G. Baker. The original articles are as follows:—"On the Genus *Albizzia*, nearly allied to *Acacia*," by Baron Ferd. von Mueller; "The *Erysiphei* of the United States," by Messrs. M. C. Cooke and Peck; a continuation of Mr. J. G. Baker's "Botany of the Lizard Peninsula;" and Lichenographical Notes, by J. A. Martindale. Short notes, reviews, and reprints, complete the programme of the number.

THE first article in the *Quarterly Journal of Science* for January is by Captain S. P. Oliver, on "The Dolmen Mounds and Amorpholithic Monuments of Brittany," in which he details the history and analogies of these mounds, classifying them into twelve distinct varieties. The article is apparently not complete. Next follows a short paper on "The Illumination of Beacons and Buoys," detailing the most recent inventions in this direction. The third article is on "Natural and Artificial Flight," detailing M. Marey's investigations on this subject, with numerous illustrative woodcuts. A paper on "The Coal Commissioners' Report" is simply a *résumé* of the evidence brought before the Commission. Mr. Mungo Ponton, on "The Spectroscope: its Imperfections and their Remedy," advocates the construction of an instrument on the diffracting principle, without which the writer maintains that accuracy, certainty, and uniformity of results cannot be attained. The last and longest article in the number is on "Modern Cannon Powder," with two steel plates. A larger proportion than usual of this number is occupied by notices of books, and details of the progress of the physical and mechanical sciences.

THE last published part of the "Memoirs of the Natural History Society of Danzig" ("Schriften der Naturforschenden Gesellschaft in Danzig," New Series, vol. ii., Heft 3 and 4) contains but few papers of general interest, although the special scientific importance of some of them is doubtless very great. Thus a great part of it is occupied by a number of tables giving the results of meteorological observations made in Danzig, with great care and astonishing labour, by M. F. Strehlke, during the years 1841–43, and by a series of tables of refraction for micrometers, by M. E. Kayser. Two other papers of almost purely local interest relate to the chemical composition of the water supplied to Danzig, and to its effects upon lead pipes. The preceding papers occupy more than half the number before us; the remainder all relate to natural history matters. M. C. G. H. Brischke continues his minor observations upon insects, the greater part of his present communication relating to the enemies of the rape-plant and their parasites. The dipterologist will find a new species of *Phytomyza* described under this head. The same author contributes a list of the Rhynchota of the Province of Prussia. The fourth section of M. A. Menge's Prussian Spiders completes the list of zoological contributions. In it the author describes the first two families of his third tribe (the Tubitelæ), ending with *Argyroneta aquatica*, as the 170th species here described by him. M. A. Ohlert's "Lichenological Aphorisms," the only botanical paper, contains some important and interesting observations.

THE following are the most important articles in the *Revue Scientifique*, Nos. 25—32. Prof. Lorain, of Paris, has an interesting article on the report of the Committee of 1870 on the liberty of higher instruction; Mr. Herbert Spencer contributes a paper on General Laws; report of M. Quatrefage's course of lectures on Anthropology at the Museum of Natural History; Helmholtz's address in memory of Prof. Magnus at the Academy of Sciences at Berlin; Herbert Spencer on the Classification of the Sciences, an elaboration of his essay "On the Genesis of Science," published in 1854; Berthelot on the state of bodies in solution; report of Prof. Bernard's course of lectures at the College of France on Experimental Medicine; abstracts of paper read at the Indianopolis Meeting of the American Association for the Advancement of Science; translations of Lockyer's, Maclear's, and Respighi's accounts of the Total Solar Eclipse, together with reports of M. Janssen's observations; an article by Herbert Spencer on the reasons why he dissents from the philosophy of Comte, being a reply to a review in the *Révue des Deux Mondes;* M. Verneuil on Surgical Pathology; report of the committee appointed by the Society of Physicians and Surgeons of the Paris Hospitals to visit the new Hôtel Dieu; M. Alglave on the scientific *réunions* at the Assembly; M. Hebert on the "Tithonic Stage," and the new German school. There are in addition a number of reports of proceedings of foreign societies.

