

ornithologists have not yet investigated the question "in the systematic way, and after the excellent example of painstaking and diligence set us by Dr. Baldamus and Dr. Rey." The editor, referring to a note on the Liberian Hippopotamus which appeared in this periodical a month ago, states that the author has made a mistake in calling it a true hippopotamus. The context clearly shows how the term is meant, and it is an undoubted fact that the English name has a wider meaning than its Latin equivalent. Choeropsis is as true a hippopotamus as Rhinaster or Ceratorhinus are true rhinoceroses, and they are so undoubtedly in the English acceptation of the words, so we think Mr. Newman too ready in discovering errors.

THE *Canadian Naturalist and Quarterly Journal of Science*, vol. vii. No. 1.—The first paper in this number is one which we have already received in a separate form, viz. Principal Dawson's Address as President of the Natural History Society of Montreal. He discusses, (1) The present aspect of inquiries as to the introduction of genera and species in geological time. (2) The growth of our knowledge of the Primordial and Laurentian rocks and their fossils. (3) The questions relating to the so-called glacial period. This is followed by a paper on Some Results of the last Solar Eclipse, in which the author, Mr. G. F. Armstrong, sums up briefly the results which have been obtained from the eclipses of 1865 and succeeding years. In a paper on Cuba Mr. G. F. Matthew makes some contributions to our knowledge of the natural history of that island. There is a geological paper on Huron County, Ontario, and another on the Mineral Region of Lake Ontario. The last paper in the journal is the obituary notice of the late Prof. Sedgwick, which appeared in NATURE.

SOCIETIES AND ACADEMIES

LONDON

Geologists' Association, April 4.—Professor Morris, F.G.S., vice-president, in the chair.—"On the Diamond Fields of South Africa," by Mr. G. C. Cooper.—The theory of an igneous action upon the spot at which the diamonds are now found being the explanation required to solve the problem of their origin was opposed by the author, who adduced facts from his observation in support of the opposite conclusion. He did not consider that the numerous trap dykes which characterise the South African Diamond Fields broke through the present surface, which, on the contrary, had been produced by the accumulation of materials brought by aqueous agency subsequent to the volcanic action which gave rise to the dykes. These materials consisted of a surface layer of red sand overlying a bed, from five to seven feet thick, of fragments of "lime and clay stone;" and beneath this the diamantiferous marl or "stuff" is reached. Steatitic or magnesian matter forms a considerable proportion of the "stuff" which it was contended may have been brought from magnesian rocks at a considerable distance by water and possibly by ice action, and deposited in the hollows formed by the trap dykes, and that these magnesian rocks may have been the original matrix of the diamonds.—"On some Fossils from the Chalk of Margate," by J. W. Wetherell. The author had devoted some time and attention to the exploration of the chalk in the immediate neighbourhood of Margate, and had obtained, as a result, a large number of species of fossils, a list of which was given, with remarks as to relative abundance. In addition to many genera usually abundant in the Upper Chalk, *Belemnintella* appears to be well represented in the Margate chalk, and ammonites are also found; but perhaps the most abundant fossil is the *Coscinopora globularis*, which varies in size from that of a walnut to a pin's head. Crystals of selenite were found as well as concretions of iron pyrites, but minerals are by no means common in the chalk of Margate.

Mathematical Society, April 10.—Dr. Hirst, F.R.S., president, in the chair.—Prof. Clifford made a few remarks in correction of a statement he had made at the March meeting during the discussion on Mr. Hayward's paper on an extension of the term *area*.—Mr. J. W. L. Glaisher then proceeded to read a paper on the calculation of the value of the theoretical unit angle to a great number of decimal places.—The following papers (in the absence of the authors) were discussed by Messrs. Clifford, Cotterill, Merrifield, and the president:—On systems of porismatic equations, algebraical and trigonometrical; Note on epicycloids and hypocycloids;

Locoid; Locus of point of concurrence of perpendicular tangents to a cardioid; Elliptic motion under acceleration constant in direction; Prof. Wolstenholme, on the theory of a system of electrified conductors; On the focal lines of a refracted pencil, Prof. J. Clerk-Maxwell.

