lucent enough to admit of the accurate measurement of the details of minute algæ and fungi to the $\frac{1}{25000}$ of an inch. The goniometer is also described. Both are said to posses advantages not secured before by any instrument. The remaining papers are—Note on Dr. Barnard's Remarks on the Examination of Nobert's Nineteenth Band, by J. J. Woodward, Assist. Surg. U.S. Army; a New Erecting Arrangement, especially designed for use with binocular microscopes, by R. H. Ward, M.D., ; and On the Action of Hydrofluoric Acid on Glass, viewed Microscopically, by H. F. Smith.

OF the *Mémoires de la Société de Physique et d'Histoire Naturelle de Genève* the first part of the twenty-first volume has recently been published. It is chiefly occupied by an admirable memoir on the Orthopterous family Mantidæ by M. Henri de Saussure, forming the third fascicule of his "Mélanges Orthoptérologiques." In this paper the author not only describes a great number of new species, but also discusses the internal classification of the family, and gives tables of the subordinate groups and genera, and the synonymy of nearly all the species, so that his work (including its supplement) is very nearly a monograph of the curious and interesting group of insects which constitutes its subject. A great number of the species described by the author are figured on four beautifully executed plates which accompany the memoir, and these will astonish the non-entomological reader by the variety of curious forms produced by modifications of the same plan of structure.—The other papers in this part consist of descriptions of new or little-known exotic Cryptogamia (Mosses), by M. J. E. Duby, illustrated with four plates; a paper on gelatiniform matter by M. Morin, and a report on the labours of the society by its President, M. Henri de Saussure.

PART II. of the *Bulletin of the Royal Swedish Academy of Sciences* (Ofversigt af Kongl. Vetenskaps Akademiens Förhandlingar) for the present year commences with a paper (in Latin), by Dr. E. Fries, containing a description of *Queletia*, a new genus of Lycoperdaceous Fungi, and of a new species of the genus *Gyromitia*. The characters of the former are illustrated in a plate. —Another botanical paper is a notice of some Algæ from the inland ice of Greenland, by M. S. Berggren. The author describes and figures a peculiar form, which he regards as most approaching the Zygnemaceæ, but as having an unmistakable resemblance to some Desmidiaceæ. — Passing by a rather wide step from Greenland to South Africa, we have Latin descriptions of 226 Caffrarian Curculionidæ, collected by Wahlberg, from the pen of M. O. J. Fahreus. These all belong to Lacordaire's second division of the family.—M. B. Lundgren publishes a notice of the occurrence of amber at Fyllinge, in Halland.—The remaining papers are upon chemical subjects, and include a paper by M. P. T. Cleve on some remarkable isomerisms in organic chemistry; a paper by the same author on the nitrites of some platinum-bases; and one by M. L. F. Wilson on the sulphides of arsenic.

Journal of the Chemical Society, September 1871. Bolas and Groves have continued their researches on carbon tetrabromide, and have obtained some interesting results. In their former paper they mentioned that antimony terbromide could be substituted for iodine in the preparation of the tetrabromide. They now find that bromine will act on carbonic disulphide in the presence of the bromides of the following metals :—bismuth, arsenic, gold, platinum, cadmium, zinc, and nickel; the bromides of iron, tin, phosphorus, and sulphur, however gave very unsatisfactory results. The authors still think the mixture of bromine and iodine the most convenient reagent for the preparation of the tetrabromide. The authors recommend for the recovery of bromine from residues the action of dipotassic dichromate and sulphuric acid.—R. C. Woodcock has examined the action of ammonic chloride on normal and acid salts; he has experimented on the following bodies :—potassic chromate, microsmic salt, trisodic phosphate, dipotassic tartrate, succinate, &c. By the action of ammonic chloride on sodic metaborate the whole of the ammonia is evolved, sodic chloride and metaboric being formed. Borax also yields the whole of the ammonia, sodic chloride and tetrametaborate remaining behind. Both soluble and insoluble chromates yield ammonia when distilled with ammonia salts, an acid chromate being formed; the whole of the ammonia, however, is not evolved, the acid chromate formed at a certain point stopping the evolution of ammonia; if the acid salt be removed by crystallisation, a copious evolution of ammonia again takes place on boiling.—W. Mattieu Williams communicates a short abstract of a paper "On Burnt Iron and Steel." Iron which has been damaged by re-heating is designated "burnt iron;" it is brittle, its fracture being short, displaying the so-called crystalline structure. In all the samples which the author has examined, he has found particles of black oxide of iron diffused in the mass. The oxidation must of course take place after that of the carbon present in the iron. It is found that iron attains its maximum toughness when the carbon is reduced to the lowest possible proportion without the oxidation of the iron commencing. When steel is raised to a yellow or white heat, and is suddenly cooled, it turns brittle. Burnt steel has a coarse, granular fracture, and contains small cavities, technically called "toads' eyes." These are probably due to the sudden cooling of the iron imprisoning the carbonic oxide, which is evolved by the oxidation of the carbon; this oxidation not only takes place at the surface of the mass, but also in the interior, from the fact that certain gases can pass readily through heated iron. This explanation is strengthened by "burnt steel" being cured by welding up these cavities. The remainder of the number is occupied with the abstracts of chemical papers, which extend over seventy-five pages, and are quite up to the usual standard, both in scientific interest and as regards literary merit.

