SOCIETIES AND ACADEMIES

LONDON

Geological Society, November 9.—Mr. Joseph Prestwich, F.R.S., President, in the chair. Lieutenant Reginald Clare Hart, R.E., Brompton Barracks, Chatham; Lieutenant James Frederick Lewis, R.E., Brompton Barracks, Chatham; and Mr. M. F. Maury, jun., 1300 Main Street, Richmond, Virginia, U.S., were elected Fellows of the Society.—(1.) "On the Carboniferous Flora of Bear Island (lat. 74° 30′ N.)," by Professor Oswald Heer, F.M.G.S. The author described the sequence of the strata supposed to belong to the Carboniferous and Devonian series in Bear Island, and indicated that the plant-bearing beds occurred immediately below those which, from their fossil contents, were to be referred to the mountain limestone. He enumerated eighteen species of plants, and stated that these indicated a close approximation of the flora to those of Tallowbridge and Kiltorkan in Ireland, the greywacke of the Vosges and the southern Black Forest, and the *Verneuilii*-shales of Aix and St. John's, New Brunswick. These concordant floras he considered to mark a peculiar set of beds, which he proposed to denominate the "Ursa-stage." The author remarked that the flora of Bear Island has nothing to do with any Devonian flora, and that consequently it and the other floras, which he regards as contemporaneous, must be referred to the Lower Carboniferous. Hence he argued that the line of separation between the Carboniferous and Devonian formations must be drawn below the yellow sandstones. The presence of fishes of Old Red Sandstone type in the overlying slates he regarded as furnishing no argument to invalidate this conclusion. The sandstones of Parry Island and Melville Island are also regarded by the author as belonging to the "Ursa-stage," which, by these additions, presents us with a flora of seventy-seven species of plants. The author remarked upon the singularity of plants of the same species having lived in regions so widely separated as to give them a range of 26½° of latitude, and indicated the relations of such a luxuriant and abundant vegetation in high northern latitudes to necessary changes in climate and in the distribution of land and water.—Sir Charles Lyell remarked that the Yellow Sandstones of Dura Den in Fife, and of the county of Cork in Ireland, contain *Glyptolepis* and *Asterolepis*, genera of fish exclusively Devonian, or belonging to the middle parts of the Old Red Sandstone—also the genus *Coccosteus*, which is abundantly represented in the Middle Old Red Sandstone, and sparingly, or only by one species, in the Carboniferous formation. The evidence derived from these fishes inclined him to the belief that the Yellow Sandstone, whether in Ireland or Fife, should be referred to the Upper Devonian, and not to the Lower Carboniferous, as Sir Richard Griffiths contended, and as Heer now thinks. As to the argument founded on the plants, he considered it an important and truly wonderful announcement, that many well-known Carboniferous species are common to Bear Island (in lat. 74° 30′ N.), in the Arctic regions and to Ireland and other parts of Europe (26° of latitude farther south). But fossil plants are supposed to have a wider range in space and time than fossil fish; and we know that the cryptogamic flora of the ancient coal is remarkable for the wide horizontal spread of the same species, extending from North America to Europe, so that we need not be surprised if many species should extend vertically from the Devonian into the Carboniferous strata. Mr. Carruthers remarked on the bearing of the paper on the Kiltorkan beds, and considered that Dr. Heer had completely established the correlation of the deposits. He differed, however, as to the numerical proportions of the species. He could not recognise *Cyclostigma* as a genus, but considered it founded on insufficient grounds, in which view Prof. Haughton now agreed. It was, in fact, founded on fragments of the bark of *Lepidodendron Griffithsii*, Brongniart, to which species the *Lepidodendron* indicated by Prof. Heer as *L. veltheimianum* really belonged. Other detached portions of this same plant had been described by various authors under no less than seven different specific names, and referred to nearly an equal number of distinct genera, and Prof. Heer had reckoned these as species in his comparison of the Bear Island and Irish floras. Prof. Heer had been led, chiefly by the erroneous determination of the Kiltorkan *Lepidodendron* by the Irish palæontologists, to refer these beds to the Carboniferous rather than to the Devonian formation, the Kiltorkan fossil having been established as a very distinct species by Brongniart and Schimper. Mr. Carruthers considered that both the Irish and Bear Island deposits belonged to the Devonian. Mr. Boyd Dawkins pointed out that the proximity of land was exhibited by the presence of terrestrial plants in the deposits, and believed that this might have much to do with the difference in the proportion in the beds. As the marine fauna decayed more rapidly than the terrestrial, it was preferable for classificatory purposes. He mentioned forms of vegetable life which had been recently discovered in America in beds of Cretaceous age. He did not believe that corals could have existed in those high latitudes under anything approaching to the present condition. Prof. Nordenskjöld had failed to discover any traces of glacial action in these beds; and the question arose whether there had been any change in the position of the Pole or in the radiated heat of the sun.—(2.) "On the Evidence afforded by the Detrital beds without and within the North-eastern part of the Valley of the Weald as to the mode and date of the Denudation of that Valley." By Mr. S. V. Wood, jun., F.G.S. The author commenced by discussing the various hypotheses that have been proposed to explain the denudation of the Weald Valley. In his opinion the upheaval of the district took place in Post-glacial times, and subsequently to the deposition of the gravels of the Thames Valley, of East Essex, and of the Canterbury heights; and the denudation was effected chiefly by tidal erosion during gradual upheaval in an inlet of the sea, aided by the action of fresh water flowing into this inlet from the north by streams draining the land which now constitutes the counties of Middlesex and Essex. The chief evidence in favour of his views is as follows:—1. The absence from the glacial beds of Essex of any débris representing a considerable denudation of the Weald during the glacial period, and the probability that the Wealden area was beneath the sea during the deposition of the Boulder Clay. 2. The comparative absence of Lower Cretaceous or Hastings-sand materials from the Post-glacial gravel-sheets outside the north of the Weald. 3. The impossibility of reconciling the presence of Tertiary pebbles in certain Weald-gravels with an origin by means of streams flowing in the direction of the present rivers. 4. The antagonism between the character of the major valley of the Weald and that of any excavation producible by the agency of rivers. 5. The persistence of the old coast contour with the river-drainage entering it from the north. 6. The existence of a cause, in the shape of an isthmus at Dover, sufficient to induce a strong tidal scour. Mr. Godwin-Austen thought that the author had done his theory injustice in presenting only a portion of the Wealden area for consideration. He remarked that phenomena similar to those of the Weald were to be found in various parts of Western Europe. He was glad to find that Mr. Searles Wood did not regard the escarpment as representing marine cliffs; but he did not attach sufficient weight to the absence of any material of marine origin at their base, so that there was no evidence of the presence of the sea within the Wealden area. He differed wholly from the author as to the age of the gravels, for beneath the gravels were silty beds containing elephant remains. These gravels he was inclined to refer to a glacial period, as they contain blocks such as could only have been transported by the agency of ice. The elephants found in the valley of the Wey are of the species (*E. primigenius*) which also occurs in the Selsea beds; and he believed both to be of glacial age. As to the theory of the denudation of the Weald, he professed himself a convert to the views of Messrs. Foster and Topley, and cited what was now going on in Heligoland in illustration of atmospheric denudation.—Mr. Whitaker observed that the present absence of gravels along parts of the valley of the Thames affords no proof of their not having formerly existed. He pointed out the soft and friable nature of most of the rocks of the Wealden, which would account for their absence in the gravels. The only really hard rock was the Chert of the Lower Greensand, which was abundant in the gravels of West Kent. Angular flints occurred at the base of the chalk escarpment wherever it had been carried back by denudation. The major valley of the Weald had been spoken of, but he denied that any such valley existed; it was merely a series of numerous small valleys. He could not conceive the rivers flowing against the dip of the strata, as supposed by Mr. Wood. He did not agree in the view of the denudation of the Weald being such an enormous affair, but thought that it might be due to comparatively small causes.—The President pointed out that beyond Southend there was a section precisely similar to that of Grays. It was a mistake to suppose pebbles from the Wealden area did not occur in the Thames gravels.

