

work, "De Plantis," published at Florence in 1583, which his biographer states to contain the essential features of the classification propounded by A. L. Jussieu two centuries later.

Annalen der Chemie und Pharmacie, February, 1873. The number commences with a paper on a new derivative of sulpho-carbamic acid, by H. Hasiwetz and J. Kachler. The new body is obtained by the action of carbonic disulphide on camphor in the presence of ammonia. Measurements of its crystals are given. The numbers obtained by an analysis agree well with the formula C_8, H_{10}, N_4, S_2 ; this is regarded as an ammonia salt; a copper compound C_8, H_2, N_2, S_2, Cu , has been obtained, but the acid cannot be isolated from it, as SII_2 refuses to precipitate the copper. Several other compounds of the body are described.—The next paper is a short note by M. Berthelot on the formation of Acetylen by the silent electric discharge. Messrs. R. Boettger and Theodor Petersen contribute a paper on the Nitro-compounds of Anthrachinon. The following bodies are described: α Mononitroanthrachinon, α Monamidoanthrachinon, and α Diazoanthrachinon Nitrate; the behaviour of these α bodies with concentrated sulphuric acid is then described.—On the Vanadates of Thallium, by Thomas Carnelly. The author describes the method of preparation and properties of the salts in question; this paper has already appeared in the April number of the Chemical Society's journal, as also has the next, on Ethyl-amy, by Harry Grimshaw, and Schorlemmer's paper on the Heptanes from Petroleum.—Crystallographic Notices, I. by C. Klein, is a long paper on the measurement, &c. of crystals; a contribution to our knowledge of Neurin, by Julius Mauthner; "Remarks on my Water Air-pump," by N. Jagn; and a paper on Excretin from Human Excrement, by F. Hinterberger. The author has established the formula C_{20}, H_{36}, O for this body, and has obtained a Brominated derivative C_{20}, H_{34}, Br_2, O .

Bulletin de la Société de Géographie.—The first article in the March number is by the Abbé Durand, formerly a missionary in Brazil, on the Solimoes, the name given to the Amazon from its junction with the Rio Negro upwards, this being the name of the most powerful tribe on its banks. The Abbé gives an account of his journey up the river as far as Peru. His article contains many valuable facts as to towns, and people, and products of the district through which he passed. The next article is the last of Capt. Derrégagaix's papers on the South of the Province of Oran; the present one treating of the Geology and Meteorology of the district. This is followed by a translation of part of Col. Yule's essay on the geography of the Oxus prefixed to Wood's "Journey to the Source of the Oxus."—M. N. de Khanikoff contributes a paper on our knowledge of the Khanate of Khiva.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, April 24.—On the Durability and Preservation of Iron Ships, and on Riveted Joints, by Sir William Fairbairn, Bart., F.R.S.

On the employment of Meteorological Statistics in determining the best course for a Ship whose sailing qualities are known, by Francis Galton, F.R.S.

Zoological Society, April 29.—Anniversary Meeting.—Viscount Walden, F.R.S., president, in the chair.—After some preliminary business the report of the Council was read by the Secretary, Mr. P. L. Sclater, F.R.S. It stated that the number of ordinary members of the Society on January 1 last, was 3,030, of Foreign members, 25, and of Corresponding members, 197. The total income of the Society in 1872 was 26,728*l.*, being 2,017*l.* more than that of 1871, and exceeding the income of any previous year, except that of the year 1862, when the International Exhibition was held. The total expenditure of 1872 had been 26,900*l.*, and a balance of 1,956*l.* had been carried forward for the benefit of the current year. The assets of the Society on December 31, 1872, were calculated at 10,532*l.*, while the liabilities were reckoned at 5,490*l.* The Reserve-fund consisted of a sum of 8,000*l.* Reduced 3 per Cents. The Scientific publications of the Society for 1872 had consisted of the usual volume of "Proceedings," four parts of "Transactions," a Revised List of the Vertebrated Animals, now or lately living in the Society's Gardens, and a General Index to the ten years of the Society's "Proceedings," from 1861 to 1870. The most important work undertaken in the Society's Gardens in 1872 had