Journal of the Chemical Society, November 1871.—This number does not contain any papers originally communicated to the Society. It is not certainly to the credit of English chemists that this should be the case for two months in succession; the number of English chemists who devote their time to original research seems every year to become smaller; on the Continent, however, the reverse is the case, as is shown by the very large number of abstracts, which are published monthly by the Society. This month about 130 papers are abstracted, which fill 127 pages. Amongst them we notice a remarkable communication by Angström "On the Spectra of Simple Gases." Angström took a tube filled with atmospheric air and gradually exhausted it by a mercurial pump, the spectra being obtained by the use of an induction coil. He states that he observed successively the following spectra: 1st, that of atmospheric air; 2nd, the band spectrum of nitrogen; 3rd, that of carbonic oxide; and 4th, when the rarefaction had reached its limit, the lines of sodium and chlorine. He has also experimented on hydrogen, and concludes that it possesses only one spectrum, that of four lines, which is observed in the spectra of the sun and stars. He believes that the various spectra of hydrogen obtained by Plücker, Frankland and Lockyer, Wöllner, and others, are entirely due to impurities, such as acetylene and sulphur.—An abstract of a paper by Andrews contains a curious fact. A fine tube is half filled with bromine and hermetically sealed; on heating, the bromine becomes opaque, so that the tube appears to be filled with a dark red resin.—Lieben and Rossi continue their researches on the normal alcohols and acids of the methyl series; a review of their results has already appeared in these pages.—Ladenburg contributes another most interesting paper, 'On the reduction products of silica, ether, and some of their derivatives;" these researches are very important, and have opened out quite a new branch of chemical inquiry. He has obtained such bodies as silicium, diethylketonic ether ($SiC_2H_{52}OC_2H_{52}$), silicoheptyl ether ($SiC_2H_{53}OC_2H_5$), and so on.—Another paper of some interest is by Heinrich, "On the Influence of Heat and Light on the Evolution of Oxygen by Water Plants." He experimented on the leaves of the *Hottonia palustris*, which were placed in common water. At a temperature of 2·7° C. in full sunlight no evolution of gas took place, but at 5·6° a regular evolution commenced. The most active formation was at 31°, and at 50° to 56° gas ceased to be formed, but the leaf resumed its activity in cooler water. If the leaves were exposed to a temperature of 60° for ten minutes, their power of decomposing carbonic acid was destroyed.

