

genus *Knorria*.—Mr. A. G. More continues his Supplement to the "Flora Vectensis;" and the Rev. Jas. M. Crombie his additions to the British Lichen-Flora.

The number for July contains Mr. Ernst's "Jottings from a Botanical Note-book," and concludes Mr. A. G. More's "Supplement to the Flora Vectensis." Dr. Trimen contributes some notes on plants observed in Jersey and Guernsey in April. There are several other short papers and notes of special interest to British botanists.

Or the *Bibliothèque Universelle et Revue Suisse*, one of the most valuable of continental periodicals, whether we consider the quality of its original articles, or the admirable extracts of scientific memoirs which it contains, we have just received the part published on May 15, which forms the commencement of a new volume. The first and most important of the three papers contained in it is on the action of magnetism on gases traversed by electrical discharges, by MM. A. de la Rive and E. Sarasin, in which the authors describe a long series of experiments made by them, leading to the following conclusions:—1. The action of magnetism exerted only upon a portion of an electric jet traversing a rarefied gas, causes an augmentation of density in this portion. 2. This action exerted upon an electric jet placed equatorially between the poles of an electro-magnet, produces in the rarefied gas an augmentation of resistance proportional to the conductivity of the gas itself. 3. On the contrary, it causes a corresponding diminution of resistance, when the jet is directed axially between the two magnetic poles. 4. When the action of the magnetism is to impress a continuous movement of rotation upon the electric jet, it has no influence upon the conductivity if the rotation be in a plane perpendicular to the axis of the iron cylinder detaining the rotation, and diminishes it considerably if the rotation takes place so that the jet describes a cylinder round the axis. 5. These effects do not seem to be due to variations of density, but to perturbations in the arrangement of the particles of the rarefied gas.—A second paper is an excellent abstract and discussion by M. Emile Gautier, of the observations of solar protuberances, made at Rome by Prof. Respighi; and the third consists of an account of geological, meteorological, and archaeological explorations made in the province of Constantine (Algeria), by M. Tissot.

THE first part of the twenty-third volume of the *Zeitschrift der deutschen geologischen Gesellschaft*, containing the proceedings of that society for the months of November and December 1870, and January 1871, includes one paper which will be of especial interest to British geologists, namely, "Some Geological Sketches from the East Coast of Scotland," by Prof. F. Zirkel, extending over 124 pages of text, illustrated with four plates. In this paper the complicated geology of the islands of Arran, Mull, Iona, Staffa, and Skye is discussed in considerable detail, and the author winds up with a description of the east and west section of the north of Scotland. Another long paper is the first part of a geological description of the annular mountain of Santorini, by M. K. von Fritsch.—M. C. Struckmann describes the *Pteroceras* beds of the Kimmeridge formation at Ahlem, near Hanover, which he divides into three series (upper, middle, and lower), indicating the characteristic fossils of each deposit. M. R. Richter publishes a fourth notice on the Thuringian slates, for which he claims an Upper Silurian age, an opinion here supported chiefly on the evidence of Graptolites. The author discusses the affinities of the Graptolitidae, and adopts an opinion expressed by Leuckart (MS.) that this group is to be regarded as nearly allied to the Bryozoa. The author describes a new genus, *Triplograptus*, the chief character of which is that the canal has three vertical rows of alternating cells, of which the type is *T. neretarum* (Richt.), and also as new species *Diplograptus pennatulus* and *Monograptus crenatus*. These and some other species are figured in the plate accompanying the memoir. A new species of *Nautilus* (*N. velis*) is also described and figured in this paper (p. 243). From M. Emanuel Kayser we find a notice of the occurrence of *Rhynchonella pugnus* with traces of colour in the limestone of the Eifel (Devonian), to which is appended a tabular list of those fossil shells on which traces of colouration have been observed.

SOCIETIES AND ACADEMIES LONDON

Geological Society, June 21.—Joseph Prestwich, F.R.S., in the chair.—R. J. Watson, W. T. Scarth, Gen. A. C. Bentinck, and John Brooke were elected Fellows of the Society.—"On some supposed Vegetable Fossils," by William Carruthers,