Royal Horticultural Society, March 26.—Special general meeting, Lord Alfred Churchill in the chair.—The business practically consisted in the consideration of two bye-laws proposed by the Council. The first, giving to all the fellows the right of vote by proxy (hitherto restricted to ladies), was rejected. The second, empowering the fellows to elect to vacancies on the Council at a general meeting other than the annual general meeting, if more than half their number resign at any one time, was carried. Great excitement and disorder was manifested throughout the prolonged discussions.

April 2.—General Meeting, Mr. W. Saunders, F.R.S., in the chair.—A communication was read from Mr. Cocks, on budding vines. It was shown (1) that the extirpation of all the buds of the budded plant gave the inserted buds a better chance of success by removing competition, and (2) that there was no advantage in inserting new buds in the seats of those removed.

Scientific Committee, Dr. J. D. Hooker, C.B., F.R.S., in the chair.—Mr. Smee exhibited lemons infested with *Coccus limonii*, which caused the green colour of the unripe fruit to persist round the points of attachment, and injured the lemons for preserving purposes.—The Rev. M. J. Berkeley stated that the new potato disease described by Hallier in his "Parasitenkunde," was no doubt identical with the "copper-web" of the asparagus-growers of the Isle of Ely. It had been described as *Rhizoctonia*.—Dr. Hooker read a portion of a letter from Mr. Woodrow, stating that a succulent composite, *Notonia grandiflora*, had a great reputation as a cure for hydrophobia in the neighbourhood of Bombay.—Prof. Thiselton Dyer pointed out that the seeds of the Sooly Qua were not identical with those of *Luffa acutangula*; they much more resembled those of *Luffa aegyptiaca*.

April 6.—Special general meeting, Lord Alfred Churchill in the chair.—The following new members of Council were elected on the proposition of Lord Strathmore.—Viscount Bury, M.P., Hon. R. Chetwynd, Mr. Hardcastle, M.P., Sir C. Lindsay, Mr. W. A. Lindsay (Secretary), Sir A. Slade, Mr. Hellock, Mr. A. Smee, Mr. H. Little, Mr. R. Warner.

Institution of Civil Engineers, April 8.—Mr. T. Hawksley, president, in the chair. The paper read was "On the Rise and Progress of Steam Locomotion on Common Roads," by Mr. John Head, Assoc. Inst. C.E., and was divided into four parts:—1. Road locomotives for conveyance of passengers, also locomotives for use on tramways. 2. Road locomotives for conveyance of goods, heavy weights, &c., also steam road rollers. 3. Locomotives for use in agricultural operations, steam ploughing, &c. 4. Locomotives for military purposes.

Cambridge Philosophical Society, March 3.—Notes on the Hippopotamus, by Mr. J. W. Clark. The author exhibited the mounted skeleton, and some portions of the visceral anatomy, of the female hippopotamus which died in the London Zoological Gardens in January 1872, and made some remarks on the specimens.—"On the Foraminifera and Sponges of the Cambridge Upper Greensand," by Mr. W. J. Sollas. The author described the green grains abundant in the formation, and showed that, like those in many other rocks, they were to a large extent the casts of foraminifera. He then discussed the formation of the so-called coprolites, and showed that in a great number of instances these nodules were phosphatised sponges, just as the flints of the chalk were silicified sponges. He thought that the phosphate of lime might have been derived from the erosion of volcanic rocks in the south of Scotland which had been brought by a current from the north.—"On a Boulder in a coal seam, South Staffordshire," by Mr. Bonney. This boulder, found in the black coal of the Cannock and Rugeley Colliery, a seam nearly 3 yards thick, weighed 13 lbs. 13½ oz., was about 19 in. in girth either way, and about 4½ in. thick, it was of a compact grey quartzite, apparently identical with one of the rarities in the Bunter conglomerates of the district. He considered that the boulder, which was quite solitary, had been brought to its present position (probably during a flood) entangled in the roots of a tree—and discussed the bearings of its occurrence upon the physical geography of England in the carboniferous and triassic times.

