SOCIETIES AND ACADEMIES

Royal Society, February 24.—The President in the chair. The following papers were read: "Note on certain Lichens." By John Stenhouse. Usnic acid extracted from *Usnea barbata* by dilute solution of carbonate of soda was found to have the formula $C_{18}\ H_{18}\ O_7$, and the sodium salt $C_{18}\ H_{17}\ Na\ O_7$. This result accords with that of Hesse and differs from that of Knop, Rochleder, and Heldt, whose analysis give the formula $C_{19}\ H_{18} O_7$. Usnic acid was also obtained from *Evernia prunastri* as well as evernic acid. Tetrabrom-evernic was got by the action of bromine on evernic acid. Its formula is $C_{18}\ H_{12}\ Br_4\ O_7$. The acid extracted from *Cladonia rangiferina*, though possessing the same composition as usnic acid, was observed by Hesse to have a different melting-point (175° C.) from ordinary usnic acid (203° C.) He proposed, therefore, to call it β-usnic acid, as it so closely resembled ordinary usnic acid in its general character. The author has found that ordinary usnic acid, melting at 203° C., obtained from *Evernia prunastri*, *Ramalina calicaris*, and the various *Usneas*, does not yield a trace of β-orcin when distilled, whilst, on the contrary, the acid extracted from *Cladonia*, on being subjected to the same treatment, yields β-orcin; thus showing a marked difference in the products of its decomposition from ordinary usnic acid, as well as in its melting-point. Under these circumstances, therefore, he proposes to name the acid from *Cladonia rangiferina* "Cladonic Acid," instead of β-usnic acid, as proposed by Hesse. He intends to continue the study of this acid.

"On the successive action of Sodium and Iodide of Ethyl upon Acetic Ether." By Prof. Frankland and Mr. B. F. Duppa. The authors, referring to a paper by Mr. Wanklyn, wherein it is stated that their interpretation of the nature of the reaction between sodium and acetic acid must be erroneous because it involves the disengagement of hydrogen, remarked that Mr. Wanklyn's opinion is founded upon experiments which differ essentially from their own, and not warranting the conclusion which he has drawn from them. The authors allowed all evolved gas freely to escape, while Mr. Wanklyn operated in sealed tubes under great pressure. M. L. Cailletet has recently shown that the evolution of hydrogen from zinc and hydrochloric acid is gradually diminished and finally stopped under increasing pressure, while the evolution of hydrogen from sodium-amalgam and water is diminished and finally stopped in a sealed tube. Since pressure retards or even interrupts a reaction in which a permanent gas is evolved, whilst it is known to exercise little or no influence upon other chemical changes in which no evolution of gas takes place, the authors consider this influence of pressure affords an explanation of the difference between the results of Mr. Wanklyn's experiments and their own, as regards the evolution of hydrogen during the action of sodium upon acetic ether. They confirm his observation that sodium dissolves in valeric ether, under ordinary atmospheric pressure, without the evolution of any gas; adding that since a reaction, whatever its nature may be, which thus proceeds readily with ethylic valerate, can scarcely be impossible with its homologue, acetic ether, it is probable this reaction goes on side by side with those which they have described, but that when the pressure is moderate those changes chiefly take place which involve the disengagement of hydrogen, whilst under the great pressure arising in sealed tubes, those changes being more or less suppressed, the reaction observed by Mr. Wanklyn comes into prominence. The authors reserve their observations upon Mr. Wanklyn's views regarding the changes which take place when sodium acts upon acetic, butyric, and valeric ethers, until the publication of the experimental data upon which those views are founded.