F.R.S. In this paper the author desired to record certain examples of objects which had been regarded, erroneously, as vegetable fossils. The specimens to which he specially alluded were as follows:—Supposed fruits on which Geinitz founded the genus *Guilielmites*, namely, *Carpolites umbonatus* Sternb., and *Guilielmites permianus* Gein., which the author regarded as the result of the presence of fluid or gaseous matter in the rock when in a plastic state; some roundish bodies, which, when occurring in the Stonesfield slate, have been regarded as fossil fruits, but which the author considered to be the ova of reptiles, and of which he described two new forms; and the flat, horny pen of a Cuttlefish from the Purbeck of Dorsetshire, described by the author as *Teudopsis Brodiei*, sp. n. Mr. Seeley remarked on the compressed spheroids found in so many rocks, that there was a difficulty in accepting the view of their originating in fluid vesicles, though he was unable to suggest any other theory by which to account for them. He observed that the eggs from the Stone-field slate closely resemble those of birds, and that it was of the highest interest to find such eggs in strata containing so many remains of ornithosaurian forms, such as *Rhamphorhynchus* and *Pterodactylus*, of which genus probably these were the eggs. Prof. Rupert Jones fully recognised the ingenious explanation of the bubble-formed limited slickensides, that looked so much like possible fossil fruits, and Mr. Carruthers's masterly treatment of the other specimens. But he wished that the author would take up the subject exhaustively, and define the nature of other supposed vegetable fossils, such as the so-called fucoids, *Palaeochorda*, *Palaeophyton*, *Oldhamia*, &c., many, if not all, of which Prof. Jones thought to be due to galleries and other tracks made by Crustaceans. Prof. Ramsay had known many instances of such blunders as those pointed out, made, not by experienced geologists, but by those unacquainted with the science. Though he had never regarded the flattened spheroids as fossils, he was unable to account for their presence in the clay-beds of different ages. Mr. Hulke inquired whether Mr. Carruthers considered the limited slickensides common in the Kimmeridge shales as due to gaseous origin. He remarked on the rarity of Pterodactylian remains as compared with those of other Saurians in the Wealden beds, in which the presumed eggs of Pterodactyls were found. Mr. Seeley did not regard the Wealden egg as being that of a Pterodactyle. Mr. Carruthers, in reply, remarked that the local slickensides mentioned by Mr. Hulke differed in character from those to which he had referred.—"Notes on the Geology of part of the County of Donegal," by A. H. Green, F.G.S. In this paper the author described the geological structure of the country in the neighbourhood of the Errigal Mountain, with the view of demonstrating the occurrence in this district of an inter-stratification with mica-schist of beds of rock, which can hardly be distinguished from granite, the very gradual passage from alternations of granitic gneiss and mica-schist into granite alone, and the marked traces of bedding and other signs of stratification that appear in the granite, to which the author ascribed a metamorphic origin. He also noticed the marks of ice-action observed by him in this region, and referred especially to some remarkable fluted bosses of quartzite, and to the formation of some small lakes by the scooping action of ice. Mr. Forbes stated that none of the facts of this communication were new, but he dissented altogether from the conclusions arrived at by the author in regarding these rocks as originally of sedimentary origin, and for the following reasons: (1) That this district has been studied in detail by Mr. Scott and Prof. Haughton, who declare the rock to be undoubtedly intrusive, as it not only sends out veins into the neighbouring strata, but also encloses fragments of the rocks through which it has broken. (2) Because the author starts from the idea that if such rocks are found to lie conformably on beds of undoubted sedimentary origin, it is a proof of their being themselves sedimentary or stratified,—a conclusion which is totally unwarranted, since there are innumerable instances, not only of beds of lava or other igneous rocks being conformable to fossiliferous strata, but of their also being found intercalated with such beds even for considerable distances. (3) The strata, so far from being proved by him to be of truly sedimentary origin, are of a most questionable origin, since they are neither in themselves fossiliferous, nor can they be correlated with any containing fossils as proofs of true sedimentary deposition; and the description of his section is sufficient to show this; for although it looks well on paper on a scale of three feet to the mile, the author has so little confidence in it that he is not ever certain as to which is the top or bottom of the section on which so much generalisation is based. (4)