MANCHESTER

Literary and Philosophical Society, April 1.—R. Angus Smith, Ph.D., F.R.S., vice-president, in the chair. "Note on an Observation of a small black spot on the sun's disc," by Joseph Sidebotham, F.R.A.S. On Monday, March 12, 1849, our late member Mr. G. C. Lowe and I saw a small circular black spot cross a portion of the sun's disc. We were trying the mounting and adjustments of a 7 in. reflector we had been making, and used an ink box between the eye-piece and the plane speculum. At first we thought this small black spot was upon the eye-piece, but soon found it was on the sun's disc, and we watched its progress across the disc for nearly half-an-hour. The only note in my diary is the fact of the spot being seen—no time is mentioned, but if I remember rightly, it was about four o'clock in the afternoon.—Mr. Baxendell said in a letter which Mr. Sidebotham had received from Prof. Hamilton L. Smith, of Hobart College, Geneva, New York, the writer suggests the use of iron or bell metal specula, coated with nickel, for reflecting telescopes. He says, "I ground and prepared a bell metal speculum, which I coated with nickel, and this, when polished, proved to be more reflective (at least I thought so) than speculum metal. The two objects which I sought were—first to have a polished surface unattackable by sulphuretted hydrogen (this, for example, is not injured by packing with lucifer matches), and secondly, for large specula, doing most of the work by the turning-tool and lathe. I really think a large, say 3 ft. mirror, coated with nickel, but cast of iron, and finished mostly in the lathe, while it would not cost the tenth of a similar sized speculum metal, would be almost equal to silvered glass of the same size, and vastly more enduring as to polish.—Prof. Williamson, F.R.S., referring to Mr. Binney's remarks at the meeting of March 4, said:—Mr. Binney, after pointing out that I had identified a certain type of stem-structure with *Asterophyllites*, and that Prof. Renault had discovered the same structure in *Sphenophyllum*, Mr. Binney proceeds to say, "I am not in possession of the facts from which the two learned professors came to such different conclusions, but I am inclined to consider the singular little stem as belonging to a new genus until the leaves of *Sphenophyllum* or *Asterophyllites* are found attached to it. When this comes to pass of course there can be no doubt of the matter." I have italicised the two important points in the preceding quotation. In the first place I cannot understand how Mr. Binney has overlooked my statement, made primarily in the Proceedings of the Royal Society, and repeated in the last number of the Proceedings of your meeting of February 4, that I had got a number of exquisite examples, showing not only the nodes but verticils of the linear leaves so characteristic of the plant." These leaves I have obtained attached to the stems in question in at least a dozen examples. Secondly, Mr. Binney considers that my conclusions and those of my friend Prof. Renault are different, whereas they mutually sustain each other in the strongest possible manner. E. W. Binney, F.R.S., said that after having heard Prof. Williamson's remarks his opinion expressed at the meeting of the Society on March 4 last was not altered.

GLASGOW

Geological Society, March 27.—Mr. James Thompson, F.G.S., vice-president, in the chair.—Mr. David Robertson, F.G.S., read some further notes on the post-tertiary fossiliferous beds of the West of Scotland. He first alluded to the brick-clays at Jordanhill, about a mile to the north-west of Patrick, and 145 ft. above the present sea-level. The clay here is wrought to a depth of from 12 to 20 ft., in some places rather more. One point of interest in examining the clays of this locality is the position in which the shells of the common mussel (*Mytilus edulis*) are found. This mollusc is commonly thought to have its zone or position near the surface, and to lie above the post-pliocene Arctic shells in the clays of the Clyde district. This no doubt is frequently the case, but it also occurs at greater depths, and overlaid by Arctic shells. Here it is found at a depth of 14 ft., while at a little distance in the same field Arctic shells occur within 6 ft. of the surface. Another feature of interest in the clays of this neighbourhood is the presence of portions of oak trees, some of considerable magnitude. Such pieces of oak, it is well known, are abundant in the peat of every district, but he was not aware of their having been previously found associated with Arctic shells in the clays of any part of the country.—Mr. Robertson then described the cuttings of the Maryhill Gasworks and Stobcross Railway, giving par-