He thought that much of the denudation of the Wealden area might have taken place before the glacial period. The presence of Tertiary pebbles in the Wealden area might readily be accounted for by their presence at the edge of the escarpment. Mr. Searles V. Wood, jun., in reply, justified himself for having limited his observations to the northern part of the Weald, as it was there only that it could be brought into juxtaposition with the glacial beds. He maintained that, under certain circumstances, no beaches or marine beds were formed at the base of sea-cliffs. He pointed out that in Post-glacial gravels large blocks of rock were frequently found, and protested against limiting all ice-transport to the glacial period. He could not recognise the Selsea beds, with 150 living species, some of southern character, and none extinct, as glacial. He did not acknowledge the alleged softness of the Wealden rocks.—The Earl of Enniskillen sent for exhibition a fragment of Lias Limestone from Lyme Regis perforated by *Pholades*.

Entomological Society, November 21.—Mr. Alfred R. Wallace, F.Z.S., &c., President, in the chair. Exhibitions of *Lepidoptera* were made by Mr. Bond; of *Coleoptera* by Mr. Albert Müller and Prof. Westwood; and Mr. F. Smith exhibited *Phora florea*, a Dipterous parasite in the nest of the wasp. The following paper was read:—"Descriptions of some new diurnal *Lepidoptera*, chiefly Hesperiidæ," by Mr. A. G. Butler.

