

SOCIETIES AND ACADEMIES

LONDON

Geological Society, May 24.—Prof. John Morris, Vice-President, in the chair. Messrs. Mosley, Colvin, Noble, F.R.A.S., and Davey, were elected Fellows of the Society. The following communications were read:—(1) "On the principal Features of the Stratigraphical Distribution of the British Fossil Lamellibranchiata." By Mr. J. Logan Lobley, F.G.S. In this paper the author showed, by means of diagrammatic tables, what appears to be the present state of our knowledge of the general stratigraphical distribution of the fossil Lamellibranchiata in Britain. As a class, the Lamellibranchs are sparingly represented in the Lower, and more numerous in the Upper Silurian group, and fall off again in the Devonian; they greatly increase in number in the Carboniferous, become scanty in the Permian and Trias, and attain their maximum development in the Jurassic rocks. They are also largely represented in the Cretaceous and Tertiary series. The stratigraphical distribution of the two great subordinate groups, the Siphonida and the Asiphonida, corresponds generally with that of the class; the Siphonida predominate over the Asiphonida in Tertiary formations, whilst the reverse is the case from the Cretaceous series downwards. Nearly all the families of Lamellibranchs are represented in the Jurassic and Carboniferous rocks, and in the former very largely. The author remarked especially on the great development of the Aviculidæ in Carboniferous times. Mr. Etheridge, after noticing the importance of the paper, remarked that possibly the great difference observed in the proportions of Lamellibranchiata in different formations might to some extent be due to our want of knowledge. Of late years, in the Caradoc and Lower Silurian series, the number of species had been nearly doubled, principally through the persevering industry of one single observer, Lieut. Edgell. The same was to some extent the case in the Carboniferous rocks, owing to the collections of Mr. Carrington. Much was also being done for the Oolitic series, in connection with which the names of Mr. C. Moore, Mr. Sharp, and Dr. Bowerbank ought to be mentioned. Mr. Griffiths and the Rev. Mr. Wiltshire were doing the same work for the Gault. What the late Mr. S. P. Woodward had done as to the distribution of the different species of molluscs through time, Mr. Lobley was doing on a larger and more extended scale. Prof. Ramsay was glad to find that Mr. Lobley was, to some extent, doing the same for the Lamellibranchiata as Mr. Davidson had done for the Brachiopoda. He did not know how the case might be with the Silurian and Devonian formations, but in the Carboniferous strata the Lamellibranchiata were obtaining a preponderance over the Brachiopoda. He accounted for their comparative absence in formations of other ages, especially between the Upper Silurian and Rhætic beds, by the best known areas of those periods having been mainly continental, or containing principally freshwater or inland sea remains, so that the true marine fauna was absent. In Carboniferous times possibly the true relative proportions of the two forms had been preserved in the deposits. Mr. Judd was doubtful as to the safety of placing too great reliance upon figures. He questioned whether some of the conclusions as to the great increase of Lamellibranchiata between the Carboniferous and Jurassic periods could be substantiated. Much depended on the amount of the rocks present in different countries, and the study bestowed on each. The conditions also for the preservation of the fossils might be more favourable at one time than another. Mr. Carruthers considered the tables as of the greatest value, as indicating the present state of our knowledge. He called attention to the difference of conditions under which deposits had accumulated, which must have to some extent affected the proportion of Lamellibranchiata preserved in the different formations. Mr. Charlesworth remarked on the occurrence of *Trigonia* in the Australian seas, and on there being varieties of form among specimens of existing species so great that if they were found fossil they might be regarded as of several species. Mr. Hughes considered that the data were too incomplete to justify the generalisations of some of the previous speakers. It had been pointed out that whenever the tables showed a very large number of Lamellibranchs from any formation, that formation had been carefully worked out by local observers; and therefore he would like to know in each case the proportion the Lamellibranchiata bore to the total number of fossils found. It had been shown also that a larger proportion of Brachiopoda had been found in the older rocks, and of Lamellibranchiata in the newer. But in the older rocks whole genera of Lamelli-