ticulars of the beds exposed, especially in the latter, where interesting sections of boulder clay, gravel, sand, and laminated clay have been laid open during the excavations now in progress. The animal remains are sufficient to show the truly marine character of the deposit.—Mr. John Young read a paper on the probable derivation of certain boulders found in the till near Glasgow. He said the great majority of the boulders in the till of the Glasgow district had evidently been derived from tracts that lay to the west and north-west of the city. At the same time it was interesting to note that the ice which had travelled over the district had not proceeded exclusively from western or north-western sources, as the glaciated surface lately discovered at Possil clearly proved. There the rock is striated both from a north-west and a north-east direction; and he showed that the mineral constituents of the till quite corresponded with and confirmed these variations observable in the striæ.

MONTREAL

Natural History Society, Jan. 27.—During the past summer Mr. J. Richardson, of the Geological Survey of Canada, has made unusually large collections of the fossils, minerals, and other objects of interest from Vancouver and Queen Charlotte. Mr. A. R. C. Selwyn said that these collections establish conclusively the fact that the coal fields of the two islands belong to the same geological horizon. In each case the coal fields are of the same age as the chalk formation of Europe and elsewhere. Further, the coal of Queen Charlotte Island is found to be a true anthracite, and it is the first instance on record of the occurrence of anthracite in formations, as new as the chalk. The coal seams of Vancouver rest directly upon crystalline rocks, in which limestones predominate. Mr. Richardson estimates the Comox coal field, in Vancouver, to have an area of 300 square miles. It is underlaid by coal seams of from 2 to 10 ft. in thickness, which would probably yield an average of 11,840,000 tons per square mile. The total production of this field, to a depth of 1,500 ft. from the surface, is computed to be about 3,552 millions of tons. The Nanaimo coal field has an estimated area of 90 square miles, and contains three or more seams of from 3 to 10 ft. in thickness. Specimens of carvings in wood and stone made by Queen Charlotte Islanders were exhibited. These evince considerable constructive ability, and are almost invariably of a grotesque character.—Mr. Billings gave a description of the distribution of the cretaceous rocks of North America. He then called attention to some of the characteristic fossils of the Vancouver and Queen Charlotte strata, and showed a series of some of the most striking specimens. Among these were large ammonites, nautili, and various marine shells, of the same genera for the most part as those which are frequent in the European chalk formation. He remarked that in the present collection he had not detected any remains of large reptiles, or any sea urchins, both of which are common in the cretaceous rocks of other localities.

PHILADELPHIA

American Philosophical Society, September 20, 1872.—The following papers were read by Prof. E. D. Cope—Third account of Vertebrata from the Bridger Eocene; notices of new extinct Vertebrata from the upper waters of Bitter Creek, Wyoming; from the upper waters of Bitter Creek, Wyoming; "On the existence of *Dinosauria* in the transition beds of Wyoming Territory." In the last it was shown that the coal series of Bitter Creek belonged to the cretaceous formation.—Prof. Houston described a sensitive waterfall in Pike Co., Pennsylvania.—Prof. Chace communicated observations on some new planetary and stellar distances.

October 18.—Two papers from Prof. Cope were read, viz.: "On a new Genus of Vertebrata from the Upper Green River Basin," and descriptions of new extinct reptiles from the same. The former embraced the description of a new genus of *Lemmings* or allied group, having the dental formula 2-1-2-3.

November 1.—Prof. Lesley presented a record of authentic data respecting fourteen oil wells in West Pennsylvania.—Prof. Chace presented a paper, "A first approximation to a normal curve of temperature in the northern regions of the continent."—Aubury H. Smith described his observations on the sub-alpine botany of the north shore of Lake Superior, and of its absence in the Lake Nibbegong region farther north, which he had explored in 1872, which he believed was due to the greater coldness of the waters of Lake Superior.—Dr. Leconte gave a hygrometric explanation for the phenomenon, believing similar ones known

to him to depend on the difference between dry continental air, and damp winds from sea coasts.