Ethnological Society, November 22.—Prof. Huxley, President, in the chair. Mr. George Macleay was announced as a new member. Mr. Edgar Layard made some remarks upon a collection of stone implements which he has recently brought from the Cape of Good Hope. Some polished celts from the Naga Hills, between Assam and Burmah, were exhibited, and Lieut. Barrow's notes upon them were read.—A paper was then communicated by Dr. Bleek "On the Concord, the Origin of Pronouns, and the Formation of Genders or Classes of Nouns." The author believes that the classes or genders in the sex-denoting languages originally depended, not upon the meaning of the nouns, but upon their representative particles, which, in these languages, were primiarily at the end of the nouns. These genders were, from an originally large number, gradually reduced, until in the Aryan languages they were mainly two—one with the representative element, U, which is called the *masculine* class, and the other with the representative element, A T I, which is named the *feminine* class. The *neuter* appears to be a later development, into which, however, an original common plural gender, with the termination, A N I, may have been incorporated. To these endings the case-terminations were affixed, and through pressure of the latter the original marks of gender have frequently been obscured. The concord was at first due to the presence of these representative elements of the nouns in their pronominal character. Mr. Hyde Clarke, in eulogising this paper, said that he had by independent investigation arrived at some of the results detailed by the author. The speaker insisted upon the necessity of extending our philological studies beyond the Indo-European languages.

MANCHESTER

Literary and Philosophical Society, November 15.—Mr. E. W. Binney, president, in the chair. "On the Temperature Equilibrium of an Enclosure containing a Body in Visible Motion," by Prof. Balfour Stewart, LL.D., F.R.S. It has been established that in an enclosure containing bodies which are all at the same temperature, and at rest, the same amount of heat enters any surface forming part of the walls of the enclosure as leaves it in the same time, so that the body, of which this is the surface, neither gains nor loses heat. It is also known that if we take, not the outer surface of such a body, but any plane passing through its substance, say for instance one parallel to its outer surface, then, as much heat passes across this plane going into the body, as passes across it going out of the body in the opposite direction; and further, this equilibrium of heat is known to hold separately for every one of the individual rays of which the whole heterogeneous radiation is composed. The effect of the motion of a body in altering the wave-length of the radiated light is also well known. In consequence of this, if a cosmical mass, such as a star or nebula, should be formed of incandescent hydrogen, and be at the same time rapidly approaching the earth, the light which strikes the earth will not be the double line D, but a line more refrangible than it, and therefore this light will be able to pass through a mass of ignited sodium vapour at the earth's surface without suffering absorption, while, however, the light emanating from the sodium vapour will still be the double line D. In such a case, even if the star and the terrestrial sodium vapour should both be of the same temperature, yet the light radiated by the latter will not be the same in quality as that absorbed. This instance would appear to show that the equilibrium which holds in an enclosure of uniform temperature when all the substances are at rest does not hold when some of these are in visible motion, and that if in that enclosure there be a body moving towards or from the surface of the enclosure, the heat which enters the surface from the moving body will not be the same as that which the surface gives out. Suppose for instance that the walls of the enclosure are made of glass, and that the temperature of the whole enclosure including that of the moving body is 0° C., then, were the whole at rest, the heat which strikes the glass surface will all be absorbed at a very short distance below the surface, and in like manner the heat radiated by the glass will all emanate from a short distance below the surface. But let us now suppose, to take an extreme case, that the moving body is approaching one of the glass surfaces so rapidly that the heat which it emits has been so much increased in refrangibility as to enter the boundary of the visible spectrum. Then, while the heat radiated by the glass will still continue to proceed from a very short distance beneath the surface, the heat absorbed by the glass from the moving body will be able to penetrate to a very considerable depth beneath the surface of the glass. The outer layer of glass will thus lose, while the inner layer will gain heat. Now, it is possible to conceive an enclosure with a fixed diaphragm, and containing a revolving body, so arranged that the heat which leaves it in the direction of a certain part of the enclosing surface, shall always be given out by that part of the revolving body which is moving towards the surface; while, on the other hand, the heat given out by the revolving body to another surface, shall be given out when the revolving body is moving from that surface. There will thus be a want of temperature equilibrium among the various layers, those near the surface being somewhat different in temperature from those beneath. But when we have a temperature difference of this kind, have we not acquired the power of converting heat into work? It would thus appear at first sight that the mere presence of a moving body has given us the power of obtaining work from an enclosure all of whose particles were originally at the same temperature. This appears however to be opposed to the theory of the dissipation of energy, and in consequence we are induced to think there must be some error in the assumption. Now, does not the unwarranted part of the hypothesis consist in our supposing that the revolving system can continue to revolve without losing part of its visible motion? When two moving bodies approach or recede from each other, is it not possible that each loses a small part of its visible energy, while at the same time there is a surface disturbance produced in both? It might be said that, believing in a medium pervading all space, we were prepared for a stoppage of motion of this nature, and that there is therefore nothing gained by the supposition which has been made; but it might be replied that by looking at the problem in the above light, we appear to connect this stoppage of motion with other facts, besides being made aware of a source of surface disturbance when cosmical bodies approach or recede from each other.—Postscript added 19th November.—If we imagine a stoppage of the motion of cosmical bodies of the nature above described, then if the two approaching bodies be exactly equal and similar, either extremity of the medium between them will be similarly affected by the motion derived from the approaching bodies; but if these bodies are unequal, the two extremities of the medium will be dissimilarly affected.