That a parallel structure equally, if not better developed than any occurring in the gneiss of Donegal, is common to many volcanic rocks, as in a specimen laid before the meeting, in which this parallel foliated structure due to crystallisation-layers is so well developed as to make it appear exactly like a stratified rock, and even split along these lines, and this, although the product of volcanoes still active is found for great distances both overlying conformably and intercalated between beds of the Cretaceous and Oolite formations. Mr. Scott was unwilling to accept the section given by the author as satisfactory. He agreed, however, as to the bedded appearance of the granite, and to the masses lying in general conformably with the lines of stratification of the country. The nearest spot at which fossiliferous rocks occurred was separated from the beds described by the whole width of the county of Tyrone, though some presumed Eozoöcal forms had been found at a less distance. He was not prepared to believe in the original absolutely fused condition of granite, nor in there being two distinct forms under which it occurred.—“Memoranda on the most recent Geological Changes of the Rivers and Plains of Northern India, founded on accurate surveys and the Artesian well-boring at Umballa, to show the practical application of Mr. Login's theory of the abrading and transporting power of water to effect such changes,” by T. Login. The author commenced by referring to the general conditions of the surface of the country under consideration, and to the evidence afforded by it of a great decrease in the amount of rainfall, and a great change in the nature of the rivers. His object was to show that the superficial deposits of the plains of India were formed by the action of mountain streams, the deposits being irregular transversely, but exhibiting a uniform section longitudinally, in a curve which the author believed to be a true parabola, as indicated by Mr. Tylor. The connection of this with the author's theory as to the transporting power of water was indicated. The author also showed that the beds of the large Indian rivers are rising rather than being lowered, and pointed out that this was in accordance with his theory.

HALIFAX, NOVA SCOTIA

Institute of Natural Science, May 8.—Mr. J. Matthew Jones, F.L.S., president, in the chair. Mr. Frederick Allison read a paper entitled “Results of Meteorological Observations at Halifax, Nova Scotia, for 1870.” The temperature of January had not been approached since 1863. Mean pressure was great. Cloud was scanty, and winds strong, N.W. prevailing. Very large total precipitation, due to heavy rain, the snow-fall being deficient. No fog, and but five days' sleighing during the whole of January. Strong east gales at the close of the month. February was nearer to normal temperature. Mean pressure very light. Cloud far exceeded that of January and its own average. Prevalent wind, N.W., strong. Great precipitation, nearly doubling the average amount, and especially large in rain. One fog, and sleighing from the 1st to 25th. On the 9th strong east gale in morning, and blowing at night from the west. March bore much the same relation to normal temperature as did February; but the minimum of the year, 6°, occurred on the 12th of that month. Pressure still extremely light. Cloud in decided defect. Prevalent wind N.N.W., with mean force great. Precipitation, both of rain and snow, small. Only one fog. Eleven days of sleighing. Three gales, all more or less easterly. Wild geese (*Anser Canadensis*) passed over on their northerly migration on the 19th. Peach, trained against a south wall, blossomed on the 24th. The American robin (*Turdus migratorius*) appeared on the 30th. April was warm. Pressure 29.743, but '00 below an eight years' average. Cloud still deficient. A peculiar direction of wind was prevalent—E.S.E. Mean force small. Precipitation close to average; rain being abundant, but snow only one inch. Five fogs recorded. First thunder and lightning this year on the 12th. One short gale from E.S.E. Frogs (*Hylodes Pickeringii*) first heard on the 8th; and May flowers (*Epigaea repens*) in full bloom on the 12th. The mean temperature of May was a little less than average. On the 30th 80°.2 was reached. Mean pressure a little light. A very bright month, with only 3.19 inches of rain, the average being 4.33. Snow inappreciable, the latest falling on the 24th, and melting as it fell. Four fogs. Thunder and lightning on the 9th and 12th. The garden cherry blossomed on the 23rd, and the humming-bird (*Trochilus colubis*) was first seen on the 18th. June was slightly cool, somewhat low in pressure and decidedly bright. Only 1.69 inches of rain fell. Mean velocity of wind but 8.8 miles per hour; direction W.S.W. Three fogs noted. No frost after the 24th of the preceding