SOCIETIES AND ACADEMIES

LONDON

Royal Institution, February 5.—Sir Frederick Pollock, Bart. vice-president, in the chair. Messrs. Alexander Brodie, John Cleghorn, Edward John Gayer, Arthur Edward Griffiths, William Grogan, the Hon. Frederick H. North, Messrs. Samuel Wagstaff Smith, W. Soames, Henry Virtue Tebbs, Burney Yeo, Henry Yool, were elected members. The special thanks of the members were returned for the following donations to "The Fund for the Promotion of Experimental Researches:"—Prof. Tyndall (3rd donation) 30*l.*, Mr. Arthur Giles Puller (5th donation) 21*l.* The presents received since the last meeting were laid on the table, and the thanks of the members returned for the same.

Geologists' Association.—A special general meeting was held on the 2nd February, when a revised code of laws was adopted. Subsequently, at the annual meeting, the report for 1871 was adopted, and the officers for the ensuing year elected. At the ordinary meeting which followed, the Rev. J. Wiltshire, M.A., F.G.S., president, in the chair, a paper was read by the Rev. T. G. Bonney, M.A., F.G.S., tutor of St. John's College, Cambridge, "On the Chloritic marl, or Upper Greensand, of the neighbourhood of Cambridge." The author commenced by a brief sketch of the geology of the Cam valley, and the position of the seam, barely a foot in thickness, which rests upon the eroded surface of the Gault, and is full of green grains and dark nodules, rich in phosphate of lime. He described the matrix as a fine chalky marl, full of foraminifera, and minute fragments of organisms, with a considerable mixture of mud, insoluble in hydrochloric acid. The composition of the green grains (commonly called glauconite) was then discussed, and it was shown that they differed considerably from the typical mineral of that name; he had not satisfied himself that any were casts of foraminifera. After a few words on the phosphatic nodules, and some erratic rocks in the bed, he gave a sketch of the palæontology of the deposit, calling attention to the condition of the various fossil remains, and to the number and size of the pterodactyles and turtles. He then gave his reasons for considering this deposit as formed during the Upper Greensand epoch, but as containing many fossils which had been derived from the Upper Gault by slow denudation. The nodules he considered as mainly of concretionary origin; for they were too pure to be regarded as clay saturated by phosphate. He concluded by sketching out his conception of the physical geography of the East Anglian district in the Neocomian and lower part of the Cretaceous epoch.—Prof. Morris, after some remarks on the value of the paper, spoke of the composition of the green grains, and then traced the range of the deposit, which he agreed with Mr. Bonney in thinking was the formation of a very long period of time.—Mr. Lobley remarked upon the mineralogical and palæontological differences existing between the Cambridge deposit and the chloritic marl of Dorsetshire.—Mr. Bonney, in his reply, having referred to the great scarcity of fossils in the Gault of Cambridge, the Rev. T. Wiltshire stated that the Gault of Kent was in some places devoid of organisms.

Zoological Society, February 6.—Mr. R. Hudson, F.R.S. V.P., in the chair.—A communication was read from Dr. J. S. Bowerbank, F.R.S., containing the first portion of a series of papers, entitled "Contributions to a general History of the Spongiadæ," in which descriptions were given of several species of *Tethea*, and of *Halispongia choanoides*.—A communication was read from Dr. John Anderson, containing notes on a young living female of *Rhinoceros sumatrensis*, which had been captured in Chittagong, in February 1868, and had been removed to Calcutta on its way to England. These notes were accompanied by a photograph of the animal from life.—A second communication from Dr. Anderson contained notes on *Manouria* and *Scapia*, two supposed genera of Land-Tortoises, which Dr. Anderson showed to be identical with *Testudo emys* of Schlegel and Müller.—Mr. Sclater read a paper on Kaup's Cassowary (*Casuarius Kaupi*), of which the Society's collection contained a living specimen. To this was added a list of the other known species of the genus *Casuarius*, and an account of their geographical distribution.—A communication was read from Dr. A. Günther, F.R.S., on two specimens of Lizards of the genus *Hydrosaurus*, from the Philippine Islands, for one of which, being hitherto undescribed, Dr. Günther proposed the name *Hydrosaurus nuchalis*.—A second communication from Dr. A. Günther contained the

description of a new genus and species of Characinoid Fishes from Demerara, proposed to be called *Nannostomus beckfordi*.—A communication was read from Lieutenant Reginald Beavan, of the Revenue Survey Department of India, containing descriptions of two new species of Cyprinoid Fishes from the Punjab.—Mr. Howard Saunders exhibited specimens of and described a new species of Green Woodpecker from Southern Spain, which he proposed to call *Gecinus sharpii*.