Microscopical and Natural History Section, October 10.—Mr. Joseph Baxendell, President of the Section, in the chair. Mr. Joseph Sidebotham read the following paper:—"On the Variations of *Abraxas grossulariata*." The variations in animals and plants are of great interest, and each contribution to the store of facts accumulated relative to these variations, their causes and limits, is of value in determining the identity and limits of species, in whatever way we interpret the word *species*. *Abraxas grossulariata* is probably one of the most variable insects we possess in this country in colour and markings, and it would be quite pardonable in any one not well acquainted with it, were he to split it up into four or five species; but although it varies in colour and markings in such a great degree, all these varieties are joined together by gradual steps, and yet no step is found to join it to the next species on our list, *Abraxas ulmata*. The larvæ of this species will feed upon the leaves of most trees and

shrubs, and are therefore easily experimented upon, as to whether the changes in food influence the colour or markings. So far as my own experiments, and I believe those of others are concerned, no difference whatever can be detected from the varieties of food, except in size. That long-continued changes of food through many generations might have a perceptible effect, is however more than probable. The type form of this moth is too well known to require description. I will therefore exhibit a drawer of specimens, having the type form in the centre, the various forms radiating from it in steps, in one line ending in white, another in black, another in which the white ground runs gradually into brown, and various other marked varieties. We may divide these into the following seven groups:—1. Variation. White, or the spots very few and distant: this leads up to the type form. 2. Spots joined together, forming curves and lines. 3. A variety of intermediate spots and patches. 4. The spots at the border becoming lines, and running towards the base of wings. 5. Spots confluent, forming solid black patches over nearly the whole of wings. 6. The spots having the type form, but the white ground tinged with a smoky brown or drab colour, sometimes suffusing the whole of the wings. 7. Spots of the type form, but the ground of wings bright yellow. From various experiments with many thousands of larvæ of this species, I have come to the conclusion that these variations are in a great measure hereditary, that one brood of eggs will produce moths of forms in a great measure identical, if the parents be of the ordinary type; if the eggs be the produce of moths of extreme colouring, varying much from the type, then, although the bulk of moths will be marked dark or light as the parents, there will be others of the ordinary type, and also some of the very opposite character of marking, precisely as in many florists' flowers the seeds from those varying most from the original form are known to produce the most marked and opposite varieties. These experiments can only produce approximate results, unless a great number of years could be devoted to them, and in this and many others of our most variable species, it is almost impossible to rear them in confinement beyond the second generation.

November 7.—Mr. Joseph Sidebotham exhibited a series of specimens of *Limobius dissimilis*, from Llandudno, on which the markings were very distinct and perfect; he discovered the species in considerable numbers beneath the flowers of *Geranium sanguineum*.—Mr. Spencer H. Bickham, jun., reported occurrence of *Myosurus minimus*, L., in plenty at Vale Royal, near Northwich, which species, he believed, had never previously been noticed in the neighbourhood.—Mr. Bickham then exhibited a series of specimens of *Polygonum minus*, Huds, collected at Mere and the surrounding district; he stated that he had searched for *P. mite*, Schrank, but without success, and believed with Mr. Hunt, that luxuriant specimens of *P. minus* had been mistaken for it: on the other hand he called attention to the fact that in 1859 Mr. John Hardy, to whom Mr. Bailey had previously alluded, distributed specimens of *P. mite* from Mere, through the Thirsk Exchange Club, and on this authority Mr. J. G. Baker, the Curator, remarked in the report, "new to the Mersey Province." It seems doubtful also whether *Alopecurus fulvus*, reported from the same locality, has not been erroneously recorded, peculiar states of *A. geniculatus* having been mistaken for it. As, however, it was found in considerable quantity at Oakmere in 1868, it appears probable that it may occur elsewhere in Cheshire.

LEEDS

Field Naturalists' Club (Young Men's Christian Association), October 24.—The first meeting of the winter session took place this evening, Mr. Coates in the chair. In entomology, Mr. Liversedge exhibited specimens of *Latyrus ægeria*, *Argynnis selene*, *Anthrocharis cardamines*, and *Pamphila sylvanus*, all collected in this neighbourhood.—Mr. Turner exhibited a variety of insects taken near Selby, including *Cerura vinula*, *Triphæna fimbria*, *Argynnis paphia*, and *Saturnia carpini*. In oology, Mr. Coates brought the nest and egg of the ring ousel found at Ilkley.—Mr. Beevers and Mr. Taylor were the principal exhibitors in the conchological branch, Mr. Beevers exhibiting *Unio pictorum* from Went Vale, *Cyclostoma elegans*, Thorparch, and *Limnea palustris* var. *corvus*, Knaresbro.—Mr. Taylor exhibited *Limnea glabra*, *Helix virgata* var. *submaritima*, *Planorbis corneus* var. *albina*, and a small collection from Wisconsin, U.S.