Ethnological Society, February 22.—Prof. Huxley, president, in the chair. Mr. E. Backhouse was announced as a new member.—By the courtesy of Dr. Lockhart, a calva from China was exhibited by Prof. Busk, in illustration of a former paper on an ancient calvaria which had been assigned to Confucius. The skull is mounted in copper, and was formerly supported on a tripod and furnished with a lid.—"On discoveries of archæological interest in recent deposits in Yorkshire." By Mr. C. Monkman, of Malton. The author described the discovery of worked flints in the clay of Kelsea Hill, in the East Riding of Yorkshire. This was formerly regarded as belonging to the Hessle clay—a post-glacial deposit unconformable to the true boulder clay of Holderness—but it is probably only a derivative clay washed from the Hessle deposits on Kelsea Hill. It may, therefore, be of comparatively recent origin. Large finds of implements of Neolithic type are reported to have been made in the York sands. Many stone implements have also been found in the old river deposits in the Vale of Pickering, chiefly turned up in the prosecution of land-drainage works. The paper was illustrated by a fine collection of specimens.—"On the Natives of Naga, in Luzon, Philippine Islands." By Dr. Jagor. The author described in detail the manners and customs of the Bicol Indians who inhabit this locality. Dr. Campbell inquired whether there was any connection between the name of this place and the Sanskrit *naga*, a snake.

Entomological Society, February 21.—Mr. Alfred R. Wallace, president, in the chair. Professor Schiödte and Siebold were elected honorary members. Messrs. B. J. Lucas and G. T. Porritt were elected annual subscribers.—Mr. J. Hunter exhibited a moth captured in the New Forest, and supposed to be *Plusia ni*.—Mr. Albert Müller exhibited galls formed in the florets of the tansy by *Dipterous* larvæ.—Mr. Pascoe exhibited a beetle from King's George's Sound, the *Nepharis alata* of Castelman—*Hicketes thoracicus* of King, which latter name sinks.—Mr. A. G. Butler read a paper "On butterflies recently received by Mr. Swanzy from West Africa." Three new species were described of the genera, *Romaleosoma*, *Philognoma*, and *Mycalesis*.

London Mathematical Society, February 10.—Prof. Cayley, president, in the chair. Mr. A. Ramsay was elected a member. The president gave an account (second communication) of his paper on "Quartic Surfaces."—Mr. Walker made some further remarks on the subject of his paper on the "Equations of Centres and Foci, and conditions of certain Involutions," read at the January meeting of the society.—The condition that a quadric (v) should determine a pair of corresponding points in one of the three involutions given by a quartic (u) is the vanishing of the cubic invariant of $\overline{12}\ uv$. When u and v are the Jacobian and quadric covariants of two cubics the preceding condition expresses that the two cubics determine an involution. When one of the two cubics (v) is the cubic covariant of the other (u) the two determine four distinct involutions; and the Hessian of u determines the foci in one of the four—viz., that in which the points harmonically correspondent are also correspondent in the involution. The other three involutions are not analytically distinguishable one from another.—Mr. Clifford read a paper "On a case of Evaporation in the order of a Resultant." In it he established the two following theorems:—"Let it be required to eliminate x between two equations homogeneous in x, and certain other variables y, z, ... in which equations, however, x only occurs in virtue of the occurrence of a quantity $w = x^\alpha y^\beta z^\gamma, \ldots$ where $\alpha+\beta+\gamma+\ldots = \mu$; let, also, m, n be the orders of the equations, and h, k the remainders after division of m and n respectively by μ; then the order of the resultant is

$$= \frac{m\,n - hk}{\mu}.$$"

Theorem 2. "Let it be required to eliminate $\kappa - 1$ variables $x, y, \ldots$ from k equations homogeneous in these and certain other variables, in which equations, however, x, y, only occur in virtue of the occurrence of $k-1$ quantities $u, v, \ldots$ all of the same order μ; let also $m_1, m_2, \ldots m_\kappa$ be the orders of the equations, and $m_i = p_i\mu + h_i$, $h_i < \mu$; then the order of the resultant is

$$\Pi p\ (\Sigma\ \frac{h}{p} + \mu).$$"

Mr. Perigal presented to the Society a copy of his "Geometric Maps and Contributions to Kinematics."