SOCIETIES AND ACADEMIES

LONDON

Geological Society, December 20, 1871.—Mr. Joseph Prestwich, F.R.S., president, in the chair. Mr. Frederick H. Bowman, F.R.A.S., F.C.S., of Halifax, Yorkshire, and Mr. Thomas Charles Sorby, B.A., F.R.S., of 27, Brunswick Square, W.C., were elected Fellows of the Society. The following communications were read :—1. A Letter from Mr. G. Milner Stephen, F.G.S., to the late Sir Roderick Murchison, dated Sydney, 5th October, 1871, announcing the discovery of a rich auriferous deposit on the banks of the River Bondé, on the N.E. coast of

New Caledonia, and of a great deposit of tin-ore in the district of New England, New South Wales. The gold in New Caledonia is found in drift, and there are indications of the near proximity of a quartz-reef. The tin-ore in New South Wales is said to be in "pepitas, crystals, and beds of conglomerate, especially in micaceous granite, more or less decomposed." Mr. D. Forbes stated that in 1859 he had placed in his hands some specimens of granite from the district the discovery of tin in which was announced by Mr. Stephen, and that he found them to be perfectly identical with the stanniferous granites of Cornwall, Spain, Portugal, Bolivia, Peru, and Malacca, which he had also examined. These granites were all composed of white orthoclase, felspar, colourless or black Muscovite mica and quartz. He was not aware that tinstone (cassiterite or oxide of tin) occurred anywhere in rock of a different character. It was always accompanied by more or less native gold. Mr. Pattison remarked that in many places where tin occurred it was not present in sufficient quantity to be remuneratively worked. Mr. D. Forbes, in answer to a question from Prof. Ramsay, stated that, as far as could be ascertained, the age of the stanniferous granites mentioned by him must be between the end of the Silurian and the early part of the Carboniferous period. Prof. Ramsay would carry them down to the close of the Carboniferous period, and would be contented to term them pre-Permian.—"Remarks on the Greenland Meteorites." By Prof. A. E. Nordenskjöld, For. Corr. G.S. The author stated that the masses of meteoric iron brought from Greenland by the recent Swedish expedition seem to have formed the principal masses of an enormous meteoric fall of miocene date, extending over an area of some 200 miles. The iron appears to be free from silicates. Against its eruptive origin the author urges that when heated it evolves a great amount of gaseous matter, and that it contains imbedded particles of sulphide of iron, the mass itself being nearly free from sulphur. The masses are composed of meteoric nickeliferous cast and wrought iron, or of mixtures of the two; in the last case the Widmannstætten's figures are best developed. The author further noticed the various modes in which the iron occurs, viz., 1, as meteorites; 2, filling cracks; 3, as brecciæform stones cemented with oxide and silicate of iron; and 4, in grains disseminated in the basalt. Mr. Roberts protested against the evolution of gaseous matter being considered as a proof of meteoric origin. Prof. Ramsay reiterated his previously-expressed opinion, that the masses of iron might be of telluric origin.—"Further Remarks on the Relationship of the *Limulidæ* (*Xiphosura*) to the *Eurypteridæ* and to the *Trilobita*." By Mr. Henry Woodward, F.G.S. In this paper the author described the recent investigations made by Dr. A. S. Packard, Dr. Anton Dohrn, and the Rev. Samuel Lockwood upon the developmental history of the North American King-crab (*Limulus Polyphemus*), and discussed the conclusions as to the alliances of the *Xiphosura* and *Eurypteridæ*, and to the general classification of the *Arthropoda*, to which the results of these investigations have led Dr. Dohrn and some other Continental naturalists. According to this view, the *Xiphosura* and *Eurypteridæ* are more nearly related to certain Arachnida (the Scorpions, &c.) than to the Crustacea; and this opinion is further supported by the assertion of Dr. Dohrn, that in *Limulus* only one pair of organs (antennules) receives its nerves from the supraœsophageal ganglion, and that the nature of the underlip in *Limulus* differs from that prevailing among the Crustacea. Dr. Dohrn also recognises the relationship of the Merostomata to the Trilobites, as shown especially by the development of *Limulus*, and considers that the three forms (*Limulidæ*, *Eurypteridæ*, and *Trilobita*) should be combined in one group under the name of *Gigantostraca*, proposed by Haeckel, and placed besides the Crustacea. The author stated, on the authority of Prof. Owen, that *Limulus* really possesses two pairs of appendages which receive their nerves from the supraœsophageal ganglion; that, according to Dr. Packard, the young *Limulus* passes through a Nauplius-stage while in the egg; that no argument could be founded upon the lower lip, the condition of which varied extremely in the three groups proposed to be removed from the Crustacea; and he maintained that even from the ultra-Darwinian point of view taken by Dr. Dohrn, the adoption of his proposal would be fatal to the application of the hypothesis of evolution to the class Crustacea. Prof. T. Rupert Jones remarked upon the interest attaching to the study of the Crustacea, and called attention to the absence of any indications of convergence in our present knowledge of the class. He thought that, in the present day, we must nevertheless look back to some point of convergence from which the varied forms known to us may have proceeded by evolution. Prof. Macdonald remarked that difficulties must be expected to occur in classification. He believed that all Invertebrate animals were to be regarded as turned upon their backs, as compared with Vertebrata. The cephalic plate in *Limulus* he regarded as the equivalent of the palate-bone. The incisive palate was very distinct in the Crabs. The absence of one pair of antennæ did not appear to be any reason for removing *Limulus* from the Crustacea. Dr. Murie considered that the contemplation of the multitude of young forms referred to by Mr. Woodward should serve as a warning to describers of species, and also as a check to generalisations as to the number of species occurring in various formations. He remarked that if we were at a point when the presence or absence of a single pair of nerves could be taken as distinguishing class from class, these classes must be regarded as very nearly allied. He thought that the doctrine of evolution was being pushed further than the known facts would warrant. Mr. Woodward, in replying, drew attention to the diagrams of the embryo and larva of the recent *Limulus*, comparing them with *Limulus* of the Coal-measures, *Neolimulus* of the Silurian, and also with the larval stages of the Trilobites, discovered by Barrande. He pointed out the strong resemblance which the fossil forms offer to the early stages of the modern King-crab, and expressed his assent to the proposal of Dr. Dohrn to bring the Trilobita, if possible, nearer to the Merostomata. If, however, the Trilobites have true walking-legs instead of mouth-feet (gnathopodites) only, they would be more closely related to the Isopoda. He showed by a tabular view of the Arthropoda that the known range in time of the great classes is nearly the same, and therefore affords no argument for combining the Merostomata with the Arachnida; but on the contrary, he considered that the Trilobita were, with the Entomostraca, the earliest representatives of the class Crustacea, and could not therefore be removed from that class.—The following specimens were exhibited:—Specimens of Auriferous Quartz from New Caledonia, and of Tin Ore from New South Wales, exhibited by Mr. G. Milner Stephen; specimen of gold from the Thames Goldfield, New Zealand, exhibited by Prof. Tennant; specimens of *Eurypterus Scouleri* and of *Belinurus* and *Prestwichia*, exhibited by the President; specimens of recent and fossil Crustacea, exhibited by Mr. H. Woodward, in illustration of his paper.

