

report the inaugural address of Archdeacon Butler, the first president, which it is a treat to read. In this report it is stated, that

The Ludlow and the Caernarvonshire Natural History Societies, highly meritorious institutions, have been established.

The Botanical Society of Edinburgh. — The purposes of the Society have been noticed in p. 271, 272. Two local secretaries for London have been appointed; namely, Wm. Christy, jun., Esq., Clapham Road; and N. B. Ward, Esq., Wellclose Square.

The Yorkshire West Riding Proprietary School. — On May 21., about 50 of the senior pupils, accompanied by two of the masters, proceeded on an excursion to investigate the natural history of the district round Wakefield. The party set out about 11 o'clock in the morning. As they proceeded over the old bridge, each carrying his vasculum, or entomological apparatus, their joyous countenances showed how exhilarating the prospect of a bright summer day's ramble was to them, though Science dare hardly venture to claim them all for her sons. . . . The entomologists were not so very successful in capturing many insects remarkable either for their beauty or for any good or bad properties. Another week of warm weather will probably induce a state of entomological things which will better repay their labour. The botanists seem to have fared better, as the following enumeration of the flowers, &c., which came under their notice will show. Then there is appended a list of 93 species of plants, arranged according to Professor Henslow's *Catalogue of British Plants*, and with certain of them distinguished as being only in bud. (*The West Riding Herald*, May 27. 1836.) Professor Henslow himself used to communicate lists, similar to that cited, the results of the herborisations of himself and party, to the *Cambridge Chronicle*.

REVIEWS.

ART. I. *Notices of Works in Natural History.*

DARWIN, C.: Extracts from Letters to Professor Henslow of Cambridge. Printed for distribution among the members of the Cambridge Philosophical Society. 8vo, 30 pages. Cambridge, Dec. 1835.

These extracts contain various interesting statements relating to the geology and natural history of the most remote parts of South America, and also of Chili and the Andes. It must be obvious, that, in a vast extent of an almost unknown country (where the objects are on such an immense scale, and often extremely difficult of access), the visit of a traveller for a few months can allow him little more than to trace the general features of its geology, &c.; but we cannot feel the less obliged for the information given by the scientific pioneer who first opens out the natural history of a country presenting so many wonders, because he must leave the more accurate details to be filled up by numerous succeeding travellers. We may say the same of the labours of Humboldt, who resided some years in different parts of South America, but who left a rich field for succeeding enquirers. In a notice

prefixed to the extracts from Mr. Darwin's letters, we are told, that the opinions therein expressed must be viewed as the first thoughts which occur to a traveller respecting what he sees, before he has had time to collate his notes with the attention necessary for scientific accuracy. From these extracts we have made the following selection, adding a title to each, to render them more distinct. — *B.*

Fossil bones. — “*Monte Video, Nov. 24. 1832.* We arrived here on the 24th of October, after our first cruise on the coast of Patagonia, north of the Rio Negro. . . . I had hoped, for the credit of dame Nature, no such country as this last existed: in sad reality, we coasted along 240 miles of sand hillocks. I never knew before what a horrid ugly object a sand hillock is: the famed country of the Rio Plata, in my opinion, is not much better; an enormous brackish river, bounded by an interminable green plain, is enough to make any naturalist groan. . . . I have been very lucky with fossil bones; I have fragments of at least six distinct animals. As many of these are teeth, shattered and rolled as they have been, I trust they will be recognised. I have paid all the attention I am capable of to their geological site; but, of course, it is too long a story for a letter. First, the tarsi and meta-tarsi, very perfect, of a cavia; 2dly, the upper jaw and head of some very large animal, with four square hollow molars, and the head greatly produced in front. I at first thought it belonged either to the megalonyx or megatherium. In confirmation of this, in the same formation I found a large surface of the osseous polygonal plates, which ‘late observations’ (what are they?) have shown to belong to the megatherium. Immediately I saw them I thought they must belong to an enormous armadillo, living species of which genus are so abundant here. 3dly, the lower jaw of some large animal, which, from the molar teeth, I should think belonged to the Edentata; 4thly, large molar teeth, which in some respects would seem to belong to some enormous species of Rodentia; 5thly, also some smaller teeth belonging to the same order, &c. They are mingled with marine shells, which appear to me identical with existing species: but, since they were deposited in their beds, several geological changes have taken place in the country.”

Inhabitants of Tierra del Fuego. Inhabitants. Climate. Geology. — “*April 11. 1833.* We are now running up from the Falkland Islands to the Rio Negro (or Colorado). . . . It is now some months since we have been at a civilised port: nearly all this time has been spent in the most southern part of Tierra del Fuego. It is a detestable place; gales succeed gales at such short intervals, that it is difficult to do any thing. We were twenty-three days off Cape Horn, and could by no means get to the westward. We at last ran into harbour, and in the boats got to the west of the inland channels: with two boats we went about 300 miles; and thus I had an excellent opportunity of geologising, and seeing much of the savages. The Fuegians are in a more miserable state of barbarism than I had expected ever to have seen a human being. In this inclement country they are absolutely naked; and their temporary houses are like those which children make in summer with boughs of trees. . . . The climate, in some respects, is a curious mixture of severity and mildness: as far as regards the animal kingdom, the former character prevails; I have, in consequence, not added much to my collections. The geology of this part of Tierra del Fuego was to me very interesting. The country is non-fossiliferous, and a common-place succession of granitic rocks and slates. Attempting to make out the relation of cleavage, strata, &c. was my chief amusement.”