been the bridge over the Regent's Park Canal, intended to connect the Society's new grounds on the north bank, with the present Gardens. This had been completed in October last at a total cost of 1,333*l.* The new Lodge and Entrance-gates in Primrose-hill Road had likewise been finished, and the new entrance opened to the public for the first time on Easter Monday. The total number of visitors to the Society's Gardens in 1872 had been 648,088, being 52,171 more than the corresponding number in 1871. The greatest number of admissions in any one day in 1872 had been 44,608, which took place on May 20 (Whit Monday). The number of animals in the Menagerie on Dec. 31, 1872, was 2,010. Many of the Accessions during the year had consisted of specimens of rare or little known animals, of which full particulars are given. The Report concluded with a long list of donors, and their several donations to the Menagerie. The Meeting then proceeded to elect the new Members of Council and the Officers for the ensuing year, and a ballot having been taken it was found that Viscount Walden, F.R.S., had been elected President, Mr. Robert Drummond, Treasurer, and Mr. P. L. Sclater, F.R.S., Secretary of the Society. The new Members of Council elected were Francis Galton, F.R.S., John P. Gassiot, Jun., St. George Mivart, F.R.S., George Russell, and Richard H. S. Vyvyan.

Geological Society, April 9.—His Grace the Duke of Argyll, K.T., F.R.S., president, in the chair. The following communications were read:—"Lakes of the north-eastern Alps, and their bearing on the Glacier-erosion Theory," by the Rev. T. G. Bonney, F.G.S. The purpose of this paper was to test, by the lakes of the Salzkammergut and neighbourhood, the theory of the erosion of lake-basins by glaciers, which has been advanced by Prof. Ramsay. The author premised (1) that an extensive glacier could not exist without a considerable area to support it; (2) that under no circumstances could a glacier excavate a cliff of considerable height (say 1,000 ft.) approximately vertical; (3) that owing to the proximity of the regions, a theory of excavation which applied to the Western and Central Alps ought to be applicable also to the Eastern Alps. He then proceeded to examine a number of lakes in detail. The Königsee lies in a remarkably deep, steep-sided valley, terminated by a cirque, with cliffs full a thousand feet high, and has no large supply area behind. The Hallstadersee is similarly situated, has a cirque at the head, and two lateral valleys nearly at right angles to the lake, up which arms of it have formerly extended. These are not likely to have furnished glaciers which could have excavated the lake; and above the cirque there is no large supply area. The Gasauthal consists of lake-basins separated by valleys of river-erosion. The Fuschelsee and Wolfgangsee, on the south side of the Schafberg, are separated by a narrow sharp ridge of hills, incapable of nourishing glaciers large enough to grind them out; there are no signs of glaciers from other directions having eroded them. The Mondsee and Attersee (once one lake) on the north lie under the steep cliffs of the Schafberg, which could not have nourished a large glacier; and the ridge of the Schafberg is too sharp to admit of the supposition that a great glacier, coming from the south, has passed over it to excavate the lake; yet the Attersee, in a position least favourable to glacial action, is the largest and deepest lake in the Salzkammergut. The head of the valley in which these lakes lie is really among low hills, in the direction of the Austro-Bavarian plain. The Traunsee was shown to give no evidence in favour of a theory of glacial erosion. Since then these lakes either had at their heads preglacial cirques (the very existence of which was incompatible with much erosive power on the part of a glacier), or were beneath sharp and not greatly elevated ridges of rock, the author concluded that they had not been excavated primarily by glaciers. He considered a far more probable explanation to be, that the greater lake-basins were parts of ordinary valleys, excavated by rain and rivers, the beds of which had undergone disturbances after the valley had assumed approximately its present contour. He showed that the lakes were in most cases maintained at their present level by drift; and that, while in a region so subject to slight disturbances as the Alps, positive evidence for his theory would be almost impossible to obtain, no lake offered any against it, and one, the Königssee, was very favourable to it.—"On the Effects of Glacier-erosion in Alpine Valleys," by Signor B. Gastaldi. The author described the occurrence in the valley of the Lanzo and other Alpine valleys, at heights between 2,000 and 3,000 metres (6,700 and 10,000 f. e.), of large cirques, in two of which, in the valley Sauze de Césanne, the bottom was occupied in the autumn