branches are confined to horizons and localities which are not cut off by stratigraphical breaks, such as would allow us to think it at all probable that they can be characterised by peculiar genera. He thought the scarceness and irregular occurrence of Lamellibranchs in the older rocks could be best explained on the supposition that those portions of the older deposits which were least favourable to Lamellibranchs happened to be those now chiefly exposed to our search, and that those few portions are only in part worked out. Mr. Jenkins observed that in thick deposits there was a far greater likelihood of numerous forms being present than in thin, for thickness meant time, and time meant variation. Prof. Morris dissented from this view, as in thin littoral deposits an enormous number of shells might be present, while in beds formed of deep sea they might be almost entirely absent.—2. "Geological Observations on British Guiana," by Mr. James G. Sawkins, F.G.S. In this paper the author gave a general account of his explorations of the Geology of British Guiana when engaged in making the geological survey of that colony. He described the rocks met with during excursions in the Pomeroun district, along the course of the Cuyuni and Mazuruni rivers, on the Demerara river, on the Essequibo and its tributaries, on the Rupununi river, and among the southern mountains. The rocks exposed consist of granites and metamorphic rocks, overlain by a sandstone, which forms high mountains in the middle part of the colony, and is regarded by the author as probably identical, or nearly identical, with the sandstone stretching through Venezuela and Brazil, and observed by Mr. Darwin in Patagonia. Prof. Ramsay remarked upon the barrenness, from a geological point of view, of the district investigated by Mr. Sawkins, and especially called attention to the absence of fossils in the stratified rocks. He referred briefly to Mr. Sawkins's labours in Trinidad and Jamaica, and to his discovery of metamorphosed Miocene rocks in the latter colony exactly analogous to the metamorphic Eocene rocks of the Alps. He was glad to see that the author had brought forward examples of cross-bedding in metamorphic rocks, and considered that the results adduced were favourable to those views of the metamorphic origin of granite which he had himself so long upheld. Mr. D. Forbes, on the contrary, considered that the facts brought forward by Mr. Sawkins were confirmatory of the eruptive nature of the granites observed. He added that cross-bedding was common in igneous rocks and even in lavas. Mr. Tate remarked that in the country to the north of the district described in the paper metamorphic rocks abound. He considered that the series of metamorphosed Jurassic rocks extends across the whole north of South America, and perhaps into California. Similar sandstones to those described occur in the basin of the Orinoco, and contain fossils which show them to be of Miocene age. Mr. Tate did not consider these sandstones as the equivalent of the Patagonian sandstones, as from the shells contained in the latter they would appear to be Pliocene or Pleistocene. Mr. Sawkins, in reply to a question from Mr. Tate, stated that the only gold found in the country had probably been carried down from the well-known gold district of Upata. He also entered into a few additional details connected with the chief points in his paper, dwelling especially upon the physical features of the country, in illustration of which several landscape drawings were exhibited.

Royal Institution of Great Britain, June 5.—Sir Frederick Pollock, Bart., M.A., vice-president, in the chair. Silas Kemball Cook, Miss Elinor Martin, Dr. Charles Bland Radcliffe, and Mrs. Radcliffe were elected members of the Royal Institution. The special thanks of the members were returned for the following donation to "The Fund for the Promotion of Experimental Researches":—Sir Henry Holland, Bart. (thirteenth annual donation), 40*l*.

Anthropological Institute, May 29.—Prof. Busk, F.R.S., vice-president, in the chair. George Latimer of Puerto Rico was elected a member. Mr. F. G. H. Price read a paper "On the Quissama Tribe of Angola," inhabiting that portion of Angola situated on the south bank of the Quanza river. The country had lately been visited by Mr. Charles Hamilton, well known for his travels among the Kaffirs. The Quissama bear the reputation of being cannibals, but cannibalism, although undoubtedly practised by them to some extent, does not largely prevail. The men are well formed, and average about five feet eight inches in height, they are copper-coloured, have long, coarse, and in some instances, frizzled, hair; their heads are mostly well developed, and the Roman nose is not unfrequently met with.

Their weapons are spears, bows and arrows, and occasionally guns, the latter being rude copies from the Portuguese article. Mr. Hamilton was well received by the chief, who told him that he was the first white man that had seen the tribe at home. The men and women of the Quissama are addicted to hunting; they are virtuous, practice monogamy, marry young, and are very prolific. The men largely preponderate in numbers over the women, the result, it is supposed, of infanticide, but of that practice Mr. Hamilton had seen no evidence. The Quissama believe in the existence of a Supreme Being.—A paper was read by Lieut. George C. Musters, R.N., on the races of Patagonia inhabiting the country between the Cordillera and the Atlantic, which the author had traversed during the years 1869 and 1870. The Patagonians consist of three races distinctly differing in language and physique, and partially differing in religion and manners, Tehuelches or Patagonians, Pampas, and Manzaneros, the latter being an offshoot of the Araucanians of Chile. The Tehuelches and Pampas are nomadic tribes subsisting almost entirely by the chase. The proverbial stature of the Patagonians was so far confirmed by the observation that the Tehuelches give an average height of five feet ten inches, with a corresponding breadth of shoulders and muscular development; the Manzaneros come next in order of height and strength, the Pampas being the smallest of the three races. The Manzaneros are remarkable for their fair complexions, whilst the Tehuelches are, literally speaking, Red Indians. Lieut. Musters had visited all the various tribes of those races, from the Rio Negro to the Straits of Magellan, for political purposes, and he estimated the population, which he described as diminishing, as follows:—Tehuelches 1,400 to 1,500, Pampas 600, and the remainder Manzaneros, amounting in all to about 3,000.—Dr. Eatwell contributed a communication on Chinese burials.—Mr. Josiah Harris announced the arrival from the coast of Peru of various pieces of rag, of wooden images, pottery, and other articles of great interest; and the chairman stated that the specimens would be exhibited and described at the next meeting of the Institute.—Mr. George Harcourt exhibited a flint implement found near a stream flowing from Virginia Water, and a bronze Celt discovered in the root of a tree in the parish of Thorpe, Surrey.