Zoological Society, January 2.—Mr. John Gould, F.R.S., in the chair. An abstract was read from a letter received from Mr. T. G. F. Riedel, of Gorontalo, Celebes, in reference to the true locality of a rare Kingfisher, *Tanysiptera Riedeli*, which he stated to be from Kordo—an island in the Bay of Geelvink, and not from Celebes.—Prof. Newton exhibited and made remarks on a specimen of Ross' Gull (*Larus Rossi*), from the collection of the late Sir William Milner, which was said to have been obtained in Yorkshire.—Mr. Gould exhibited an adult specimen of the same bird, from the Derby Museum, Liverpool.—Mr. P. L. Sclater read a paper on the species of monkeys found in America north of Panama, being supplementary to a former paper on the northern limit of the Quadrumana in the New World. The species of monkeys now ascertained to occur in Central America from Panama to Mexico were stated to be eleven in number—namely, ten belonging to the family Cebidæ, and one to the Hapalidæ. Full particulars were given concerning the range of each of these species.—Mr. Henry Adams communicated some further description of new species of shells, collected by Mr. R. McAndrew, in the Red Sea. A second paper by Mr. H. Adams contained descriptions of fourteen new species of land and marine shells from Mauritius, Mexico, Formosa, Borneo, and the New Hebrides.—Mr. George Gulliver communicated a paper on the œsophagus of a hornbill (*Toccus melanoleucus*), being an appendix to a former paper by him on the taxonomic character of the muscular sheath of the œsophagus of the Sauropsida, read at a previous meeting of the Society.—Mr. J. Brazier communicated some observations on the distribution of certain species of volutes found in the Australian seas. In a second paper Mr. Brazier gave descriptions of six new species of land and marine shells from the Solomon Islands, Western Polynesia, and Australia.—Dr. J. C. Cox communicated descriptions of some new land shells from Australia and the South Sea Islands.