Meteorological Society, January 19.—Charles V. Walker, president, in the chair. The Rev. J. Crompton, Dr. C. Fox, and Mr. E. J. Sykes were elected Fellows. The following papers were read: "On the Temperature and Humidity of the Air at the Heights of 22 feet and 50 feet above the ground, in comparison with the Temperature and Humidity of the Air at the Height of 4 feet." By Mr. Glaisher. Our knowledge of the temperature and humidity of the air near the surface of the earth is almost entirely confined to within 4 or five feet above the earth. The theory that the temperature was always lower at higher elevations was proved not to be at all times true, and the theory of the decline of 1° of temperature in every increase of 300 feet of elevation, was proved to be erroneous. The author stated the results of his observations in the great Captive Balloon, at Ashburnham Park, Chelsea, which M. Giffard

kindly placed at his disposal for the purpose. This balloon could ascend to the height of 200 feet on a calm day; its rate of ascension could be regulated at will; it could be kept stationary at any elevation, and experiments could be repeated several times in the day. From these results the author considered it to be evident that observations, even up to 50 feet, give more information than could be obtained by the use of either a free or captive balloon, as to the temperature and humidity of the air at moderate elevations. If carried through an entire year, this would give the seasonal as well as diurnal changes; such experiments are in progress at present, and several months' observations have already been made, the results of which will be placed before the Society at a future time.—"Rainfall at Jerusalem during the Rainy Season of 1868-69." Dr. T. Chaplin.

MANCHESTER

Literary and Philosophical Society, February 8.—Mr. J. P. Joule, president, in the chair. Mr. Binney, referring to his previous notice of stray boulders without traces of clay, high up the western slopes of the Pennine chain, about 1,000 feet above the level of the sea, said that Mr. A. H. Green and his colleagues had stated, in their valuable memoir on the carboniferous limestone, yoredale rocks, and millstone grit of North Derbyshire and adjoining parts of Yorkshire, just published by the Geological Survey, that they believed the eastern plain from Sheffield through Chesterfield down to Belper, to be in the main free from drift. Mr. Binney had often searched for boulders in the neighbourhood of Chesterfield. The only foreign rock which he met with in that district was a large block of greenstone several hundred pounds in weight, above the valley of the Hipper near Spring Bank and below the waterworks station, Chesterfield. The stone was well rounded and polished. He mentioned the fact to direct the attention of observers to this subject on both the eastern and western slopes of the Pennine chain. Probably they have only to be more diligently sought for in order to be found in greater abundance.

"On Convertent Functions." By Sir James Cockle. This was a supplement to the author's paper "On convertent functions." The convertent equation (3) contains in substance only one disposable arbitrary, and the sign of summation Σ does not increase, and may be expunged from it without diminishing, its generality. Consequently the process would fail to convert the Boolian integral for the cubic and lead only to illusory results. But a recognition of this failure had led him to another form of convertent equation. And first, if to the several dexters of (2) and (3) we add a term h, then the conversion will be possible, even though h be not a perfect differential co-efficient, provided only that $\int h dv$ be assignable within the limits of the integration.

Mr. Spence repeated the experiment he had made at the Exeter meeting of the British Association, showing that the temperature of saturated saline solutions could be raised to their boiling points by merely passing them through ordinary steam at a temperature of 212°. Thus, a solution of chloride of sodium was raised to a temperature of 221°, and one of chloride of calcium to 248°.

"On the Natural Ropes used in packing Cotton Bales in the Brazils." By Mr. Charles Bailey. Most of the cotton bales which reach this country from the Brazils are corded with the long stems of climbing plants growing in profusion in the forests bordering on the cotton districts. In their fresh state these stems are exceedingly pliant and of remarkable strength, so that they serve admirably for cordage purposes, but by the time that the cotton reaches the mills of Lancashire they become dry and rigid, and as no further use can be made of them, they are burned for firewood. Being very long, they are very troublesome to put on the boiler fires, and most millowners are glad to get rid of them. These objects are invested with singular interest when examined in regard to their structure, for although the external form of many of them is extremely curious, their chief interest centres in their remarkable internal organisation. Although they reach this country in immense quantities, they are not often to be met with in our museums or colleges, and the names of the plants which produce them are for the most part unknown. The *Bignoniaceæ* stands pre-eminent as the natural order most largely used for supplying lianas for packing purposes, both as regards the quantity of ropes, and the largest number of species. *Malpighiaceæ*, *Sapindaceæ*, *Leguminosæ*, *Aristolochiaceæ*, and *Ampelideæ* also yield these ropes. There are many other species found amongst these ropes which belong to other natural orders, such as the *Menispermaceæ*, *Gnetaceæ*, *Asclepiadaceæ*, &c., but our knowledge of them is too limited to assign them to their respective orders. Most of the author's specimens have come from bales of Santos cotton. The whole of these lianas furnish beautiful objects for the microscope.—Mr. Forrest suggested that useful dyes might be obtained from the plants described by Mr. Bailey.—In reply to a question from the Rev. Brooke Herford, Mr. Bailey stated that owing to a difference in the structure and general appearance of some of the stems in his possession, he had been led to suspect that they were aërial roots of some of the plants he had exhibited and described.