PARIS

Academy of Sciences, May 1.—M. Chasles contributed a rather long but very important paper on Conic Sections. The illustrious mathematician gives the theorems rather than the mode of demonstrating them. It is a reminiscence of the old academy in the golden age of the seventeenth century. The theorems are very numerous.—M. Trécul read a rather long account of the analysis of the juices which can be extracted from aloes.—M. Decaisne read a memoir, which is printed at full length, on the Temperature of Children when they are taken ill.—M. Delaunay presented the second number of his monthly meteorological report for the month of April. It is to be noticed that April expired on a Sunday, and that M. Delaunay spared not a single hour, as his *résumé* was ready on the following day. The observatory had suffered scarcely any injury up to the end of the second siege. No delegate of the Commune had presented himself either to take possession of it or to blow it up.

May 8.—It was only at this late date that M. Longuet's death was officially made known to the Academy. M. Delaunay, who presided over the proceedings, gave expression to a few becoming sentences of regret at the loss the Academy had experienced. M. Longuet was a physiologist of much ingenuity and ability.—M. Duchartre, member of the Botanical Section, read a rather long paper on our knowledge of Liliaceæ.—M. Sedillat, the learned Arabic scholar, read a paper on the etymology of French words having an Arabic origin. Their number is immense, and M. Littré, in his great "Etymological Dictionary," supposes it to be even much larger. The intercourse with Arabs was very active even in mediæval times, as is proved by the history of the University of Paris, which so long defended Averrhoes. M. Sedillat gives many instances chosen from an immense number of others.—M. Stanislas Meunier sent a very interesting paper on meteorites. The experiments were made by him according to the precepts given by M. Daubrée, to whom M. Stanislas Meunier is assistant. M. Daubrée is now a refugee at Versailles. The museum where these experiments were executed is said to be safe, contrary to previous assertions. M. Stanislas Meunier explained by what process serpentine mountains can be changed into tadjerite. Tadjerite is found in some meteorites which belong to the museum collection. Specimens are also to be found in the

British Museum, Yale College, U.S., &c. M. Boilot, the scientific editor of the *Moniteur*, read a paper which was written to show astronomers that they must study carefully the different kinds of combustion on the surface of the earth, natural or artificial, to gain some quasi-experimental knowledge of the celestial phenomena of the origin and variations of star light. The doctrine was illustrated by some interesting observations.—M. Quesneville, editor of the *Moniteur Scientifique*, presented a set of his papers.—M. Tremeschini presented three drawings representing one large solar spot seen on the 6th, 7th, and 8th of May at noon. These drawings are inserted in the *Comptes Rendus*. M. Tremeschini lives at Belleville, the spot where the rebellion fought its last desperate struggle. It is to be hoped that he escaped safe, though up to this moment nothing has been heard from him.

BOOKS RECEIVED

ENGLISH.—A Memoir of the Indian Survey: C. R. Markham (India Office).—Light Science for Leisure Hours: R. A. Proctor (Longmans).—At Last, 2 vols.: Rev. Canon Kingsley (Macmillan and Co.).—The Modes of Origin of Lowest Organisms: Dr. H. C. Bastian (Macmillan and Co.).
FOREIGN.—(Through Williams and Norgate)—Lehrbuch der Mechanik: Dr. Wernicke.—Le Soleil: Sidre Secchi

DIARY

THURSDAY, JUNE 8.

SOCIETY OF ANTIQUARIES, at 8.30.—On the important Excavations in Rome during the present season: J. H. Parker, F.S.A.
MATHEMATICAL SOCIETY, at 8.—On Plücker's Models of Certain Quartic Surfaces: Prof. Cayley.—On the Motion of a Plane under certain Conditions: Mr. S. Roberts.
ROYAL INSTITUTION, at 3.—Sound: Prof. Tyndall.

FRIDAY, JUNE 9.

ASTRONOMICAL SOCIETY, at 8.
QUEKETT MICROSCOPICAL CLUB, at 8.
ROYAL INSTITUTION, at 9.—On Dust and Smoke: Prof. Tyndall.

SATURDAY, JUNE 10.

ROYAL INSTITUTION, at 3.—On the Instruments Used in Modern Astronomy: J. N. Lockyer, F.R.S.

MONDAY, JUNE 12.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.

TUESDAY, JUNE 13.

PHOTOGRAPHIC SOCIETY, at 8.

THURSDAY, JUNE 15.

ROYAL SOCIETY, at 8.30.
SOCIETY OF ANTIQUARIES, at 8.30.
CHEMICAL SOCIETY, at 8.—An Experimental Inquiry as to the Action of Electricity upon Oxygen: Sir B. C. Brodie, Bart.
LINNEAN SOCIETY, at 8.—On British Spiders: Rev. O. P. Cambridge.—On a Luminous Coleopterous Larva: Dr. Burmeister.

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ERRATA.—Vol. IV., p. 95, 2nd column, line 30, for "R. T. Friswell" read "R. J. Friswell"; line 37, for "Fl₂" read "Tl₂"; for "FIO₂" read "TiO₂."