Entomological Society, January 1.—Mr. Alfred R. Wallace, president, in the chair.—The secretary read an extract from a letter received from Mr. Gould respecting the question of the liability of dragon-flies to the attacks of birds. Mr. Gould had no doubt that the hobby and kestrel attacked the larger kinds, and he had seen sparrows, &c., preying upon the smaller *Agrionidæ*.—Mr. Müller called attention to a statement by

M. Emile Joly to the effect that Latreille's supposed crustaceous genus, *Prosopostoma*, is probably founded upon the immature condition of certain *Ephemeridæ*.—Mr. Butler read a paper "On certain species of *Pericopides*"—Mr. F. Smith read a letter from Mr. J. T. Moggridge with reference to the habits of some species of ants belonging to the genus *Aphenogaster*, as observed at Mentone in the winter. Mr. Moggridge affirmed that those ants harvested the seeds of various plants in chambers, sometimes excavated in solid rock. He had seen them busily engaged in conveying the seeds into these chambers, and found that, in most cases, the radicle was bitten off, so as to prevent germination; but he had also observed sprouted seeds being brought out again as apparently unfitted for store purposes. Many of the seeds had their contents extracted through a hole in one side, and though he had not actually seen the ants feeding upon them, he was inclined to believe that the stores were made for the purpose of providing food in the winter months.

Society of Biblical Archæology, January 2.—Mr. S. Birch, president, in the chair.—A paper entitled "Hebræo-Ægyptian in Hebrew-Egyptian Analogues," contributed by M. François Chabas, Membre de l'Institut, and translated for the society by Mr. E. R. Hodges, was read by the translator. In this the learned Egyptologist, having enumerated the various sources and original texts from which his materials were taken, proceeded to consider the various moral and religious parallelisms of the Egyptians and Hebrews under three distinct sections: (1) Laws respecting charity and special duties; (2) Commands and proverbs enforcing the obligation of filial obedience; (3) Legal formulæ and reports, referring to the prohibition of blasphemous and irregular oaths. Under each of the divisions several translations of hieroglyphic texts were given, together with an exegesis justifying the renderings adopted by M. Chabas. The last section, in which the adjuration "by the life of God, and by the life of Pharaoh" was explained, possessed, in the opinion of the learned author, special interest from its exact attestation of the minute accuracy of certain portions of the Pentateuch, and as throwing much light upon a passage hitherto obscure or unknown to the bulk of English students.—The president read a paper "On the Cypriote Inscription on the Bronze Tablet of Idalium" (Dali). Having referred to the felicitous discovery, by Messrs. Lang and Smith, of the Cypriote alphabet, as announced to the society at its last meeting, he entered into the consideration of the Cypriote parts of the bi-lingual inscription of Dali, and the Hellenic element of the Cypriote language. He then proceeded to give some account of the Cypriote inscription on the bronze tablet of Dali, which records donations to the Temple of Idalium by the monarch, Pythagoras, and Indostes. It also referred to various writings in connection with a temple of Isis. Its date of inscription appears to be about B.C. 256. Examples were given of the Hellenic structure of the language, and the identification of many Cypriote with Greek words. An interesting discussion took place, in which Sir C. Nicholson, Emanuel Deutsch, Rev. J. M. Rodwell, S. M. Drach, W. R. A. Boyle, the president, and the secretary, took part.