CAMBRIDGE

Philosophical Society, February 21.—The following papers were read:—"The antiquity of some of our familiar agricultural terms." By Mr. Paley (St. John's). After some general remarks upon the English language, and the fact that agricultural life was peculiarly favourable to the preservation of old words, Mr. Paley called attention to the fact that while in our language the generic names of animals are usually of Saxon origin, the words denoting their application are usually of classic origin. Words which are not generic, but particular and descriptive, are also generally of classic origin. He then proceeded to discuss the derivation of a large number of familiar agricultural terms in illustration of the above remarks.—"Proof that every rational equation has a root," and "The space theory of matter," both by Mr. Clifford (Trinity.)

GLASGOW

Natural History Society of Glasgow, January 25.—Prof. John Young, president, in the chair. "On the claims of Natural History as a branch of education" By J. W. Allan. The author advocated the teaching of zoology and other branches of natural history in schools, also that zoology should occupy a more important place in the curriculum in all universities. At its close Prof. Young made some remarks bearing on the different aspects of the question.—"On the introduction of the wild turkey (*Meleagris Gallopavo*) into Argyleshire." By John Gilmour. The author of this paper mentioned having received three specimens of this beautiful bird—a male and two females—from the southern extremity of Lake Huron, in Canada, in the summer of 1866, since which time various broods had been successfully reared in the neighbourhood of Ardlamont, where the birds had been allowed their full liberty in the woods. Mr. Gilmour concluded his paper with a description of the wild bird as compared with domestic breeds, remarking that it possessed greater symmetry with a more compact form, standing higher on its legs, and exhibiting other characters more like those of a game bird than one of the gallinaceous order. Mr. Gray mentioned that there are now supposed to be three different species of *Meleagris* besides the *M. ocellata* of Honduras and other parts of Central America, namely, *M. Americanus*, which is probably peculiar to the eastern half of North America; *M. Mexicana* of Gould, a species belonging to Mexico and extending along the table lands to the Rocky Mountains, the Gila and the Llano Estacado; also the *M. Gallopavo* of Linnæus, or domesticated bird. This last species was perhaps originally indigenous to one or more of the West India Islands, whence it was taken in a tamed state to various parts of North America, and thence to Europe about the year 1520. The domesticated bird differs from the nearly allied wild species in having a largely-developed dewlap extending from the base of the under mandible down the fore part of the neck to its base, and it cannot yet be said to be a settled question as to the precise original stock from which the valuable barn-yard breeds have descended.—"Notes on the genera of extinct fossil shells—*bellerophon* and *porcellia*; their classification amongst the mollusca, and their distribution in the silurian and carboniferous strata of the west of Scotland." By John Young. Mr. Young stated that at one time this interesting group of shells had been placed by palæontologists among the cephalopods, the highest division of the mollusca, and regarded as fossil representatives of the recent *argonautidæ*, which possess a symmetrically coiled shell as in *bellerophon* and *porcellia*, but, like them, not chambered as in the genus *nautilus*. In the more recent classification of the mollusca, *bellerophons* and *porcellia* are now placed amongst the gasteropods, and in that division termed the *neucleobranchiata*, which consist of entirely pelagic animals, some having shells, others none, and, according to Woodward, swimming at the surface instead of creeping on the bed of the sea. Prof. Owen believes, however, that it can scarcely be insisted all were necessarily floaters on account of their organisation. In recent seas the extinct genera are represented by the

genus *Atlanta* and the sub-genus *oxygyrus*. In palæozoic times the genus *bellerophon* commenced its existence, so far as is known, in the lower Silurian, and became extinct in the carboniferous period.