by glaciers reduced to their smallest dimensions. The author noticed the various rocks in which these cirques were cut, and expressed his opinion that they are the beds formerly occupied by glaciers, the power of which to excavate even comparatively hard rocks, such as felspathic, amphibolite, and chlorite-schists, he considered to be proved. The author then referred to the mouths of the Alpine valleys opening upon the plain, which he described as being generally very narrow in proportion to their length, width, and orographical importance; and he pointed out that in the case of the valley of the Stura, at any rate, the outlet of the valley has been cut out by the river. This peculiarity he accounts for by the fact that whilst the calcareous and felspathic rocks are easily disintegrated by atmospheric action, certain other rocks, such as the amphibolites, diorites, syenites, amphibolite-schists, euphotides, serpentines, &c., resist atmospheric denudation; and he indicated the peculiar distribution of these rocks in the region under consideration, by reason of which portions of them occupied the points which are now the mouths of the valleys.

Anthropological Institute, April 22.—Prof. Busk, F.R.S., president, in the chair.—The following papers were read:—The Religious Beliefs of the Ojibois or Santeux Indians resident in Manitoba and at Lake Winnepeg, by A. P. Reid, M.D.—The predominating Danish aspect of the local nomenclature of Cleveland, by Rev. J. C. Atkinson.—Rock Inscriptions in Brazil, by John Whitfield.—Remarks about the consecration of the Serpent as an Emblem but not an Object of Worship among the Intelligent Druids, by James Hutchings.

Entomological Society, April 7.—Prof. Westwood, president, in the chair.—Mr. Champion exhibited specimens of *Tribolium confusum* and *Ftinus testaceus*, which he had observed in British collections mistaken for *T. testaceum* and *P. fur*.—Mr. Verrall exhibited several new species of *Diptera* belonging to the families *Asilidae* and *Syrphidae*, taken in Britain.—Mr. McLachlan stated that he had been informed by Lord Walsingham that he had observed Dragon flies in California and Texas preyed upon by other large insects which seized them whilst flying through the air. The latter were, no doubt, some species of *Asilus*; but it was the first time he had heard of Dragon flies being preyed upon by other insects, as they had, hitherto, been supposed to be free from such attacks.—Mr. F. Smith made some remarks on a species of *Pentatoma* sent from Calcutta by Mr. Rothney, which was of the same colour as the bark of the tree on which it was observed in great numbers.—Major Parry communicated a paper on the characters of seven nondescript Lucanoid Coleoptera, with remarks on the genera *Lissoles*, *Nigidius*, and *Figulus*.—Mr. Frederick Bates communicated "Descriptions of new Genera and species of *Tenebrionidae* from Australia, New Caledonia, and Norfolk Island."—Mr. Müller read some interesting remarks on the habits of the *Cynipidae*, communicated to him in a letter from Mr. W. F. Bassett, of Waterburg, U.S.—Part I. of the Transactions for 1873 was on the table.