Anthropological Institute, February 5.—Dr. Charnock, vice-president, in the chair. W. J. Jeaffreson, M.A., was elected a member.—Lieut.-Col. G. G. Francis exhibited a series of flint, stone, and bone implements and human bones from Paviland, Gower.—Mr. George Harris, vice-president, read a paper "On the hereditary transmission of endowments and qualities of various kinds." Of the actual transmission of qualities no doubt could be entertained. Many thought they were mainly derived from the mother, and in some instances they were inherited from the grandparents. That was often observed in cases of disease. Endowments did not, however, always directly descend, but were transmitted in various ways, such as in the descent of particular talents. In other cases it was modified in the transmission; occasionally the various qualities of both parents seemed to be divided among the different members of the family. That was observable in the breeding of animals. Physical qualities were also transmitted in the same way, and artificial acquirements had been considered transmissible. The most extraordinary instances were related of the existence of complete continuity, both mental and moral, between the parents and the children. The author considered the subject to be one of deep interest, and suggestive of various theories, and irespecting which the observations of each might add to the common stock of knowledge.—A paper on "the Wallons," by Dr. Charnock and Dr. Carter Blake, was then read. The Wallons were descendants of the old Gallic Belgæ who held their ground in the Ardennes, when Gaul was overrun by the Germans. The Wallons were tall, somewhat slender, raw-boned, tough, rough, and hardy, and made excellent soldiers. Their hair was dark, eyes fiery, dark-brown, or blue, and deep sunk. The ordinary Wallons stood in a similar relation to Belgium to what the Irish peasant did to the Sassenach. They were poor, jovial, good-natured, superstitious, chaste, hospitable, quarrelsome, violent, and generous, like the Irish. They were poetical, rich in song, and fond of the dance. They surpassed the Flemish in adroitness, activity, and skill, and the French in earnestness, perseverance, and diligence. As evidence of their peculiar character, a Wallon would drag a pig from Namur to Ghent, or even to Bruges, to gain a few sous more than he could in his own district. Some of the most eminent of the modern statesmen of Belgium were of Wallon descent. Notwithstanding these general remarks, a special mental and moral character might be predicated of the Wallons of each district. The paper concluded with copious remarks on the language of the Wallons, together with their proverbs.

Society of Biblical Archæology, February 6.—Dr. Birch, president, in the chair.—The following gentlemen were duly proposed as members of the society:—Mr. T. H. Christy, Mr. James Collins, Mr. George C. Hale, Rev. Prof. Mahaffey. An important communication was received from M. Clermont Ganneau, on an "Inscription in Hebrew or Ancient Phœnician Characters of the time of the Kings of Judah, discovered at Siloam-el-Fokani, near Jerusalem." In this paper M. Ganneau related the discovery of two incised tablets, executed on the wall of a ruined rock-cut chamber or sacellum, near to the house of the Sheikh of Siloam. The inscriptions were in the old Archaic character, now familiar to the archæological world in the famous Moabite Stone. Some Christian hermit had, about the fourth century of our era, wilfully mutilated part of the writing, but enough still remained to attest its extreme value as a palæographic record. Portions of the first four lines of the first tablet the learned savant believed to contain the name of the divinity Baal, and to denote a votive dedication to him by a functionary, name illegible, about the period of the later Kings of Judah. The author inclined to think that the cave had been originally dedicated to Baal at a still earlier period, probably by one of Solomon's Moabitish wives, and that it was afterwards added to and finished in a subsequent reign. M. Ganneau promised, in conclusion, shortly to lay before the society a more perfect examination and conjectural restoration of the inscriptions on both tablets, and expressed a hope that the records in question would prove not inferior in importance to any other, as being themselves the oldest, or nearly the oldest, positively Hebrew inscriptions in existence.