November 7.—Mr. W. Coates in the chair. Mr. Taylor read a short paper describing a conchological visit to Boston Spa during the present month. Amongst the specimens taken were *Cyclostoma elegans*, *Helix lapicida*, *H. cantiana*, and *Pupa marginata*, specimens of which species, and a number of others, were exhibited.—Mr. Wood brought for exhibition a fine collection of shells, illustrating the Pontefract district.—Mr. Roebuck exhibited several species of shells taken in the neighbourhood of Harrogate.—Mr. Scholefield exhibited the American mosquito and a fine specimen of *Bombyx cynthia*.—Mr. Denny brought for inspection a quantity of wheat infested by the wheat weevil, and a specimen of the death's-head moth, *A. atropos*.—Mr. Liversedge exhibited a number of insects taken in the immediate neighbourhood, including *Lasiocampa quercus*, *Smerinthus populi*, *Nemeobius lucina*, and *Lycœna alsus*. The next meeting was to be held November 21st, when a paper was to be read by Mr. Acomb, "On geology as a study."

NORWICH

Norfolk and Norwich Naturalists' Society, October 25.—The President, the Rev. J. Crompton, in the chair. A most elaborate and interesting paper was read by Mr. F. Kitton, "On Diatomacea and the lower forms of vegetable life as revealed by the microscope." The lecture, for such it may more properly be termed, was illustrated by diagrams, showing some of the most familiar as well as most peculiar forms of Desmids and Diatoms; and at the close Mr. Kitton exhibited a series of very beautiful photomicrographs, of similar objects, executed by Dr. Maddox. The Chairman, in offering to Mr. Kitton the thanks of the Society, and especially of the members present, for the time and labour he had devoted to their instruction, alluded in complimentary terms to the high reputation he had already attained throughout the scientific world, by his persevering researches in this particular branch of natural history; his skill as a microscopist being equalled only by the extreme accuracy of his descriptions of the most intricate and minute organisms. At the request of the meeting Mr. Kitton consented to his paper being published *in extenso* in the Transactions of the Society.

EDINBURGH

Royal Physical Society, November 23.—Prof. Duns in the chair. The retiring president, Professor Duns, delivered an address, in which he referred to the early history and past achievements of the Society. A hundred years ago eighteen students of nature banded themselves together for mutual profit in the pursuit of natural science, under the name of the Physical Society. Here is the first list of the ordinary members, Session 1770-1771:—William St. Clair, M.D.; David Young, M.D.; Thomas Melville, Thomas Smith, James French, James Wood, Robert Stewart, Alexander Muir, James Dick, Henry W. Tytler, Malcolm Macqueen, Arthur Taafe, Daniel Gibb, Thomas Thorburn, James Webster, George Home, William Manuel, and William Keir. The names deserve to be brought out of the mists of 1770, and set before the Society in the light of 1870. The period was one well fitted to quicken young and ardent students, and to lead them to long to win their spurs in work closely kindred to that in which others were distinguishing themselves. Eight years previously, Black had made public his theory of Latent Heat, and two years before he had been inducted to the Chemistry Chair in Edinburgh. The influences of the day were bearing in on Hutton's mind, in which "The Theory of the Earth" was shaping itself into compactness and symmetry. Ray's *Synopsis*, Willoughby's *Ornithologia*, Lister's *Mollusca*, and Ellis's *Corallines*, were before the public. But these dealt with British forms. Scotland was still in the rear. Nothing had been done to purpose for Scottish forms, except in the *Scotia Illustrata* of Sibbald, most valuable at the time, no doubt, but also most suggestive of how much still remained to be accomplished. It was in such circumstances the Physical Society began, and more than ten years elapsed before the foundation of the Royal Society of Edinburgh. In 1788 the Physical obtained a Royal Charter, and assumed the name it now bears. Its meetings were held for many years in the Royal Physical Society Hall, Richmond Court, a building which stood on a site now occupied by a chapel. From the outset its influence over working naturalists was great and beneficial, and it ultimately absorbed other kindred associations, which had been at different times set up in Edinburgh. The Chirurgo-Medical, its senior by a few years, joined it in 1788; the Hibernian Medical, in 1799; the Chemical, in 1803; the Natural History, in 1812;