month, either at five feet high or on the surface of the earth. Thunder and lightning twice. The apple blossomed on the 6th, and red clover same date; horse-chesnut on the 2nd; wild strawberries ripe on the 20th. Grass mowing began about Halifax on the 30th. July temperature was 1°.85 above the average. On the 24th 91°.5 was marked. The mean of six equidistant observations on 25th, 75°.27, being the warmest day recorded at this station for at least twelve years. Mean pressure low. Great want of cloud. Light winds; direction S. 59° W.; velocity 8.1 miles per hour. Rain, 3.21 inches, being much above average. Four fogs. Thunder and lightning twice. August was warm also. Mean pressure almost identical with July, being 29.659. Very little cloud. Wind, resultant direction, N. 77° W. Mean velocity 10.5 miles per hour. Rain scanty, giving but 2.20 inches. Fogs three. Thunder and lightning thrice. September mean temperature 57°.20, having fallen 7°.60 below August. On the 30th exactly 32° was registered by grass minimum; but atmosphere never descended to freezing point. Mean pressure still low, and cloud also deficient. Wind, resultant direction N. 15° W., and mean velocity only 10.6 per hour. Rain, half an inch less than average. Three fogs. Hoar frost on the 30th. Thunder once. Lightning twice. Three gales. October had a mean temperature of 48°.14. Mean pressure 29.825. Still a quantity of cloud, though October is frequently a bright month in Nova Scotia. Resultant direction of wind N. 42° W., and mean velocity 12.45 miles per hour. Heavy rainfall, and eight inches of snow. One fog. Three gales from N.W., S.S.W., and S. First frost, five feet above ground on the 26th; temperature having been above 32° 155 days. Measurable snow on 31st. The mean temperature of November remained above the average. The whole pressure again small. The month was rather less cloudy than usual. Resultant direction of wind N. 87° W., and mean velocity only 10.75 miles per hour. Rain-fall large, 5.67 inches, and snow depth great, 7.7 inches. Three fogs. Three gales, N.W., S.S.E., and S.E. Meteors on the night of the 14th. December was very mild. Mean temperature 30°. Pressure very low. Much cloud. Resultant direction of wind N. 76° W., and mean velocity 11.6 miles per hour. Rain was heavy, and snow small, though containing larger amount of water than average. One fog. Four days' sleighing. On Christmas Eve thermometer reached 4°.6, minimum of month. After noting the cyclone of the 3rd and 4th of September, Mr. Allison proceeded to connect it with the gale of the 7th moving in the Bay of Biscay, in which the *Captain* foundered. Giving the following figures from a mass of observations, to show the storm path:—S.S. *Robert Lowe* at sea, lat. 43°2' N., long. 65°3' W., September 4, 4 A.M., bar. 28.700; wind 25lb. per square foot. Halifax N.S., lat. 44°39' N., long. 63°36' W., September 4, 9.30 A.M., bar. 28.952, 6 to 7 A.M.; wind velocity 65.7 per hour, and reaching 70 miles in gusts, fully 24.5lb. per square foot. Glace Bay N.S., about 250 miles from *Robert Lowe*, E.N.E., bar. 3 P.M. 29.333; wind 3 P.M. 86 miles per hour. This storm was travelling at direct rate of about 23 miles per hour in this longitude, its speed being accelerated as it progressed eastward. It would be due, with its south-eastern edge, in diminished force probably, in Bay of Biscay on evening of 6th of September. From these and other data a world-wide system of telegraphic storm warnings was urged.—Another interesting paper, “On the Meteorology of Glace Bay, Cape Breton, N.S.,” by Mr. Henry Poole, was also read.

PARIS

Académie des Sciences Morales et Politiques, June 24.—M. Jules Simon in the chair. Notice was given of the death of M. Ramon de la Sagra, a Spanish gentleman who had been a great traveller in America, and was well known as a botanist.—M. Egger read some pages of his great work “On the Progressive Development of Infants.”

July 8.—M. Paul Janot in the chair. Notice was given of two letters received from M. Henry Martin, a member of the National Assembly, and M. Filon, an inspector of the Academy of Paris, both contending for the seat left vacant by the late M. Pierre Clement, who wrote, many years ago, a history of the *Revocation de l'Edit de Nantes*, vindicating Protestantism, and published many articles in the *Journal des Economistes*, in support of free trade policy. The contest will be severe, as M. Henry Martin is very popular, being the author of a History of France. M. Filon is a gentleman of a wider intellect, and has written a Comparative History of France and England. The election will take place on the 22nd.