Meteorological Society, April 16.—Dr. Tripe, president, in the chair.—A discussion took place on the following questions which had been submitted to the consideration of the Meteorological Conference held at Leipzig in August last:—No. 2. Barometers for Stations of the second order. No. 4. Maximum and Minimum Thermometers. No. 5. Instruments for determining Solar Radiation. No. 18. Uniformity in Hours of Observation. No. 20. Division of the Year for the Calculation of Mean Results. On question No. 2, several spoke in favour of aneroids, and several that they were not to be trusted; the opinion of the meeting was that for hard rough work where the aneroid is exposed to low and high pressure it is not suited for taking correct observations, and that the Kew barometer is much to be preferred. On question No. 4 the testimony of the meeting was in favour of Phillips' and Negretti's maximum thermometer. On question 5, reference was made to a paper by Rev. F. W. Stow, M.A., on "Solar Radiation," which is printed in the Journal of the Society for April 1873. Time would not allow of questions 18 and 20 being fully discussed, so they will be brought up again at the meeting on May 21.

MANCHESTER

Literary and Philosophical Society, April 15.—R. Angus Smith, F.R.S., vice-president, in the chair.—Mr. Francis Nicholson exhibited two fine eggs of the golden eagle (*Falco chrysaetos*) taken the previous week from a nest in the north of Scotland. For-

tunately some of the large landed proprietors both in Scotland and Ireland are now preserving this noble bird from persecution during the breeding time.—A letter was read from Mr. William Boyd Dawkins, F.R.S., who, as Secretary of the Committee of the British Association for carrying on the exploration of the Victoria Cave, felt obliged to notice the "Notes on Victoria Cave," by Mr. W. Brockbank, published in the Proceedings, March 10, 1873. Mr. Dawkins submitted that until the work of the Committee, to which the cave has been handed over by the kindness of the owner, be finished, and the observations, to which Mr. Brockbank has had no access, be recorded, his notes must of necessity be imperfect and liable to error. Mr. Dawkins then calls attention to two matters of fact, in which he shows Mr. Brockbank's statement to be entirely unfounded.—"On some Improvements in Electro-Magnetic Induction Machines," by Mr. Henry Wilde.

PHILADELPHIA

Academy of Natural Sciences, October 15.—Prof. Leidy directed attention to the collection of fossils, from the vicinity of Fort Bridger, Wyoming, presented by Dr. J. Van A. Carter, Dr. Joseph K. Corson, U.S.A., and himself. Some of the fossils were referred to a huge pachyderm with the name of *Uintatherium robustum*. [This subject has already been several times referred to in NATURE. See Mr. A. H. Garrod's letter last week]. Prof. Leidy further called attention to a multitude of chipped stones, which he had collected about ten miles north-east of Fort Bridger. Many of the fragments are broken in such a manner that it is difficult to be convinced that they are not of artificial origin. The materials of the splintered stones consist of jaspers, quartzites, some of the softer rocks of the tertiary strata, and less frequently of black flint identical in appearance with that of the English chalk.

December 3, 1872.—The president, Dr. Ruschenberger, in the chair.—Joseph Wilcox made remarks about some glacial scorings lately observed by him in St. Lawrence County, N. Y.

December 10, 1872.—The president, Dr. Ruschenberger, in the chair.—Jos. Wilcox made the following remarks:—Having lately visited many mineral localities in Canada, I desire to place them on record, as many of them are not mentioned either in the "Geological Report of Canada," or in Dana's "Mineralogy." At the falls of Ottawa River at Grand Calumet Island, black mica (phlogopite), pyroxene, hornblende, serpentine, tremolite. The following localities are all in the Province of Ontario:—At Arnprior, Calcite (dog tooth spar); near Packenham, Hornblende; in Bathurst, pyroxene, scapolite, sphene, apatite, peristerite; two miles south-west of Perth, bronze mica (phlogopite), having beautiful hexagonal marks on the cleavage planes; near Otty Lake, in North Elmsley, Apatite, pyroxene, black mica (biotite), zircon, red spinel—chondrolite; in Burgess, apatite, black mica (biotite); near Bob Lake, twenty miles north-west of Perth, the best crystals of apatite are found; near the St. Lawrence River, six miles south-west of Brockville, large octahedral crystals of iron pyrites, some of them four inches in diameter. All of these minerals are well crystallized, except the peristerite and chondrolite.—Prof. Leidy directed attention to some fossils recently received from Dr. J. Van A. Carter, of Fort Bridger, Wyoming. They were—*Falcosyops junior*, *Uintacyon edax*, *Uintacyon vorax*, and *Chameleo pristinus*.—Remarks on silver ore from Colorado, by George A. König.