NEWCASTLE-UPON-TYNE

Chemical Society, November 25, 1869.—I. Lowthian Bell, president, in the chair. "On the estimation of Peroxide of Manganese in Manganese Ores," by E. Sherer and G. Rumpf. The authors showed that the method of Fresenius and Will is open to the objection of giving results which do not always agree with those obtained in the practical use of manganese for producing chlorine. They recommended Bunsen's method of testing as better adapted for the valuation of manganese ore.

BRIGHTON

Brighton and Sussex Natural History Society, February 10. The president, Mr. T. H. Hennah, in the chair. The hon. sec., Mr. T. W. Wonfor, exhibited a collection of *galls*, found on British plants, made by Mr. W. H. Kidd, and read a description of each one of the insects producing them, drawn up by the same gentleman. The collection is intended for the Brighton Museum. Mr. Wonfor then read a paper on Seeds. Commencing with the first appearance of the ovule in the unexpanded flower-bud, as a pimple consisting of an aggregation of cells, its gradual development and the impregnation by the pollen, together with its coeval parts, were traced until the perfect seed, ready for dissemination and containing within it the embryo of the future plant, was fully formed. The various modes by which the seed is scattered, the numbers produced by some plants, the power possessed by some of resisting heat and cold, and the wonderful property possessed by others of preserving their vitality, under apparently very adverse circumstances, for long periods of years, were each discussed. On the subject of artificial selection, it was shown what has been done, notably by Mr. F. Hallett, of Brighton, with cereals in increasing both the size and number of grains in an ear; something similar might be done with other plants. Seeds, as objects for the microscope, were next discussed. From a long series of examinations of wild and cultivated seeds, spread over several years, while unwilling to lay down any law of classification by their microscopic appearance, yet often in the case of unknown seeds he had been able to determine the family to which they belonged from certain peculiarities common to many plants of the same family. Seeing how varied and beautiful they were, and how little preparation they required, he considered they were not attended to by microscopists so much as they deserved. The paper was illustrated by a large collection of seeds and microscopic preparations.

VIENNA

Imperial Academy of Sciences, January 7.—Memoirs were communicated "On some constituents of the fruit of *Cerasus acida*, Borkh.," by Professor H. Rochleder, and on a spiral valve in the portal vein of the Rodentia, by Professor J. Hyrtl. —Herr von Haidinger presented a note by Dr. S. Meunier on the victorite or enstatite of the meteoric iron of Deesa, in Chili, which was said to be perfectly colourless and transparent and to contain no trace of iron. He also made some remarks on the study of meteorites, regarding them as the last step in the development of our planetary system.—Professor F. Unger communicated a memoir on the occurrence of Typhaceous plants (*Typha* and *Sparganium*) in tertiary deposits.—Prof. E. Mach presented a preliminary communication on an apparatus constructed by him for the observation of sound-movements.—Dr. Samuel Kónya communicated an account of his investigation of the mineral water of Wielutza, near Jassy, in Roumania. He obtained about 0·9 per cent. of solid constituents, of which 0·574 was sulphate of soda, and nearly 0·18 sulphate of magnesia. The water also contained chloride and carbonate of magnesia.—A memoir by MM. J. Rumpf and F. Ullik, on the Ullmannite of Waldenstein in Carinthia, was presented by Professor Peters. —Professor Graber communicated an account of the Orthoptera of level districts among the Austrian Alps.