the Didactic, in 1813; and the Wernerian, in 1858. Between 1771 and 1788 many well-known names occur among its list of members—Benjamin Bell, Professors Alexander Munro, J. Hope, Joseph Black, Francis Home, James Gregory, Alexander Hamilton, and W. Hamilton (Glasgow). In 1802, Dr. Barclay and Charles Bell; in 1814, David Brewster. By its union with the Natural History Society it enrolled among its members the botanists, James Edward Smith and Robert Brown, and another, great in almost every department of science, literature, and law, Henry Brougham. Brown's papers on the "Botany of Angus," and on the "Sexes of Plants," are models in this department, and Brougham's on "Thunder" and "Combustion" will well repay a careful perusal. One other notice: in 1828 the Plinian approached the Royal Physical with proposals to unite, and both societies appointed influential committees, with powers to form a union. After much consultation, they reported "that the union of the societies had been admirably accomplished." But the Plinians, after the union was consummated, rued the act, and refused to associate with their lawful head. The Plinian lived on for a season in cold estrangement, and gradually passed into the dark. On the list of ordinary members of the Plinian is the name "Charles Darwin, Shrewsbury, Nov. 26, 1826." The history of the Royal Physical Society is substantially that of Scottish zoology. The latter could not be written without the former. I have only to choose these names from the list of our presidents to make good this remark:—Robert Knox, Captain Thomas Brown, Edward Forbes, Robert K. Greville, James Y. Simpson, John Coldstream, George Wilson, John Goodsir, Alexander Bryson, William Dick, Hugh Miller, Sir John Graham Dalyell, and John Fleming. In these men was embodied the great characteristic of our society. They were all practical naturalists. In November, 1849, Professor Fleming delivered the opening address, in which he urged the expediency of steps being taken by the society to bring before the Government and country the great want of a general national museum for the native products of Scotland, and to bring together the other collections in Edinburgh under one roof. Steps were soon taken in these directions by public bodies and by influential individuals. It again fell to Fleming to give the opening address, in 1855, and he could say—"The gratifying intelligence at last reached us that the Board of Trade had resolved to institute an industrial museum for Scotland in Edinburgh." The Society might claim the merit of one of the first agitations for this great national institution. Dr. Duns passed a high eulogium on the researches of Dr. Strethill Wright on the *Cœlenterata* and *Protozoa*, referring to the sensation produced by the deep-sea dredging report, intimating the growth of chalk in one of the dredged localities. But honour to whom honour. In 1861, this note occurs in Dr. Wright's address to this Society. Referring to the oolite and the chalk, he says: "Similar deposits are now in process of formation over vast areas of sea bottom, especially in the Atlantic, Mediterranean, and Australian seas." Since the Society last met it had lost one of its most distinguished members, Sir James Young Simpson. Dr. Simpson was born at Bathgate, Linlithgowshire, on the 7th June, 1811. He sprang from a family long resident in the district, comfortable in worldly circumstances, and noted for their strong mental powers and outstanding individualities. After being educated at the parish school, where for several years he had for a companion the late Prof. John Reid, of St. Andrews, Simpson entered the Arts course of the University of Edinburgh. He commeneed his purely medical studies in 1827, and graduated as M.D. in 1832. Immediately after graduation he was elected President of the Medical Society. In 1833 he petitioned for a seat in this Society, recommended by Edward Forbes. From 1832 to the beginning of 1836, he acted as assistant to Prof. John Thomson, who occupied the Chair of General Pathology in the University. In Session 1839-40 he gave a course of lectures on midwifery, and in 1840 he was elected by the Town Council to the Chair of Midwifery, vacant by the resignation and subsequent demise of Dr. Hamilton. Dr. Simpson died on the evening of the 6th May, 1870. Dr. Duns concluded by some apposite observations on the motives that should incite to natural history studies, and the methods by which they should be pursued.

Botanical Society, July 14.—Sir Walter Elliot, President, in the chair.—1. "On Kashmir Morels." By Mr. M. C. Cooke, India Museum, London. The author remarked, that it has long been known that truffles and morels are found in N. W. India and Kash mir, but no attempt has hitherto been made to determine the species. Some years ago, application was made to the Agricultural and Horticultural Society of the Punjab, and to other sources, for specimens, but without any result. He had, however, lately received, through Dr. J. L. Stewart, a string of dried morels, said to be the morels of Kashmir, and sent by Mr. Baden Powell, of Lahore. This string contains two distinct species, both of them small, and neither of them the *Morchella esculenta* of European markets. The author gave some account of the history of morels as far as known, and concluded by giving scientific descriptions of the supposed two new species from Kashmir. 2. "On the Characters of the Flowers of *Silene maritima* and *Silene inflata*, as regards their Stamens and Pistils." By. Dr. F. Buchanan White. The author had examined 72 plants and 201 flowers of *Silene maritima*; of these, 39 plants were perfectly hermaphrodite, 11 had the stamens abortive, 10 the styles abortive, 11 the styles partly abortive, and 1 with the stamens partly abortive. Of the 201 flowers examined, 122 had three styles and three-celled ovary; 68 had four styles and four-celled ovary; and 11 had five styles and five-celled ovary. 3. "Notes of a Botanical Excursion to the neighbourhood of Perth." By Mr. John Sadler. 4. "Results Obtained from the Cutting and Transplanting of a Plaited Hornbeam Hedge." By Mr. M'Nab. 5. "On the Guachamacan, a poisonous plant growing in the Llanos (plains) of Venezuela." By M. A. Ernst, Caracas.