December 17, 1872.—Dr. J. L. LeConte in the chair.—Prof. Cope made some remarks on the Geology of Wyoming, especially with reference to the age of the coal series of Bitter Creek. He said that discovery of the Dinosaur *Agathaumas sylvestris* had settled the question of age, concerning which there had been much difference of opinion, in favour of the view that they constitute an upper member of the Cretaceous series. It appeared to the speaker, that the explorations directed by Dr. Hayden during the past season had contributed largely to our knowledge, proving the existence of an interruption between the cretaceous and tertiary formations: less it is true than that which exists elsewhere, and similar to that insisted on by Clarence King's survey in the region of Bear River and the Wahsatch country.—Prof. Cope defined a genus of Saurodont Fishes from the Niobrara Cretaceous of Kansas, under the name of *Erisichthe*. He stated that it agreed with *Portheus* and *Ichthyodectes* in the absence of nutritious dental foramina on the inner face of the dentary bone, and especially with *Portheus* in the irregular sizes of the teeth.

January 7.—Dr. Ruschenberger, president, in the chair.—E. Goldsmith described what he considers a new mineral which he names *Trautwincite*, after its first observer, Mr. J. C. Trautwine. The mineral has a green colour; the hardness is between 1 and 2, and it is micro-crystalline. The regular forms, which he saw, were short hexagonal pyramids, the infinite pyramid (prism), and triangular slender prisms, which may be one-sixth sections of the hexagonal prism. Under ordinary circumstances the mineral is dull, but when observed under power it appears vitreous. The streak is light green. The qualitative chemical examination indicated the oxides of chromium, iron, and magnesium.—Prof. Cope remarked, that, through the kindness of Prof. B. F. Mudge, he had an opportunity of examining additional specimens of the turtle from the cretaceous of Kansas, described by him in the Proceedings of the Academy, 1872, p. 129. The phalanges indicated a large flipper of the type of marine turtles. They are more flattened than in the *Proflurida* so far as the latter are known, and are proportionally larger. The genus and species were named *Toxochelys latiremis*.

PARIS

Academy of Sciences, April 21.—M. de Quatrefages president, in the chair.—The following papers were read.—A final answer to M. Secchi, by M. Faye. M. Faye called attention to the fact that Father Secchi has accused him of insinuating that his drawings of the spots are not authentic, which insinuation also applies to the drawings of Carrington and Father Tacchini. This he showed was not the case, his statement that photographs, and not drawings, were required, being perfectly obvious as regards its signification. He then proceeded to answer Secchi's statements as to eruptions projecting the erupted matter towards a common centre, and asked how it was that these masses cooled during a passage which lasted often but a day or two, or even a few hours, could produce spots which lasted for months. He then answered several other objections, and called attention to Respighi's observations of the chromosphere, the earliest, as they are the best yet executed, as fully bearing out his theory.—On the condensation of Carbonic Oxide and Hydrogen, and of Nitrogen and Hydrogen, by the silent electric discharge, by MM. P. and A. Thenard. The authors had noticed that the protocarbide of hydrogen and carbonic anhydride, which, under the silent discharge condensed to a liquid, were doubled in volume and converted into carbonic oxide and hydrogen by the spark, they therefore sought to recombine the two latter gases by the discharge; in this they succeeded, and the action was more rapid than with the first. They also succeeded in producing ammonia from three volumes of hydrogen and one of nitrogen when treated in the same way; the action was most rapid when an acid was present to absorb the NH_3 , as fast as it was formed.—On the physical and political history of Chili, by M. Gay, was a sketch of a work by the author in Spanish consisting of thirty volumes.—On the qualities necessary to the springs required for the supply of water to Paris by M. Belgrand.—M. Leymerie was then elected correspondent of the Mineralogical section in place of the late M. Haidinger, and M. Didion correspondent of the Mechanical section in place of the late Canon Moseley.—On a spectral illuminator, by M. F. P. Le Roux, described a new method of obtaining monochromatic illumination.—On the action of electricity on flames by M. Neyreneuf.—On the application of the curves *des debits* to the study of the laws of rivers and to the effects produced by a multiple system of reservoirs by M. de Graeff.—Observations on *Phylloxera vastatrix*, by M. Maxime Cornu.—A decree from the President of the Republic was received authorising the Academy to receive a legacy of 40,000 francs, left to it by the late Marshal Vaillant.—On the interference fringes observed in the case of Sirius and several other stars when large telescopes are employed; a consequence of the relative angular diameter of the stars in question, by M. Stephan. The author hopes, by means of certain observations, to obtain an approximate measurement of the diameter of Sirius.—On the comparison of electrical machines, by M. Mascart.—Remarks on the resistance of galvanometers, by M. J. Reynaud.—On the condensed discharge of the induction spark, by M. Th. du Moncel.—Researches on the chloride bromide and iodide of trichloracetyl, by M. H. Gal.—On the action of sodic sulphide on glycerin, by M. F. Schlagdenhauffen.—On a volumetric method of estimating oxygen in hydric peroxide and other liquids, by M. F. Hamel; this is an application of the disengagement of oxygen from the above