EDINBURGH

Royal Physical Society, Dec. 20, 1871.—Mr. C. W. Peach, president, in the chair.—"Zoological Notes," by Prof. Duns. (1.) On a dog-fish (*Scyllium marmoratum*) from Java (2.) On the Porbeagle, or Beaumaris shark (*Lamna cornubica*). The specimen exhibited was a beautiful young one captured last year near Elie, Fifeshire. The difference between the dentition of the adult and the young was well illustrated in this case. The lanceolate teeth of the former have a small basal cusp on each side. The cusps are absent in the latter. (3) On Rondelet's little Sepia (*Sepiola Rondeletti*). A specimen taken in the Firth of Forth was exhibited. (4.) On the Redwing (*Turdus iliacus*).—On the Extirpation of Venomous Serpents from Islands, by Robert Brown. This consisted of correspondence addressed to the author and Mr. W. B. Tegetmeier relating to the subject. It was shown that the common domestic pig had exterminated rattlesnakes in the vicinity of the Dalles and other settlements in Oregon, and that in India the same antipathy is shown by the same animal to the deadly cobra di capello. The subject was important economically to the inhabitants of some of the West Indian Islands infested by these reptiles, and physiologically in so far as facts went to show that the pig enjoyed an immunity from the poison of both the rattlesnake and the cobra. In Ireland it was well known few or no snakes of any kind are found, and nowhere is "the pig" more abundant, showing a probable relation between these two facts, without calling in the supposed aid of St. Patrick.—Exhibition of Glacial Shells of the Clyde Beds, from a recent Excavation near Greenock, by David Grieve. Also of Specimens of various Polyzoa and Foraminifera from the same locality, with remarks by C. W. Peach.—"On Shells, Foraminifera, &c., from the recent post-tertiary beds between the Bridge of Allan and Stirling" (specimens exhibited), by C. W. Peach.

GLASGOW

Geological Society, December 14. 1871.—Mr. James Thomson, F.G.S., read a paper on "The Stratified Rocks of Islay." He described in detail the sedimentary deposits on the south side of the island, and then gave a transverse section of them from Port-na-Haven on the west to Port Askaig on the east. Although the rocks in the central valley of the island had not yet yielded identifiable organic remains, he did not despair, if properly investigated, of forms being found that would place them beyond doubt in the Lower Silurian series. In mineral character they quite coincided with those described by the late Sir Roderick Murchison as occurring in Ross and Sutherlandshires. On the east side of the island, at Port Askaig, these deposits repose upon a series of stratified rocks of much higher antiquity, which correspond to the Cambrian rocks of the North-West Highlands, described by the same distinguished author. At the base of these latter sedimentary rocks there is a mass of conglomerate, made up of fragments and boulders of granite, imbedded in an arenaceous talcose schist; and as no granite occurs *in situ* in the island, he was disposed to account for its presence in this conglomerate by the agency of ice. Specimens of the granite and a striated block of quartzite were laid upon the table. He then described the rocks of the western extremity of the island, which consist of highly metamorphosed stratified rocks, as gneiss, serpentine, dolomite, quartzite, and schists, extending from Port-na-Haven, on the west, to Brouch-Ladach, a distance of nine miles. At the latter point the superior deposits are seen resting on the metamorphosed sedimentary rocks, nearly at right angles to the planes of stratification. In lithological aspect and mineral character these rocks agreed so entirely with the "fundamental or Laurentian gneiss" of Sir R. Murchison, as occurring in the North-Western Highlands and other parts of the world, that he had not the slightest hesitation in placing them as belonging to this, the oldest division of known sedimentary rocks. It thus appeared that both Cambrian and Laurentian rocks occurred farther south in Scotland than had hitherto been recorded. Taking a general view of the group of deposits to which he had called attention, there were—1. The calcareous deposits in the central valley of the island, of Lower Silurian age; 2. The deposits from Ardnahuamh on the north to Balleochreoch on the south, of Cambrian age; 3. The metamorphic rocks in the west of the island, of Laurentian age. He was not prepared to speak with any degree of certainty regarding the source of the materials constituting the basic conglomerate mass. These differ so widely from the granites found *in situ* in other parts of the Highlands, that he felt the necessity for tracing them to another source, and hoped he would not be thought to overstep the bounds of prudent speculation in suggesting that these erratics are the reassorted materials of some great northern continent that has yielded to the gnawing tooth of time, leaving only these scattered fragments to attest its former existence. The portion of striated rock which he had laid before the meeting pointed to an agency adequate to the transport of such materials, and indicated that we should have to contemplate a glacial period deeper in time than had hitherto been suspected, when glaciers and icebergs planed down the hardest rocks and dispersed their fragments, obedient to the same great laws which still regulate the economy of Nature.