Academie des Sciences, July 10.—M. Claude Bernard in the chair. Notification was received of the death of M. Haidinger, the keeper of the great aerolith collection at Vienna and a correspondent in the section of mineralogy.—The public sitting, which, according to the rules, was held before the secret one, was rather long and interesting. M. Puiseux was unanimously elected a member of the section of geometry (this honour is very seldom paid to any member). M. Puiseux belongs to the scientific staff of the National Observatory. He was much praised many years ago by Cauchy for his calculations on variations of weight and of its effects. He was a contributor to Lionville's *Journal de Mathematiques*.—M. Boussingault described some experiments showing that water is not liable to freeze irrespective of the degree of cold to which it is submitted, as long as it is not allowed to expand in order to change into ice. It is the complement of the celebrated Florentine experiment. M. Boussingault exposed water to -13° Cent. enclosed in strong steel tubes as used for rifled guns, without any congelation taking place. On unscrewing the steel end of the barrel, the congelation was instantaneous. The fluidity of the water was made manifest by small steel spheres, which moved freely inside the guns during the whole process, and would have been stopped by congelation. A very long conversation took place between M. Boussingault and several members who proposed many objections, to which he found ready answers.—M. Saint-Venant read a long report on a memoir presented by M. Maurice Levy on several Equations showing the internal movements of molecules when a ductile body is submitted to external pressure.—M. Faureyron was a French engineer of great reputation, known by the invention of "turbines" or hydraulic wheels. He bequeathed to the Academy a certain sum in the funds to give a 40¢ prize to the best memoir on Practical Mechanics every two years. The Academy appointed a committee of five of its members to draw up a programme for the next competition. The competition is to be open to all, irrespective of nationality and qualification, except to the members of the different French academies.—M. Brown, the astronomer at the celebrated Trevandum Observatory, read a most important note on the "Diurnal Lunar Variation," which he proved has sometimes to exceed the solar variation. The law is illustrated by calculating the maximum. Every day there are two maxima of lunar action. In June, when the moon is on the 6th and 18th horal meridian, in December on the 0th and 12th, and in the intermediate months on the intermediate meridians, according to progressive changes. The excursions are greater when the moon is nearer to us (perigee), and when the passage of the moon to the maximum meridian is by daylight. This difference is very great, the nocturnal max. reaching only $\frac{1}{3}$ of diurnal max. The law is worth the most serious consideration, as connections between variations of magnetism and temperature are becoming every day more and more frequent. It may lead to the discovery of the lunar influence on meteorology, which discovery will be *initium sapientie*.—M. W. de Fonvielle sent a note discussing certain singular phenomena which were observed in Scotland during the stormy periods of June 18 and July 18. The facts were quoted from the *Scotsman*, an Edinburgh paper. The note was printed in the *Comptes Rendus*. The author is anxious to see if "mirages," as observed on the Isle of Man, can be considered as having been a presage of the stormy weather. He wrote also upon certain accidents, showing that it is dangerous to move metallic objects during thunderstorms. M. Chapelas presented the results of observations made during twenty years (1848-1868) on 39,771 meteors, out of these 23,481 were observed in summer when the nights are short, only 2,145 in winter when the nights are long. The mean direction is S.S.E. The numbers of meteors vary in inverse ratio with their magnitude:—1st magnitude 2,497, 2nd magnitude 3,918, 3rd magnitude 7,137, 4th magnitude 8,847, 5th magnitude (an exception to the rule) 8,050, 6th magnitude 9,322 (very slight augmentation). He says, moreover, it shows that falling stars are more frequent in high altitudes. It is true, assuming falling stars to be essentially of the same magnitude, and differing only apparently from distance.

RIGA

Society of Naturalists, February 1.—Prof. Schell discoursed upon the importance of water-levels on the coasts of the Baltic provinces, and described some anemometers.—M. Schroeder communicated a notice relating to the avifauna of the Baltic provinces, in which he mentioned several species to be struck out of or added to the previously published lists. He

made the total number of species, 272.—Baron F. Hoyningen-Huene communicated a continuation of his phenological observations, during the year 1870, containing a report on natural phenomena observed from March to October.

PHILADELPHIA

American Philosophical Society, April 1.—Prof. Cope made remarks on the Vertebrata obtained in the Port Kennedy bone cave by Chas. M. Wheatley, stating the number of species to be forty-two. The Mammalia were referred to orders, as follows:—Edentata, 6 species; Rodentia, 14; Insectivora, 1; Chiroptera, 1; Ungulata, 8; Carnivora, 4; total, 34, of which about half are new to science. Birds and Reptiles, 8 species. He made remarks on the nature and origin of the post-pliocene fauna, the origin of the caves, and possible topographical history of the country in that connection.—Pliny E. Chase read a paper on "Resemblances between Atmospheric, Magnetic, and Ocean Currents."—Lieut. Dutton presented some views on regional subsidence and elevation, and mentioned the physical changes produced by the metamorphism of rocks as an agent in changing the contour of the earth's surface. The obliteration in specific gravity produced by change of chemical constitution of interior rock strata was an important cause of the elevations and subsidences of the earth's crust, generally overlooked.

BOOKS RECEIVED

ENGLISH.—Our Sister Republic: a Gala Trip through Mexico in 1869-70 (Tribner and Co.).

FOREIGN.—(Through Williams and Norgate)—Medizinische Jahrbüchen: S. Stricker, &c., vols. 1 and 2.—Naturwissenschaftliche Vorträge: J. R. Mayer.