Soil of Patagonia. Geology. Ancient Animals. — “The soil of Patagonia is very dry, gravelly, and light. In East Tierra, it is gravelly, peaty, and damp.

Since leaving the Rio Plata, I have had some opportunities of examining the great southern Patagonian formation. I have a good many shells: from the little I know of the subject, it must be a tertiary formation; for some of the shells (and corallines) now exist in the sea. Others, I believe, do not. This bed, which is chiefly characterised by a great oyster, is covered by a very curious bed of porphyry pebbles, which I have traced for more than 700 miles. But the most curious fact is, that the whole of the east coast of the southern part of South America has been elevated from the ocean since a period during which muscles have not lost their blue colour. At Port St. Julian I found some very perfect bones of some large animal, I fancy a Mastodon: the bones of one hind extremity are very perfect and solid. This is interesting, as the latitude is between 49° and 50° , and the site far removed from the great Pampas, where bones of the narrow-toothed Mastodon are so frequently found. By the way, this Mastodon, and the Megatherium, I have no doubt, were fellow brethren in the ancient plains. Relics of the Megatherium I have found at a distance of nearly 600 miles in a north and south line."

Corallines, Propagation of. — "I have already seen enough to be convinced that the present families of corallines, as arranged by Lamarck, Cuvier, &c., are highly artificial. It appears to me, that they are in the same state in which shells were when Linnæus left them for Cuvier to rearrange. . . . I forget whether I mentioned having seen something of the manner of propagation in that most ambiguous family, the corallines: I feel pretty well convinced that, if they are not plants, they are not zoophytes: the "gemmule" of a Halimeda contains several articulations united, ready to burst their envelope, and become attached to some basis. I believe that in zoophytes, universally, the gemmule produces a single polypus, which afterwards, or at the same time, grows with its cell, or single articulation."

Geology of the Andes. — "Shortly after arriving here, I set out on a geological excursion, and had a very pleasant ramble about the base of the Andes. The whole country appears composed of breccias (and, I imagine, slates), which universally have been modified, and often completely altered, by the action of fire. The varieties of porphyry thus produced are endless; but no where have I yet met with rocks which have flowed in a stream. Dykes of greenstone are very numerous. Modern volcanic action is entirely shut up in the very central parts (which cannot now be reached, on account of the snow) of the Cordilleras. To the south of the Rio Mayo, I examined the tertiary plains, already partially described by M. Gay. The fossil shells appear to me to differ more widely from the recent ones than in the great Patagonian formation. . . . I have been much interested by finding abundance of recent shells at an elevation of 1300 ft.* The country in many places, is scattered over with shells; but these are all *littoral* ones! So that I suppose the 1300 ft. elevation must be owing to a succession of small elevations, such as in 1822. With these certain proofs of the recent residence of the ocean over all the lower parts of Chili, the outline of every view, and the form of each valley, possesses a high interest. Has the action of running water, or the sea, formed this ravine? was a question which often arose in my mind, and was generally answered by my finding a bed of recent shells at the bottom. I have not sufficient arguments; but I do not believe that more than a small fraction of the height of the Andes has been formed within the tertiary period."

Earthquake. — "*Valparaiso.* You will have heard an account of the dreadful earthquake of the 20th of February. I wish some of the geologists who think the earthquakes of these times are trifling could see the way in

* Though these shells may be similar to recent ones, we have no proof that the species have not existed in the southern hemisphere, in very ancient epochs. — B.

which the solid rock is shivered. In the town there is not one house habitable: the ruins remind me of the drawings of the desolated eastern cities. We were at Valdivia at the time, and felt the shock very severely. The sensation was like that of skating over very thin ice; that is, distinct undulations were perceptible. The whole scene of Concepcion and Talcuana is one of the most interesting spectacles we have beheld since leaving England."

Elevation of the Land. — "The whole of the coast from Chiloe to the south extreme of the peninsula of Tres Montes is composed of mica-slate. It is traversed by very numerous dykes, the mineralogical nature of which will, I suspect, turn out very curious. I examined one grand transverse chain of granite, which has clearly burst up through the overlying slate. At the peninsula of Tres Montes there has been an old volcanic focus, which corresponds to another in the north part of Chiloe. I was much pleased, at Chiloe, by finding a thick bed of recent oyster-shells, &c., capping the tertiary plain, out of which grew large forest trees. I can now prove that both sides of the Andes have risen, in this recent period, to a considerable height. Here the shells were 350 ft. above the sea."