body, by means of potassic permanganate. The gas liberated and the permanganate used form the data necessary for the preparation of standard permanganate solution, where the oxygen liberated per c.c. of reagent used is known. On the properties and composition of a cellular tissue which extends throughout the organism of the vertebrata, by M. A. Müntz.—Discovery of a new human skeleton of the paleolithic period in the caverns of Baoussé Roussé, by M. E. Rivière.—On the influence of various coloured rays on the spectrum of chlorophyll, by M. J. Chautard.—A note on the habits of "Lombrics," by M. E. Robert.

DIARY

- THURSDAY, MAY 1.
 ROYAL SOCIETY, at 8.30.—On the Effect of Pressure on the Character of the Spectra of Gases: C. H. Stearn and G. H. Lee.—On the Condensation of a Mixture of Air and Steam upon Cold Surfaces: Prof. Osborne Reynolds.—Further Observations on the Temperature at which Bacteria Vibriones and their supposed Germs are killed when exposed to Heat, &c.—Dr. Bastian.
 SOCIETY OF ANTIQUARIES, at 8.30.—Flint Implements from Japan: W. L. Lawrence.—On Religious Guilds, and particularly the Privileged Guild at Walsoken, Norfolk: J. G. Nichols.
 LINNEAN SOCIETY, at 8.—On Cinchonas: J. E. Howard.
 CHEMICAL SOCIETY, at 8.—On Zirconia: J. B. Hannay.—On a new class of Explosives: Dr. Sprengel.
 ROYAL INSTITUTION, at 2.—Annual Meeting.
 FRIDAY, MAY 2.
 GEOLOGISTS' ASSOCIATION, at 8.—On the Valley of the Vézère (Dordogne), its Limestones, Caves, and Pre-historic Remains: T. Rupert Jones.
 ROYAL INSTITUTION, at 9.—Alcohols from Flints: Prof. Reynolds.
 ARCHAEOLOGICAL INSTITUTION, at 4.
 HORTICULTURAL SOCIETY, at 3.—Lecture.
 SATURDAY, MAY 3.
 ROYAL INSTITUTION, at 3.—Ozone: Prof. Odling.
 SUNDAY, MAY 4.
 SUNDAY LECTURE SOCIETY, at 4.—The Relations between Science and some Modern Poetry: Prof. Clifford.
 MONDAY, MAY 5.
 ROYAL INSTITUTION, at 2.—General Monthly Meeting.
 GEOLOGISTS' ASSOCIATION.—Excursion to Aylesbury, from Euston Square at 10.15 A.M.
 ENTOMOLOGICAL SOCIETY, at 7.
 ASIATIC SOCIETY, at 3.
 LONDON INSTITUTION, at 4.—Elementary Botany: Prof. Bentley.
 TUESDAY, MAY 6.
 ANTHROPOLOGICAL INSTITUTE, at 8.—Eastern Coolie Labour: W. L. Distant.