Mathematical Society, February 8.—Prof. Cayley, vice-president, in the chair. The chairman mentioned that the president had made inquiries at the Home Office as to the mode of procedure requisite for obtaining a charter for the society, and that the matter would come on for consideration at the next subsequent meeting (March 14) when members would have an opportunity of stating their views upon the desirability of incorporation.—Mr. J. W. L. Glaisher was elected a member of the society.—Mr. Cotterill gave an account of his paper "On an Algebraical Form, and the geometry of its dual connection with a polygon, plane, or spherical." The chairman, Dr. Hirst, and Prof. Clifford took part in a discussion on the paper.

Entomological Society, February 5.—Prof. Westwood, president, in the chair.—Mr. McLachlan brought before the notice of the meeting an illustration of the manner in which the increase of plant-lice is checked by Hymenopterous parasites; a family of aphides collected round a poplar twig exhibited had been utterly destroyed by these parasites, there remaining only the inflated empty skins much resembling the egg of some large insect, and each with a circular hole whence the parasite had emerged.—Mr. Druce exhibited a selection from a large collection of butterflies formed in Costa Rica by Dr. Van Patten. It included about fifty new species and one new genus. Amongst the more striking forms were four new species of *Papilio*, three of *Morpho*, three or four of *Leptalis*, &c.—Prof. Westwood exhibited drawings and specimens of various interesting species of *Acarnia*, including forms new to Britain. One of these was allied to the poisonous *Argas persicus*, and had been found in the crypt of Canterbury Cathedral. Mr. Bond had also seen examples found in a church on a gentleman's coat after two young bats had fallen upon him from the roof. Another pertained to the genus *Trogulus*, and had been found in Dorsetshire.—Major Parry read a paper on new species of Leucanoid *Coleoptera*, which was followed by others by Prof. Westwood and M. Snellen van Sollenhoven, on insects of the same family.

EDINBURGH

Royal Physical Society, January 25.—Dr. Robert Brown, president, in the chair.—Prof. Turner exhibited a large specimen of the electrical eel (*Gymnotus electricus*) of South America, which he had received a few weeks ago from Dr. Ridpath, surgeon, West India Mail Steam Packet Service. He described the arrangement of the electrical organs, and compared them with the corresponding organs in *Torpedo*, *Malapterurus*, and *Mormyrus*, and in the tail of the common skate. Dr. T. Strethill Wright made some remarks on the relation of these curious organs to various electrical apparatus. The organs of the electrical fishes were not properly batteries, but were probably condensing apparatus. Some time ago he made an artificial electrical eel, and with it he had performed all the experiments Prof. Faraday had done with the electrical eel itself, which he would exhibit and explain to the society. He gave a sketch on the board of condensing voltaic apparatus, which was probably analogous to that of the electrical fishes.—Various species of Pedunculated Cirripedes of Barnacles were exhibited from Shetland, Cornwall, the Black Sea, &c., by Mr. C. W. Peach. In October last Mr. Gatherer, of Lerwick, sent him a fine colony of *Lepas fascicularis* which had been taken floating off Kirkallister lighthouse by a gentleman fishing, and who saw a great many similar masses floating past his boat. They are each attached to a bulb-like mass, and are in various stages of growth. About ten are left, some having fallen off. When very young they are attached by a short peduncle to feathers, cork, cinders, and seaweeds, or any other floating object. As they increase in size they form a bulb on the foot-stalk. This in time becomes so large that it falls off, and thus the animal is buoyed up with it—in fact, "paddles its own canoe." When thus afloat the animals multiply, and the bulb is enlarged also. It is far from rare, and found in all seas. In Cornwall, after long-continued south-west winds, it is thrown ashore by thousands.—"Remarks on the Diamond Fields of South Africa," by Mr. Andrew Taylor.