GLASGOW

Geological Society, November 3.—Mr. John Young, Vice-president, in the chair. Mr. James Thomson, F.G.S., submitted to the Society some remains of fish and molluscan life, which he had recently discovered in the neighbouring coal-fields, and which were new at least to the west of Scotland. These were *Acanthoides Wardii*, from Airdrie; *Athyris pisum*, from Brockley; and *Anomia corrugata*, from Dalry. He pointed out the characteristics of these species, and described the relative position of the beds in which their remains had been found. 1. The *Acanthoides* was a well-preserved specimen, showing the dorsal and anal spines in their natural position. This was of some importance, as these spines had frequently been found singly, and could not be referred to any known genus; but this discovery enabled palæontologists to name and classify these ichthyodorulites. This species had also been discovered in the Staffordshire coal-field by Mr. John Ward, and named by Sir Philip Egerton, F.R.S., after its discoverer. It also occurs in the Edinburgh coal-field. The specimen before them had been found near Airdrie, in the upper members of the Clyde coal-measures. 2. *Athyris*. This little fossil occurs at Brockley, Lesmahagow, and Roughwood, Ayrshire. From the resemblance to *Terebratula Saculus*, it had often been mistaken for that shell; but when placed under the microscope the structural characters indicated that it could not be referred to that genus. It had been submitted to Mr. Thomas Davidson, F.R.S., who named it *A. pisum*, from its pea-like form. 3. *Anomia corrugata*. This is the first well-authenticated specimen of Anomia that has been recorded from the Scottish mountain limestone. It is found in a band of shale which underlies the "Linn" limestone, near Dalry.—Mr. D. C. Glen, C.E., gave some notes on the boulder-clay laid open in the excavation now going on for a new dock at Cartsdyke, near Greenock, and referred to the abundance of arctic marine shells and other organisms found embedded in it. The shell-bed seems to occur in a hollow of the boulder-clay, which has been exposed to view by a deep cutting running parallel to the river, or east and west. On the northern side of this cutting, nearest the river, the bed is several feet in thickness; but on the other side it thins out, and finally disappears as we recede from the shore. In the other direction, from east to west, it is seen to abut suddenly against the boulder-clay, and thus occupies a hollow of no great extent, in which, however, an immense number and variety of marine organisms are crowded together, forming one of the richest beds of such clay yet discovered on our western coast. At the same time there was reason to doubt whether the deposit is now found in its natural position, or has not been dug out from some neighbouring part of the shore, and laid down to improve and level the ground, many years ago, in forming the policies where the excavation is being made. On this point, however, he would not express a decided opinion, and other members who had visited the spot were not unanimous regarding it.

DUBLIN

Royal Irish Academy, November 14.—The Rev. Professor Jellett in the chair. The Rev. Maxwell Close read a paper "On M. Delaunay's Views relating to the condition of the Interior of the Earth." The paper was referred to the Council for publication.—Mr. Samuel Ferguson, LL.D., read portions of a paper "On the difficulties attendant on the Transcription of Ogham Legends, and the means of avoiding them." He presented the Academy with a series of casts of Ogham Legends, and pointed out the advantages of them to students of the subject. Dr. Stokes and Professor Ingram congratulated the Academy on this important addition to its collection, and Dr. Ferguson was invited to consider the expediency of issuing engravings of the casts. The reading of the remainder of the paper was postponed to a future meeting.—At a meeting of the Council of the Academy on the 9th inst., it was resolved to recommend to the Academy that Her Majesty's Government be memorialised to use their good offices in order to prevent, as far as possible, any injury during the present siege to the collections in Paris, which are universally acknowledged to be of inestimable value to science, literature, and art. In pursuance of this resolution the following memorial to the Government was adopted on the motion of Dr. Ingram, seconded by Professor Hennessy:—"We, the president and members of the Royal Irish Academy, desire to call the earnest attention of Her Majesty's Government to the irreparable loss which would be sustained by the whole civilised world if the inestimable scientific, literary, and other collections of Paris should be destroyed or seriously injured during the siege. That city contains galleries stored with treasures of art, libraries rich in every species of literary monument, and scientific museums which are amongst the foremost in their several kinds. These collections represent the accumulated labours of many generations, and are, in truth, the property not of France only but of the whole civilised world. Many of the objects contained in them, if once allowed to perish, no subsequent exertion could ever replace. The fate of the library at Strasburg shows that these priceless collections are in real and imminent peril from the operations of the war. It is not for us to pronounce any opinion on the merits of the present lamentable struggle, or on the conduct of either of the contending parties; but as members of a body having for its object the cultivation of science, literature, and archæology, we protest, in the name of the intellectual interests of humanity, against the destruction of these collections; and we respectfully call upon Her Majesty's Government to use their utmost efforts for their preservation, by impressing on the belligerents the duty of taking every possible precaution for their protection from the dangers to which they are likely to be exposed."

Royal Geological Society of Ireland.—W. Stokes, F.R.S., in the chair. The Rev. Prof. Haughton, F.R.S., read a paper "On the amount of horizontal thrust produced by the secular cooling of the earth, and its effect in producing continents and seas." In the discussion which followed the reading of this paper, Professor Hull, Rev. Maxwell Close, and Mr. William Ogilby, took part. Professor Macalister, hon. sec., exhibited a collection of volcanic rocks and of fossils from South Italy, presented by Prof. Guiscardi and Mr. R. Mallet, also a collection of fossil Devonian Plants from Nova Scotia, presented by Principal Dawson.

BERLIN

Royal Prussian Academy of Sciences, July 14.—Dr. A. W. Hofmann read a memoir on the Aromatic Cyanates, containing investigations on derivatives of the phenyle, tolyle, xylyle, and naphtyle series.