January 13.—A report was communicated from Dr. von Scherzer upon the proceedings of the scientific members of the East Asiatic Expedition. The following specimens were specially noticed:—Three Chinese and three Japanese skulls, a collection of fresh-water fishes from Osaka in Japan, and a number of Chinese drugs.—A memoir "On nexus of curves," by Dr. Emil Weyr, was presented.—M. Haidinger communicated the contents of a series of letters from Professor W. H. Miller, relating to meteorites.—M. A. Waszmuth forwarded a memoir on a new method of determining the reduction-factor of a tangent compass. —Herr J. Effenberger announced that he had succeeded, upon scientific principles, in producing violins which in power of tone approached those of the old makers.—Professor Reuss presented a memoir on Upper Oligocene corals from Hungary, in which he described 16 species of corals from the beds in the neighbourhood of Gran, which contain abundance of *Nummulites Lucasana* and *perforata*, and were formerly regarded as of Eocene age: half the species are new; of the other half, seven have occurred in the beds of Castel-Gomberto and Oberburg.—A memoir by Dr. Leo Levschin, containing a description of the structure and vessels of the intestine of *Salamandra maculata*, was presented by Professor Langer.—Herr. F. Unferdinger communicated a memoir on the transformation and determination of a certain triple integral.—M. H. Obersteiner read a paper on some lymphatic spaces in the brain: and Dr. S. L. Schenk presented a memoir on the amount of nitrogen in the flesh of various mammals, in which he stated that this quantity is variable, ranging from 3·06 to 4·21 per cent.

PARIS

Academy of Sciences, February 21.—At this meeting M. Becquerel communicated a memoir on the production of electro-capillary currents in the bones, nerves, and brain.—M. de Saint Venant presented a report on a memoir by M. Boussinesq, relating to the theory of periodical liquid waves, and another on a supplement by M. Tresca to his memoir read on the 27th of November, 1864, on the flowing of solid malleable bodies pressed out of a cylindrical vase through a circular orifice.—The astronomical and physical communications were:—A notice of a direct and easy method of effecting the development of the perturbative function and of its differential coefficients, by Mr. S. Newcomb; and a note by M. A. Martin on the method adopted by Léon Foucault, to ascertain whether the surface of a mirror is strictly parabolic.—The following papers were read on chemical subjects:—A note on synthesis of aromatic acids, by M. A. Wurtz, in which the author described a series of acids produced by the action of amalgam of sodium upon mixtures of brominated toluene and chloride of benzyle, with chloroxy-carbonic ether.—A paper containing facts relating to the stability as chemical species of normal propylic, butylic, and amylic alcohols, by MM. J. Pierre and E. Puchot. The authors described a series of observations made upon these substances under various conditions, from which they concluded that the three alcohols were specifically different. They remarked that amylic alcohol is the only one of the three which exerts any sensible action upon polarised light.—A memoir on the artificial digestion of feculent bodies by maltine, by M. L. Coutaret, in which he stated that the action of maltine or vegetable diastase upon cooked starchy matters is precisely analogous to that of the salivary diastase, and recommended the use of the former in cases of dyspepsia.—A note by M. A. Lamy on a new kind of thermometer, founded on the principle of "dissociation," that is to say, on the determination of the amount of gas given off by a solid body at different temperatures. The substance employed by the author is a double chloride of calcium and ammonia. The author regarded his method as particularly applicable to the determination of temperatures low down in the earth or in deep soundings. M. Becquerel remarked that for temperature-observations at various depths in the earth, he had several years ago proposed a method which gave good results.—A note by M. Reboul on combinations of the hydro-acids with brominated ethylene and propylene.—A note by M. A. Colley on the action of the free haloids and of some chlorides upon glucose, in which he described a new compound obtained by the action of chloride of acetyle upon glucose, which he proposes to name *acetochlorhydrose* ($C^6H^7(C^2H^3O)^4Cl$).—A notice of a new phosphuretted compound by MM. Darmstädter and Henninger. This body, which the authors named *cyanethylphosphide*, was obtained by the action of an etherial solution of phosphuretted hydrogen upon chloride of cyanogen. And, lastly, a chemical and therapeutical investigation of the thermal water of the solfatara of Puzzoli, by M. S. De Luca; the water contains free sulphuric acid. The only purely mathematical communication was a memoir by M. Halphen on algebraical left curves.—General Morin presented a memoir by M. Goldenberg describing improvements introduced by him in the ventilation of the grinding and polishing works at Zorrhoff, near Saverne.—M. H. Sainte-Claire Deville communicated some further remarks by M. A. Schafarik,