November 15.—Mr. Gabb described the results attained in tabulating Miocene fossils from Santo Domingo. He described 217 extinct and 19 living species, the latter found on both sides of the barrier of Central America, which is capped by Miocene rocks.

December 20.—Prof. Cope read a paper on the zoological regions of the earth, and especially those of North America, agreeing as to the first with Drs. Sclater and Wallace in the main, adopting the Australian, Neotropical, Ethiopian, Neartic, and Palearctic (including Palæotropical of S. and W.), stating that all the southern continents present marked distinguishing characters. In North America he adopted the Pacific, Lower Californian, Sonoran, Central, Eastern, and Austro-Parian, which in the main agreed with those of Baird, the last being the southern part of his eastern, as far north as the isothermal of 773 F. The subdivisions were the Floridan, Louisianian, and Texan; those of the eastern after Allen, Carolinian, Alleghanian, Canadian, and Hudsonian.—Prof. O. C. Marsh gave an account of his discoveries in the Rocky Mountains since 1870, which included the first American *Chiroptera*, *Marsupials*, low forms of *Quadrumania*, birds with biconcave vertebrae, and several species of a new order, *Dimocerata* allied to the *Proboscidea*, but with horns and canine teeth.

January 3.—Prof. P. Fraser read a paper on a hydraulic problem, near Bethlehem Penna.

CALIFORNIA

Academy of Sciences, Dec. 18, 1872. "On the Parasites of the Cetaceans of the N.W. coast of America, with Descriptions of new Forms," by W. H. Dall, U. S. Coast Survey. Among the parasites most widely known as infecting the Cetacea, two classes may be recognised, viz., those which are true parasites, deriving their subsistence from the animal upon which they are found, such as the Pycnogonoids and Cyami, and those which are merely sessile upon the animal, and derive no nourishment or other benefit from it which might not equally well be furnished by an inanimate object, such as the various cirripedes.

VIENNA

I. R. Geological Institute, Jan. 21.—"Fossil Remains of Sirenoidæ found in the Venetian Territory," by Ach. Barone de Zigno. Besides the ribs and other bones of Halitherium which had been discovered many years ago in the upper tertiary beds of the Venetian Alps, the author succeeded in gathering a very rich collection of different species of Sirenoidæ in the lower tertiary beds (with *Serpula spirulæa*) of the Monte Zuella, near Montecchio, and in the glauconitic limestone of the basin of Belluno. The glauconitic strata of this basin had been taken till now for Eocene; but fossils found therein by Jaramelli—as *Clypeaster placenta* Des., *Scutella*, *Subrotunda* Lam, &c.—prove that they are of Miocene age.—"On the Eruptive Rocks of Styria," by R. von Drasche. The author gives an accurate petrographical analysis of the different eruptive rocks of Southern Styria, which by former observers had been taken for older porphyries, but which M. Stur has proved to be of tertiary age. They are andesites and trachytes. Some of these rocks resemble indeed very much older porphyries, and prove again the difficulty of discerning by mere petrographical or chemical properties eruptive rocks of different geological age.—A. Redtenbacher presented a memoir on the Cephalopods of the Gosau-strata of the Alps. Since the last publications on this matter by Fr. von Hauer, the number of species in our collections has more than doubled. Only eight of them are identical with species out of non-Alpine cretaceous strata, and they belong all to Senonian beds.