DUBLIN

Royal Geological Society of Ireland, January 10.—Dr. W. Frazer in the chair. Prof. E. Hull, F.R.S., read some notes on the Marble of Carrara.—Prof. Macalister read

notes of some further "Researches on Conchospirals." He pointed out the geometrical properties of the logarithmic spirals of Mollusca, the special form of spiral in Ammonites, and the methods of deducing the individual specific parameters from (α) tangential measurements, (β) horizontal sections, and (γ) vertical sections.—The Chairman exhibited a human skull from Swan River, Australia, encrusted with shells and much acted on by water.

PARIS

Academy of Sciences, February 5.—M. Serret presented a note by M. A. Mannheim, containing generalisations of Meunier's theorem.—M. H. Resal presented a memoir on the mechanical effects of the American hammer.—A memoir was read by M. E. Duclaux on the laws of the flow of liquids in capillary spaces.—Mr. P. Blaserna presented a note on the solar atmosphere, in which he claims to have arrived at the same conclusions with M. Janssen, from his observations during the eclipse of December 22, 1870.—M. Renou replied to the observations made by M. Delaunay with regard to the Meteorological Annual of the Paris Observatory at the last meeting of the Society, and M. Le Verrier suggested the appointment of a committee to revise the meteorological observations presented to the Academy during the last century, and to bring out an authentic edition of them.—Communications, descriptive of the aurora observed in France and elsewhere on the evening of February 4, from MM. Frou, Salicis, Laussedat, and Chapelas, were read, as also an extract from a letter from M. Cornu to M. Fizeau upon the spectrum of the same aurora. The most important result obtained by the last-mentioned author was the determination of the existence of a yellowish-green band coinciding with that previously observed by Angström in 1867–68.—M. Prazmowski also presented a note on the spectral investigation of the aurora of Feb. 4. He described a green band about E of Fraunhofer (seemingly identical with that observed by M. Cornu), a red band near C, and two more very faint bands in the blue and violet, near F and G.—M. Bobierre communicated some chemical investigations on the Landes of Brittany, in which he noticed especially the constituents of the ashes of plants grown on those soils. They are chiefly remarkable for the great quantity of silica contained in them and their poverty in alkaline salts.—M. Cahours presented a note by M. G. Chancel, on the contraction of solutions of cane sugar at the moment of inversion, and on a new saccharimetric process. The author described the method employed by him, and stated that a solution of cane sugar, after inversion, has undergone an appreciable diminution of volume, which increases in proportion to the amount of sugar in solution. Upon this property he proposes to found a new method of saccharimetry.—M. Sacc presented an analysis of the linseed oil referred to in a recent memoir read to the Academy.—M. Dupuy de Lome read two long and exceedingly interesting papers upon the construction of a screw aerostat invented by him, and on the results of a trial trip made with it. The machine consists of an oblong balloon, with a boat-shaped car; the author describes it as presenting great stability. The propeller worked by eight men moved the balloon through the air with a velocity of 2·82 metres per second, or 10¼ kilometres (about 6¼ miles) per hour, so that a certain amount of power over the movements of the machine was obtained.—The warm discussion upon heterogeny and the nature of fermentation was continued at this meeting by a second communication on the latter subject by M. Fremy, who denies that the experiments of M. Pasteur have anything to do with fermentation. He also declared that his theory has nothing in common with that of Liebig, with which it was identified by M. Wurtz. The paper contained accounts of experiments made with malt, yeast, milk, and grape-wort, and upon the decomposition of organic bodies by the action of moulds.—MM. Dumas and Balard made some remarks on this communication, and M. V. Meunier presented a note in which he stated that organic bodies do frequently make their appearance in solutions treated after M. Pasteur's method, so that, he thought, the results obtained by that gentleman are not conclusive.—M. de Quatrefages presented a note by M. E. T. Hamy describing the occurrence of brachycephalous negroes among the Cammas on the shores of the Fernand-Vaz River in Western Africa.—M. Milne-Edwards described a self-regulating gas-heating apparatus in use in the zoological laboratory of the Museum; and M. Sichel *fils* forwarded the description of a new ophthalmoscope for simultaneous observations by two persons.