on the diamonds discovered at Dlaschkowitz in Bohemia, in which it was stated that fragments of the stone have been burnt, for the purpose of demonstrating its identity with diamonds from other localities.—A note from M. Liebreich on the use of strychnine as an antidote for chloral, was presented by M. Wurtz. The physiological action of these two substances was stated to be so antagonistic, that either of them may be employed with more or less effect as an antidote to the other.—M. Duchartre communicated a memoir by M. Prillieux on the formation of small masses of ice in the interior of plants. These masses, which occur in many plants, when exposed to severe frosts, were described by the author as composed of numerous prismatic needles closely applied to each other, and formed in lacunæ between the cells of the living tissues.—M. A. Chatin presented a second note on the causes of the dehiscence of anthers, in which he described the part taken in the production of this phenomenon by the second membrane or mesothecium.—M. F. Lenormant continued his notes on animals known to the ancient Egyptians, with an account of the domestication of some species of antelopes under the old empire, especially the fourth and fifth dynasties—Of the following communications no particulars are given. A memoir by M. Delaurier on a new general theory of the production of static and dynamic electricity,—an *electro-thermic theory*; a memoir on the pathology and therapeutics of cholera, by M. J. de Zycki of Wilna; a note by M. G. Adeline on the influence of copper as a preservative from cholera; a note by M. Allegret in continuation of his remarks on the geometrical representation of the elliptical function of the first kind with an arbitrary modulus, &c.; a note on the theory of magic squares, by M. Marie; a letter on the formation of ice, and a note on a case of catalepsy from Mr. Jackson Davis.

New Zealand

Wellington Philosophical Society, November 13, 1869.—Mr. W. L. Travers, F.L.S., in the chair.

Dr. Hector called attention to two live specimens of the mud fish from Hokitika, *Neochanna apoda* of Gunther. The specimens were swimming actively in clear water, and had perfect vision, although their eyes are small, so that the undeveloped state of the eye in the specimen previously received must have been exceptional. The Hon. Mr. Fox remarked that these mud fish were not peculiar to Hokitika. Five years ago he remembered seeing a fish dug up from a gravelly-clay ten feet below the surface at Rangitikei, and he believed that it was identical with the fish exhibited.

A remarkable meteor, observed in Wellington on the 8th inst. at 11.30 P.M., was described by the Rev. Mr. Stock. It was observed in E.S.E. and descended almost vertically with three distinct coruscations, attended by showers of sparks and bright prismatic colours. The brightness was equal to that of Venus. Mr. Kebbell and Mr. Gillon corroborated Mr. Stock's observations. A description of three additions to the New Zealand flora, with specimens, was laid on the table, and Dr. Hector gave a short abstract of a report by Mr. Kirk, of Auckland, on the botany of Cape Colville peninsular. This paper gave the results of a survey that had been made for the Geological Department for the purpose of obtaining an accurate record of the original vegetation, as it was undergoing rapid modification by the gold diggers. Several new species of plants were described, of which specimens were exhibited.

The next paper was a description of the mechanical apparatus employed in raising the *Turanaki*, by Mr. J. T. Stewart. Dr. Hector directed attention to a collection of the marine animals that were found on the vessel, among which are three species of *anomia*, two of *mytilus*, *ostrea*, *pecten*, *serpula*, *balanus*, and *teredo*. He remarked that some of these animals are usually confined to depths only slightly below low water. Their occurring so well-grown within a year at the depth of 100 feet, seemed to indicate that depth of water did not so much control their existence as a supply of nourishment, which was probably abundant near the wreck.