Geology of the Cordilleras. — "*Valparaiso, April 18. 1835.* I have just returned from Mendoza, having crossed the Cordilleras by two passes. This trip has added much to my knowledge of the geology of the country. . . . I will give a very short sketch of the structure of these huge mountains. In the Portillo pass (the more southern one) travellers have described the Cordilleras to consist of a double chain of nearly equal altitude, separated by a considerable interval. This is the case: and the same structure extends northward to Uspellata. The little elevation of the eastern line (here not more than 6000 ft. or 7000 ft.) has caused it almost to be overlooked. To begin with the western and principal chain, where the sections are best seen; we have an enormous mass of a porphyritic conglomerate resting on granite. This latter rock seems to form the nucleus of the whole mass, and is seen in the deep lateral valleys, injected amongst, upheaving, overturning in the most extraordinary manner, the overlying strata. On the bare sides of the mountains, the complicated dykes and wedges of variously coloured rocks are seen traversing, in every possible form and shape, the same formations, which, by their intersections, prove a succession of violences. The stratification in all the mountains is beautifully distinct, and, owing to a variety in their colouring, can be seen at great distances. I cannot imagine any part of the world presenting a more extraordinary scene of the breaking up of the crust of the globe, than these central peaks of the Andes. The upheaval has taken place by a great number of (nearly) north and south lines*; which, in most cases, has formed as many anticlinal and synclinal ravines. The strata in the highest pinnacles are almost universally inclined at an angle from 70° to 80°. . . . The formation which I call porphyritic conglomerates is the most important and most developed in Chili. From a great number of sections, I find it to be a true coarse conglomerate, or breccia, which passes by every step, in slow gradation, into a fine clay-stone porphyry; the pebbles and cement becoming porphyritic, till at last all is blended in one compact rock. The porphyries are excessively abundant in this chain; and I feel sure that at least four fifths of them have been thus produced from sedimentary beds in situ. There are also porphyries which have been injected from below amongst the strata, and others ejected, which have flowed in streams; and I could show specimens of this rock, produced in these three methods, which cannot be distinguished. It is a great mistake to consider the Cordilleras (here) as composed only of rocks which have flowed in streams. In this range I nowhere saw a fragment which I believe to have thus originated, although the road passes at no great distance from

* Of dykes.

the active volcanoes. The porphyries, conglomerates, sandstone, quartzose-sandstone, and limestones alternate and pass into each other many times (overlying clay-slate, when not broken through by the granite)."

Viviparous Reptiles. — "I also send a small bottle with two lizards: one of them is viviparous, as you will see by the accompanying notice. M. Gay, a French naturalist, has already published, in one of the newspapers of this country, a similar statement; and, probably, has forwarded to Paris some account."

"The following is an extract from the newspaper referred to by Mr. Darwin: —

"Besides these labours, I employed myself, during the great rains, in dissecting various reptiles. It must be interesting to know the influence of the climate of Valdivia on the animals of this family. In the greater part of those which I have been able to submit to my scalpel, I have found a truly extraordinary fact, that they were viviparous. Not only the innocent snake of Valdivia has offered to my notice this singular phenomenon, but also a beautiful and new kind of Iguana, which approaches very near to the *Liposoma* of Spix, and to which, on account of its beautiful colours, he has given the name of *Chrysosaurus*. All the species, even those which lay eggs in Santiago, here produce their young alive; and the same thing happens with some *Batrachians*, and particularly with a genus near to the *Rhinella* of Fitzinger, of which the numerous species have the skin pleasingly spotted with green, yellow, and black. I need not dwell on the importance of this last example, in reference to comparative anatomy: an importance which appeared to me still greater when, on analysing a tadpole not yet transformed, I satisfied myself that nature has not varied her plan of organisation. In these, as in the tadpoles which live in water, the intestines were of a length very disproportioned to the body. Now, if this length was necessary to the latter, which live upon vegetable substances, it was altogether useless to those which are to undergo their metamorphosis in the belly of the mother: and thus nature has followed the march prescribed to her by a uniformity of construction; and, without deviating from it, has admitted a simple exception, a real hiatus, well worthy the attention of the philosophical naturalist."

Faldermann, Fr., Auctore: Horti Botanici Imperialis Petropolitani Cultorum supremo, Societatis Naturæ Scrutatorum Mosquensis, Sodali ordinario, etc. Coleopterorum ab illustrissimo Bungio in China boreali, Montgolia, et montibus Altaicis collectorum, nec non ab illustrissimo Turczaninoffio et Stschukino e provincia Irkutz missorum, Illustrationes. Accedunt Tabulæ v. 4to, pp. 128. Petropoli, 1835.

One hundred and one species are described, and 35 figured. The descriptions are in long detail, and, hence, the more valuable to entomologists; European ones especially. All the figures of species are wholly or partly coloured; and there are figures of dissected parts of five of them. Several of the genera are those of which species are known to occur in Britain.

Lindley, John, Ph. D., F.R.S., L.S., G.S.: A Natural System of Botany; or, a Systematic View of the Organisation, Natural Affinities, and Geographical Distribution, of the