Feb. 18.—M. Tschermak gave an accurate description of the slates, quartzites, and limestones, along a section through the so-called Graywacke Zone of the North-eastern Alps, in the vicinity of Reichenau and the Semmering mountain. These rocks had been thought to belong to the Silurian formation, but in the opinion of M. Tschermak part of them were of a still older age. The study of the oldest sedimentary slates and other rocks of the Alps, promises, he thinks, valuable information about the genesis of the crystalline slates.—M. Fr. Foetterle "On the copper and iron ores of Ferriere in the province of Piacenza, in Italy." The valley of the Nure, extending from Piacenza in a south-west direction into the central part of the Apennines, in the upper part of its course is bounded by high mountain ranges, which consist of grey sandstones, alternating with bituminous slates and marls. They belong to the so-called macigno (Vienna

and Carpathian sandstone) and are probably of Eocene age. In the highest parts of the valley, in the environs of Boli and Ferriere, the macigno is traversed by numerous masses and dykes of an eruptive rock which is partly gabbro, consisting of large crystals of amphibol and feldspar, and partly serpentine. These eruptive rocks are of a more recent age than the macigno, which is very much altered by contact with them. Partly in the eruptive rocks and partly in the adjacent altered macigno are to be found masses of copper- and iron-pyrites, and of magnetic iron ores; they form boulders of some size, but nowhere regular layers or veins. The mines which have been opened to gain these ores, M. Foetterle thinks, promise no great success.—O. Feistmantel on the relations between the carboniferous and the Permian formations in Bohemia. In some of the Bohemian coal-basins, e.g. that of Radowenz at the foot of the Riesengebirge, in the north-western environs of Prague, in the basin of Pilsen, &c., two layers of coal are known, both accompanied by vegetable remains of a pure carboniferous type; but the strata between these layers contain remains of fishes, as *Xenacanthus*, *Acanthodes*, *Palæoniscus*, &c., which belong to the Permian fauna. The author concludes that the upper coal layers of the Bohemian coal-basins belong to the Permian formation, and the lower only to the carboniferous formation, and that both formations are most intimately allied by their identical flora.

DIARY

THURSDAY, APRIL 17.

LINNEAN SOCIETY, at 8.—Burmese *Orchidææ*, from the Rev. C. P. Parish:

Prof. Reichenbach.—Perigynium of *Carex*: Prof. McNab.

CHEMICAL SOCIETY, at 8.—On Heat produced by Chemical Action: Dr. Debus, F.R.S.

NUMISMATIC SOCIETY, at 7.

ZOOLOGICAL SOCIETY, at 4.

SUNDAY, APRIL 20.

SUNDAY LECTURE SOCIETY, at 4.—The Theory of Wind Instruments: Dr. W. H. Stone.

MONDAY, APRIL 21.

LONDON INSTITUTION, at 4.—Elementary Botany: Prof. Bentley.

GEOLOGISTS' ASSOCIATION, at 8.—Visit to Museum of Practical Geology.

TUESDAY, APRIL 22.

ROYAL INSTITUTION, at 3.—Music of the Drama: Mr. Dannreuther.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Discussion on Mr. Head's paper on Steam Locomotion on Common Roads—On the Delta of the Danube, and the Provisional Works erected at the Sulina Mouth.—Sir C. A. Hartley.

ANTHROPOLOGICAL SOCIETY, at 8.—Religious Beliefs of Ojibois or Santeux Indians resident in Manitoba and at Lake Winnipeg: A. P. Reid, M.D.—Danish aspect of the Nomenclature of Cleveland: Rev. J. C. Atkinson.—Rock Inscriptions in Brazil: John Whitfield.

WEDNESDAY, APRIL 23.

LONDON INSTITUTION, at 7.—On some Phenomena connected with Magnetism: W. F. Barrett.

SOCIETY OF ARTS, at 8.—On Silk-Worm Grain: M. Alfred Roland.

ARCHAEOLOGICAL ASSOCIATION, at 8.

SOCIETY OF ANTIQUARIES, at 8.30.—Anniversary.

ROYAL SOCIETY OF LITERATURE, at 8.30.—The Serio Comic Satirical Poetry

of the 18th and 19th centuries: Sir Patrick de Colquhoun, Q.C., LL.D.

SOCIETY OF TELEGRAPH ENGINEERS, at 7.30.—On the Block System of

Working Railways: W. H. Preece and Capt. Mallock.

THURSDAY, APRIL 24.

ROYAL INSTITUTION, at 3.—Light: Prof. Tyndall.

ROYAL SOCIETY, at 8.30.

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