NEW ZEALAND

Wellington Philosophical Society, August 26, 1871.—Capt. Hutton described the two species of bats found in New Zealand, and proposed that the name *Mystacina tuberculata* be changed to *M. velutina*, to avoid confusion with *Scotophilus tuberculatus*. Dr. Hector mentioned that large numbers of the former species lodged in the topsails of H.M.S. *Clio* when in Milford Sound last summer.—Mr. Skey proposed as a convenient method of generating H_2S for laboratory use, to employ galena, zinc, and dilute hydrochloric acid.—Captain Hutton described the microscopic structure of the egg-shell of the moa, and showed that it was altogether different from the kiwi egg.

September 16.—Mr. W. T. L. Travers described the traditions of the Maories, showing reasons why they were not reliable as history, and that the usual date assigned for the first landing of the Maories is much too recent.—Captain Hutton read a paper on the lizards of New Zealand, and described a new species from

White Island, belonging to the genus *Norbea*, hitherto only found in Borneo, and also a new species, *Mocou laxa*.

September 30.—Mr. Travers described the habits of the birds that frequent the lake in the interior of Nelson, mentioning that the blue duck (*Hymenolaimus*) does not exhibit solicitude for the safety of its young like other ducks. Captain Hutton showed that this supported the Darwinian theory, as the blue duck belongs to a genus peculiar to New Zealand when there were no destructive animals previous to the arrival of man, and in which genus, therefore, instinctive fear has not been developed. Dr. Hector showed that absence of fear is characteristic of most of the birds peculiar to New Zealand, but that the weka of the North Island is much more shy than the species in the South.—Dr. Hector described a portion of a wreck discovered on the west coast of the Middle Island, and pointed out that the coast line had advanced 300 yards since it was cast up.

October 14.—A communication by Dr. Wojeikof, of St. Petersburg, on the change of climate effected by clearing forests, led to much discussion, from which it appeared that this colony is now suffering in many districts from the sudden and severe floods that are due to this cause.—Captain Hutton read critical notes of the birds of New Zealand that accompany a descriptive catalogue he has published.

October 28.—Dr. Hector reported the result of Dr. Thomson's exploration of the cave in Otago in which the Moa's nest was found (see NATURE, vol. iv. pp. 184, 228). It is an irregular fissure in mica schist rock, about fifty feet deep, and with thin flat ledges or floors on which the bones rest. There are entrances, one from rocks on the mountain side, and the other by a funnel-shaped hollow in an alluvial flat. On the first floor Dr. Thomson found traces of a fire and charred bones. On the second floor, by scraping away the loose dust to the depth of two feet, leg bones, ribs, vertebræ, a pelvis, toe bones, tracheal rings, and pieces of skin and muscle were found. On the third floor were found fragments of egg-shell, and the bones of a bird with a keeled sternum. In Dr. Thomson's collection there are sixteen tibiæ, so that he obtained remains of at least eight birds. A perfect skull with lower jaw and trachea attached, and a femur with well preserved muscular tissues attached, were found on the spot where the nest was obtained. From another locality in the same district Dr. Thomson sends twenty feathers. These were found by a gold digger eighteen feet below the surface. A report on these feathers by Capt. Hutton showed that they were of the form peculiar to struthious birds, but quite different from any known species. They are eight inches long, with soft yellow down on the lower half, and black above except the tip, which is white. The form of the feather is very peculiar, as it expands in width to the tip. He considers that the structure of these feathers shows that the bird to which they belonged was allied more to the American robin than to any of the struthious birds of the old world.