 The Westerly Drifting of Nomades from the Fifth to the Nineteenth Century. Part X. The Alans or Lesghs: H. H. Howorth.
 SOCIETY OF BIBLICAL ARCHAEOLOGY, at 8.30.—On the Signification and Etymology of the Hebrew Noun תִּרְשָׁתָּהּ Tirsathath: R. Cull.—On the Chronology of the Olympiads in Connection with the Golden Age of Greece: W. R. A. Boyle.—On the Sites of Ophir and Taprobane, from Greek and Hindu Authorities: A. M. Cameron.—On the Character of the Preposition in the Egyptian Language: P. Le Page Renouf.—Translation of an Egyptian Hymn to Ammon: C. W. Goodwin.
 ZOOLOGICAL SOCIETY, at 8.30.—On some new Species of *Araneidea*: O. P. Cambridge.—On African Bufaloes: Sir Victor Brooke.
 ROYAL INSTITUTION, at 3.—Music of the Drama: Mr. Dannreuther.
 WEDNESDAY, MAY 7.
 SOCIETY OF ARTS, at 8.—Improvements in the Manufacture of Gun Cotton. S. J. Mackie.
 HORTICULTURAL SOCIETY.—Exhibition of Roses, Azaleas, &c.
 MICROSCOPICAL SOCIETY, at 8.—On the Development of the Sturgeon's Facial Arches: W. K. Parker.
 LONDON INSTITUTION, at 7.—Conversazione and Lecture by Prof. Clifford.
 THURSDAY, MAY 8.
 ROYAL INSTITUTION, at 3.—Light: Prof. Tyndall.
 MATHEMATICAL SOCIETY, at 8.—On an application of the Theory of Unicursal Curves; Plan of a Curve-tracing Apparatus: M. Hermitte.—On Bicursal Curves: Prof. Cayley.

CONTENTS

	PAGE
THE WILD BIRDS PROTECTION ACT	1
FAUNA DER KIELER BUCHT. By J. GWYN JEFFREYS, F.R.S.	3
OUR BOOK SHELF	4
LETTERS TO THE EDITOR:—	
Biela's Comets.—Prof. DANIEL KIRKWOOD	4
Earthquake in Dumfries.—J. SHAW	5
East India Museum.—ALFRED R. WALLACE, F.Z.S.; HYDE CLARKE	5
Instinct.—GEORGE DARWIN; JAMES B. ANDREWS; A. PERCY SMITH	6
Prehistoric Art	6
April Meteors.—WILLIAM F. DENNING, F.R.A.S.	6
A Proposed New Barometer.—J. K. LAUGHTON	6
Acquired Habits in Plants.—Prof. C. C. BABINGTON, F.R.S.	7
The Zodiacal Light.—MAXWELL HALL	7
ON VENOMOUS CATERPILLARS. By A. MURRAY	7
ON SPACE OF FOUR DIMENSIONS. By G. F. RODWELL, F.C.S.	8
ON THE SPECTROSCOPE AND ITS APPLICATIONS, VIII. By J. NORMAN LOCKYER, F.R.S. (With Illustrations)	10
NOTES	12
ON THE HYPOTHESES WHICH LIE AT THE BASES OF GEOMETRY. By BERNHARD RIEMANN. Translated by Prof. W. K. CLIFFORD	14
SCIENTIFIC SERIALS	17
SOCIETIES AND ACADEMIES	18
DIARY	20