July 25.—M. Kummer read a paper on the Algebraic Systems of the third order.—Prof. W. Peters read descriptions of New Species of Shrews from the British Museum. The species were *Crocidura retusa*, from Ceylon, *C. fœtida* and *C. doriæ*, from Borneo, *C. monticola*, from Java, *C. microtis*, from Hong Kong, and *C. gracilipes*, from Madagascar, and belonging to the subgenus *Pachyura*, *C. waldemaris*, from Bengal, *C. ceylanica*, and *C. media*, from Ceylon, *C. sumatrana*, from Sumatra, *C. fuscipes*, from Singapore and Java, and *C. luzoniensis*, from Manilla.—Dr. Hofmann read an account of various investigations relating to the action of cyanogen upon aniline and triphenylguanidine, to a new class of cyanic ethers, to a new mode of formation of the isonitriles, to tests for cyanuric acid and chloroform, to the diagnosis of primary, secondary, and tertiary amines, to the knowledge of phenylxanthogenamide, to the action of acetic acid upon phenylsenföl, to the history of the ethylene bases, to the knowledge of aldehyde-green, and to the molecular volumes of chinone.

PHILADELPHIA

American Philosophical Society, Oct. 21.—Prof. Cope read a paper "On the Osteology of *Megaptera bellicosa*." He stated that this species of whale was one of the few whalebone whales of economic value found within the tropics, being the object of pursuit in the Caribbean Sea. Having received a skeleton from the island of St. Bartholomew, West Indies, he presented a detailed account of its structure. He pointed out important points by which it differed from the known species of *Megaptera*, among others in the form of the mandible and of the nasal bones.—Dr. George Emerson read a paper on the part taken many years ago by the American Philosophical Society and Franklin Institute of Philadelphia in establishing stations for meteorological observations in Pennsylvania, detailing the arrangements adopted by them for procuring a full series of observations at fifty-two points in the State.

BOOKS RECEIVED

ENGLISH.—Odd Showers, or an Explanation of the Rain: Carriber (Kerby).—Our Feathered Companions: Rev. T. Jackson (Partridge).

FOREIGN.—(Through Williams and Norgate)—Steinkohlentheer: A. Pubertz.—Beiträge zur Histologie des Gehör-organes: Dr Rüdinger.—Die Kleinschmetterlinge der Umgegend Münchens: A. Hartmann.—Biologische Briefe von Dr. G Jäger.—Die Praxis der Naturgeschichte: P. L. Martin.—Geometrie der räumlichen Erzeugnisse ein-zwei-deut ger Gebilde: Dr. E. Weyr.—Die Geometrie und die Geometer vor Euklides: C A Bretschneider.—Die Pflanzenstoffe, 3te Lieferung: Husemann.—Elemente der Mineralogie: C. F. Naumann.—Beiträge zur Biologie der Pflanzen, 1te Lieferung: Dr. F. Cohn.—Die Spectralanalyse Dr. Schellen; 2te Auflage.

DIARY

THURSDAY, DECEMBER 1.

ROYAL SOCIETY, at 4.—Anniversary Meeting.
LONDON INSTITUTION, at 7.30.—On Gems and Precious Stones: Prof. Morris.
LINNEAN SOCIETY, at 8.
CHEMICAL SOCIETY, at 8.—On some Derivatives of Anthracene: Mr. W. H. Perkin.
SOCIETY OF ANTIQUARIES, at 8.30.—Faliscan Inscription: Padre Garucci.

SUNDAY, DECEMBER 4.

SUNDAY LECTURE SOCIETY, at 3.30.—On the Telescope and its Discoveries: Mr. R. A. Proctor.

MONDAY, DECEMBER 5.

ROYAL INSTITUTION, at 2.—General Monthly Meeting.
LONDON INSTITUTION, at 4.—On Chemical Action: Prof. Odling.

TUESDAY, DECEMBER 6.

ANTHROPOLOGICAL SOCIETY, at 8.—On the Races inhabiting the British Isles: Mr. A. L. Lewis.—On Archaic Structures of Cornwall and Devon: Mr. A. L. Lewis.—On Forms of Ancient Interment in Antrim: Dr. Sinclair Holden.

WEDNESDAY, DECEMBER 7.

SOCIETY OF ARTS, at 8.—On the American System of Associated Dairies, and its bearing on Co-operative Farming: H. M. Jenkins.
GEOLOGICAL SOCIETY, at 8.—On Fossils from Cradock, Cape of Good Hope: Dr. George Gray.—On some points in South-African Geology, Part 2: Mr. G. W. Stow.—On the Geology of Natal: Mr. C. L Griesbach.—On the Diamond-districts of the Cape of Good Hope: Mr. G Gilfillan.

THURSDAY, DECEMBER 8.

LONDON MATHEMATICAL SOCIETY, at 8.—Further Remarks on Quartic Surfaces: Prof Cayley.—On the Polar Correlation of two Planes, and its Connection with their Quadric Correspondence: Dr. Hirst.—On Systems of Tangents to Plane Cubic and Quartic Curves: Mr. L. J Walker.—On the Order and Singularities of the Parallel of an Algebraical Curve: Mr. S. Roberts.
SOCIETY OF ANTIQUARIES, at 8.30.
LONDON INSTITUTION, at 7.30.—On Count Rumford and his Philosophical Work: Mr. W. Mattieu Williams.

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