VIENNA

I. R. Geological Institution, Dec. 5, 1871.—M. Ernest Favre exhibited a geological map of the central part of the Caucasus Mountain chain, which he had surveyed last summer. The region which formed the object of his inquiries is limited to the east by the military road which leads to Georgia, to the west it ends with the Elbrus Mountain, to the north it is limited by the Steppe, and to the south by the Koura Valley, the mountains of Souram and the plain of Mingrelia. In this region the Caucasus rises to its greatest height; summits of 12,000 to 18,000 feet above the the sea level being not rare. Granite and crystalline slates form large masses in the central part, further to the east and west they disappear beneath the younger sedimentary rocks. The lowest fossiliferous strata belong to the Liassic formation. The gigantic peaks of the Elbrus and the Kayhek on the north flank of the chain are formed by trachite.—Mr. F. Schrökenstein "On the Cyipka Balkan." The author has crossed the Balkan mountains in two lines, unvisited before by any geologist, once from Drawna by Selce to Kysanlik, and than back over the Cyipka to Grabowa. The series of rocks found there he enumerates as follows:—1. Crystalline schists; 2. Coal formation, the base of which is formed by quartzite, higher up follows calcareous slate, and finally sandstone and slate with coal measures; 3. Dyas; 4. Magnesian limestone; and 5. The Neocomian series covering the older rocks unconformably. The discovery of large coal seams in the coal formation near Radience is very important. German capitalists have got permission to work them, and have already traced a railway from the mine to the Danube.

BOOKS RECEIVED

ENGLISH.—Schellen's Spectrum Analysis: Translated by Jane and Caroline Lassell; Edited, with Notes, by W. Huggins (Longmans).—Deschanel's Natural Philosophy; Part III., Electricity and Magnetism: Translated by Prof. Everett (Blackie and Sons).—Zoological Record, Vol. vii.—Rudimentary Magnetism: Sir W. S. Harris and H. M. Noad (Lockwood).—Spiritualism Answered by Science: Serjt. Cox (Longmans).

AMERICAN.—Reports on Observations of the Total Solar Eclipse of Dec. 23, 1870, conducted under the direction of Rear-Admiral Sands, U.S.N.

DIARY

THURSDAY, JANUARY 11.

ROYAL SOCIETY, at 8 30.—Experiments made to determine Surface Conductivity in Absolute Measure: D. McFarlane.—On the Myology of the Cheiroptera: Prof. Macalister.

SOCIETY OF ANTIQUARIES, at 8.30.—Ballot for the Election of Fellows.

MATHEMATICAL SOCIETY, at 8.—On Surfaces: the loci of the vertices of cones which satisfy six conditions: Prof. Cayley.—On the Constants that occur in certain summations by Bernouilli's series: J. W. L. Glaisher.—On the Construction of large tables of divisors and of the factors of the first differences of prime powers: W. B. Davis.—On Parallel Surfaces of Conicoids and Conics: S. Roberts.

FRIDAY, JANUARY 12.

ASTRONOMICAL SOCIETY, at 8.

QUEKETT MICROSCOPICAL CLUB, at 8.

MONDAY, JANUARY 15.

ANTHROPOLOGICAL INSTITUTE, at 8.

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

TUESDAY, JANUARY 16.

ZOOLOGICAL SOCIETY, at 9.—On a fourth collection of Birds from the Pelew and Mackenzie group of Islands: Dr. G. Hartlaub and Dr. O. Finsch.—Notes on the Myology of *Leiolepis bellii*: Alfred Sanders.

STATISTICAL SOCIETY, at 7.45.—On Licensing and Capital Invested in Alcoholic Drinks; Prof. Levi.

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

WEDNESDAY, JANUARY 17.

SOCIETY OF ARTS, at 8.—On the Oral Education of the Deaf and Dumb: G. W. Dasent.

METEOROLOGICAL SOCIETY, at 7.

THURSDAY, JANUARY 18.

ROYAL SOCIETY, at 8.30.

SOCIETY OF ANTIQUARIES, 8.30.

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

LINNEAN SOCIETY, at 8.—On the Anatomy of the American King-Crab (*Limulus polyphemus*, Lat.): Prof. Owen, F.R.S. (*Continued.*)

CHEMICAL SOCIETY, at 8.

CONTENTS

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