PAMPHLETS RECEIVED

ENGLISH.—National Health: H. W. Acland, M.D.—How to Live on 6d. a Day: Dr. Nichols.—A Sanitary Inquiry: R. Weaver.—Art and Religion: J. Gilbert.—The Universal (change in Natural Elements: R. Mansill.—Fauna Perthensis, part 1: Lepidoptera: F. Buchanan White, M.D.—Proceedings of the Liverpool Field Club for 1870-71.—Transactions of the Chemical Society of Newcastle-on-Tyne, vol. 1, for 1868-71.—Mechanical Building: G. Ryland.—Proceedings of the Geologists' Association for 1870.—A Key to the Natural Orders of British Flowering Plants: T. Baxter.—Natural History Transactions of Northumberland and Durham, vol. iv., part 1.—The Manufacture of Russian Sheet-Iron: J. Percy, M.D.—The Quarterly Weather Report of the Meteorological Office.—Transactions of the Norfolk and Norwich Naturalists' Society, 1870-71.—Papers on the Cause of Rain, &c.: G. A. Rowell.

AMERICAN.—Report of the Committee on Building Stores to the Board of Capitol Commissioners of the State of Iowa: Prof. Hinrichs.—The School Laboratory of Physical Science: Prof. G. Hinrichs.—The Principles of Pure Crystallography: Prof. G. Hinrichs.—Third Annual Report on the Noxious, Beneficial, and other Insects of the State of Missouri: C. V. Riley.—Bulletin of the Museum of Comparative Zoology at Harvard College, vol. iii., No. 1.—Preliminary Report on the Vertebrata discovered in the Port Kennedy Bone-Cave: Prof. E. D. Cope.

FOREIGN.—L'Académie des Sciences pendant le siège de Paris: G. G. de Caux, Paris.—Bulletin de l'Académie Imp. des Sciences de St Petersburg, vol. xv., No. 17-31, vol. xvi., No. 1-4.—Ricerche sulla propagazione dell' elettricità nei liquidi: Dr. D. Macaluso, Palermo.

CONTENTS

	PAGE
THE NEWCASTLE-UPON-TYNE COLLEGE OF PHYSICAL SCIENCE . . .	217
PERCY'S METALLURGY OF LEAD . . .	218
NEWMAN'S BRITISH BUTTERFLIES. By W. S. DALLAS, F.Z.S. (With Illustrations.) . . .	219
OUR BOOK SHELF . . .	220
LETTERS TO THE EDITOR:—	
Cotteau's "Echnides de la Sarthe."—A. AGASSIZ . . .	220
Mr. Howorth on Darwinism.—A. R. WALLACE, F.Z.S.; Dr. L. S. BEALE, F.R.S.; T. TYLER; Dr. J. ROSS; B. T. LOWNE, F.R.C.S. . . .	221
Recent Neologisms.—A. R. WALLACE, F.Z.S. . . .	222
Fertilisation of the Bee Orchis.—A. W. BENNETT, F.L.S. . . .	222
Saturn's Rings.—R. A. PROCTOR, F.R.A.S. . . .	223
Ocean Currents.—J. K. LAUGHTON . . .	223
Formation of Flints.—M. H. JOHNSON, F.G.S. . . .	223
Affinities of the Sponges . . .	224
Sun-Spots.—T. PERKINS . . .	224
EDOUARD RENE CLAPAREDE . . .	224
ALEXANDER KEITH JOHNSTON, LL.D. . . .	225
PAPERS ON IRON AND STEEL. V.—The Bessemer Process. By W. MATTIEU WILLIAMS, F.C.S. . . .	226
THE CAUSE OF LOW BAROMETER IN THE POLAR REGIONS AND IN THE CENTRAL PART OF CYCLONES. By W. FERREL . . .	226
RECENT MOA REMAINS IN NEW ZEALAND. II. By Dr. JAMES HECTOR, F.R.S. . . .	228
NOTES . . .	228
ON THE RECENT SOLAR ECLIPSE. By J. NORMAN LOCKYER, F.R.S. . . .	230
SCIENTIFIC INTELLIGENCE FROM AMERICA . . .	233
SCIENTIFIC SERIALS . . .	233
SOCIETIES AND ACADEMIES . . .	234
BOOKS AND PAMPHLETS RECEIVED . . .	236

ERRATUM.—Vol. IV. p. 203, first column, line 27, for "503° C." read "50° C."