Mr. Skey showed that the temperature obtained by the common blowpipe, with proper precautions against conduction of heat, was at least 5,100° Fahr., as it is capable of fusing fine points of platinum, and described a new process to facilitate the analysis of supposed auriferous quartz, when sulphides were present in large quantities. Iodine or bromine is used as the solvent, and a rapid test is obtained by dipping filter paper in the solution and burning it with due care, when if gold be present a very characteristic purple hue is imparted to the ash. By this test the presence of gold in the proportion of one dwt. in the ton can be detected with great economy and certainty.

Dr. Hector described the bones of a fossil penguin recently discovered on the west coast of Nelson, and presented to the museum by Mr. Dingan. The discovery is interesting, as a fossil bone found by Mr. Mantell in the Oamaru limestone of Otago in 1849, was pronounced by Prof. Huxley to belong to a gigantic penguin five feet in height. The fossil bones found by Mr. Dingan, appeared to be those of a bird not larger than penguins that still exist in antarctic seas. The fossil shells sent from the same formation as the bones, indicate that they belong to a lower pliocene period.

Mr. Hamilton read a paper on the educational system.

DIARY

THURSDAY, March 3.

Royal Society, at 8.30.—Results of Monthly Observations of Dip and Horizontal Force made at Kew Observatory: Dr. Balfour Stewart.—Spectroscopic Observations made with the great Melbourne Telescope, Nebula in Argo, and the Spectrum of Jupiter: A. Le Sueur.
Chemical Society, at 8.—Indices of Refraction: Dr. Gladstone.
Linnean Society, at 8.—Hybridism among Cinchonæ; Mr. J. Broughton.
Pathological Society, at 8.
Royal Institution, at 3.—Chemistry of Vegetable Products: Prof. Odling.
Society of Antiquaries, at 8.30.—Monastic Inventories: Rev. M. S. C. Walcott.
London Institution, at 7.30.

FRIDAY, March 4.

Geologists' Association, at 8.
Philological Society, at 8.15.
Royal Institution, at 9.—Iron-built Ships: Mr. E. J. Reed, C.B.
Archæological Institute.

SATURDAY, March 5.

Royal Institution, at 3.—Science of Religion: Prof. Max Müller.

MONDAY, March 7.

London Institution, at 4.
Medical Society, at 8.
Entomological Society, at 7.
Society of Arts, at 8.—Cantor Lecture: Dr. Paul.
Royal Institution, at 2.—General Monthly Meeting.

TUESDAY, March 8.

Photographic Society, at 8.
Ethnological Society, at 8.—On the opening of a Cairn in North Wales: Col. A. Lane Fox.—On the Earliest Phases of Civilisation: Hodden M. Westropp.
Institution of Civil Engineers, at 8.—The San Paulo Railway, Brazil: Mr. D. M. Fox, M. Inst. C.E.
Medical and Chirurgical Society, at 8.30.
Royal Institution, at 3.—Plant Life: Dr. Masters.

WEDNESDAY, March 9.

Society of Arts, at 8.—Street Tramways: W. B. Adams.
Archæological Association, at 8.
Royal Microscopic Society, at 8.—1. On the Comparative Steadiness of the Ross and Lister Models under Trying Circumstances; 2. On the Shell Structure of Fusulina; 3. On the Microphyle of the Fish's Ovum; 4. On the Reparation of the Spines of Echini: Dr. W. B. Carpenter.
Geological Society, at 8.—On the Structure of a Fern-stem from the Lower Eocene of Herne Bay, and on its allies, recent and fossil: Mr. W. Carruthers, F.L.S., F.G.S.—On the Oolites of Northamptonshire: Mr. Samuel Sharp, F.G.S.—On the Geology of the district of Waipara River, New Zealand: Mr. T. H. C. Hood, F.G.S.

THURSDAY, March 10.

Royal Institution, at 3.—Chemistry: Prof. Odling.
Royal Society, at 8.30.
Mathematical Society, at 8.
Zoological Society, at 8.30.—On Dinornis: Professor Owen.—Description of a new species of *Ampullaria*: Dr. J. C. Cox.—On the Birds of Veragua: Mr. O. Salvin.—On new birds from the Yantze-kiang: Mr. R. Swinhoe.
London Institution, at 7.30.

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