BOOKS RECEIVED

ENGLISH.—A Treatise on Attractions, Laplace's Functions, and the Figure of the Earth, 4th edition: J. H. Pratt (Macmillan and Co.)—Science and Humanity: Noah Potter (Hodder and Stoughton).—Solid Geometry and Conic Sections: J. M. Wilson (Macmillan and Co.)—Report by the Committee on Intemperance, for the Lower House of Convocation: (Jas. Clarke and Co.)—Our National Resources and how they are reached: W. Hoyle (Simpkin and Marshall).—Consumption, and the Breath re-breathed; Dr. H. M'Cormac (Longmans).

FOREIGN.—Bulletin de la Société Imperiale des Naturalistes de Moscou, 1871, Nos. 1 and 2.

DIARY

THURSDAY, FEBRUARY 15.

ROYAL SOCIETY, at 8.30.—On the Induction of Electric Currents in an Infinite Plane Conducting Sheet: Prof. Clerk Maxwell, F.R.S.—On some Derivatives of Uramido-benzoic Acid: J. P. Griess, F.R.S.

SOCIETY OF ANTIQUARIES, at 8.30.

LINNEAN SOCIETY, at 8.—On a Chinese Artichoke Gall: A. Müller, F.L.S.—On the Habits, Structure, &c., of the Three-banded Armadillo: Dr. J. Murie, F.L.S.—Comparative Geographical Distribution of Butterflies and Birds: W. F. Kirby.

CHEMICAL SOCIETY, at 8.

FRIDAY, FEBRUARY 16.

ROYAL INSTITUTION, at 3.—On the Crystallisation of Silver and other Metals; Dr. Gladstone, F.R.S.

GEOLOGICAL SOCIETY, at 1.—Anniversary Meeting.

SATURDAY, FEBRUARY 17.

ROYAL INSTITUTION, at 3.—On the Theatre in Shakespeare's Time: Wm. B. Donne.

SUNDAY, FEBRUARY 18.

SUNDAY LECTURE SOCIETY, at 4.—On the Human Hand, as Illustrating the Scheme of Creation: Lawson Tait.

MONDAY, FEBRUARY 19.

ENTOMOLOGICAL SOCIETY, at 7.

ANTHROPOLOGICAL INSTITUTE, at 8.—Strictures on Darwinism: H. H. Howorth.—Race-Characteristics as related to Civilisation: J. Gould Avery.

LONDON INSTITUTION, at 4.—Elementary Chemistry: Prof. Odling, F.R.S.

TUESDAY, FEBRUARY 20.

ROYAL INSTITUTION, at 3.—On the Circulatory and Nervous Systems: Dr. Rutherford.

ZOOLOGICAL SOCIETY, at 9.—Notes upon the Anatomy of the young Hippopotamus, as observed in the specimen which died in the Society's Gardens on the 10th January, 1872: J. W. Clark.—Contributions to a General History of the Spongiadæ. Part II: Dr. J. S. Bowerbank.—On the Spiders of Palestine and Syria; containing a general list with descriptions of numerous new species and characters of two new genera: Rev. O. P. Cambridge.

STATISTICAL SOCIETY, at 7.45.—On Prison Discipline and Statistics in Lower Bengal: Dr. Mouat.

WEDNESDAY, FEBRUARY 21.

GEOLOGICAL SOCIETY, at 8.—Migrations of the Graptolites: Prof. H. Alleyne Nicholson, F.G.S.—How the Parallel Roads of Glen Roy were Formed: Prof. James Nicol, F.G.S.—Notes on Atolls or Lagoon-islands: S. J. Whitnell.

SOCIETY OF ARTS, at 8.—On Prison Labour, as an Instrument of Punishment, Profit, and Reformation: F. J. Mouat.

ROYAL SOCIETY OF LITERATURE, at 8.30.—On Results of recent Excavations in Rome: Mr. Vaux.

METEOROLOGICAL SOCIETY, at 7.

THURSDAY, FEBRUARY 22.

ROYAL SOCIETY, at 8.30.

ROYAL INSTITUTION, at 3.—On the Chemistry of Alkalies and Alkali Manufacture; Prof. Odling, F.R.S.

SOCIETY OF ANTIQUARIES, 8.30.

CONTENTS