

IV.—January 9, 1866.—The following papers were read:—
 “Notice of a Submarine Forest-bed at Rhos, near Colwyn, North Wales.” By Mr. H. F. Hall, F.G.S.—“Introductory Remarks on the Geology of the Country between the Vale of Clwyd and the River Dee.” By Mr. G. H. Morton, F.G.S.

This communication was but an introduction to the subject, which is now engaging the author's attention. The physical features, formations developed, and mineral resources of the district were referred to; but the chief interest was stated to arise from the great development of the Coal-measures to the N.E. of the Mountain Limestone ridge along the Dee, while to the S.W. they are absent altogether, the Limestone resting upon Silurian rocks. With regard to the Mountain Limestone of the Vale of Clwyd, the author was satisfied that it suffered great denudation before the Permian and Triassic rocks were deposited. In the neighbourhood of Holywell, the upper beds of the Limestone are mostly black; but at the depth of 500 feet from the summit, the adits of a mine are driven through white Limestone, which lower strata crop out to the surface at Caerwys, and many patches remain on both sides of the vale of Clwyd: that the upper dark portion has been denuded is the only reasonable conclusion that any geologist can arrive at. The author concluded by advising the members of the society to examine this very instructive district so near home, and replete with such great interest.

CORRESPONDENCE.

THE RECENT DISCOVERY OF FOSSIL REPTILES IN THE COAL OF THE SOUTH OF IRELAND.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—It would appear from Mr. Etheridge's notice of the discovery of Labyrinthont Reptiles in the Coal-measures of Ireland, in the last number of the GEOLOGICAL MAGAZINE (p. 4), that their Sauro-Batrachian character had not been detected by any person before Professor Huxley's visit to Dublin in the latter part of last November.

Such, however, is not the case. The first specimens were collected by Mr. W. B. Brownrigg, and submitted to me for examination; they were afterwards exhibited by that gentleman at the meeting of the Royal Geological Society of Ireland on June 14 of last year. I was not present on that occasion; but at a subsequent meeting, held on November 8, other specimens collected by Mr. John Edge and Mr. H. P. Wall, and presented by those gentlemen to the Museum of Trinity College, were brought before the meeting, and at the discussion which followed the reading of Mr. Wall's paper, I distinctly stated my opinion that the majority of the fossils then collected were the remains of Air-breathing Reptiles of Sauro-Batrachian type, some of the forms appearing to resemble *Archeosaurus*, one of the Labyrinthonts.

The very perfect specimen procured by Mr. Charles Galvan,¹—

¹ Incorrectly spelt *Galton* in Mr. Etheridge's notice of these fossils.

one of the Fossil Collectors of the Geological Survey of Ireland,— (since named by Professor Huxley *Keraterpeton Galvani*), was, at the same meeting, for the first time, brought before the Society by me, on which occasion I alluded to it as being a form of lizard, allied to *Apateon pedestris*, of H. von Meyer, a fossil reptile, which Professor Goldfuss, of Bonn, afterwards included in his genus *Archegosaurus*, stating also that these interesting Reptilian remains appeared to me to be comparable with those described as occurring in the Coal-field of Saarbrück, between Strasburg and Trèves. These fossil reptiles were accompanied by fish, of which I had previously identified the following species:—*Megalichthys Hibberti*, *Holoptychius Portlocki*, and spines of *Gyracanthus formosus* or *tuberculatus* (the two latter being probably identical).

My opinion was asked and freely given on these fossils, both to Mr. Brownrigg and others, and a list of the associated plants and fish then collected was supplied by me to that gentleman before the meeting in June of last year, which he duly acknowledged. I was also requested to examine the fossils collected by Mr. Wall and Mr. Edge, and gave my opinion upon them, which was also acknowledged at the meeting of the Society of November 8. It was difficult, however, to offer more than a conjectural opinion as to the precise character of several of the fossils in that early stage of the collection; though, from the additional specimens since collected, these difficulties were cleared up, some of them proving to be new forms, and others serving to elucidate those which were before obscure.

Professor Huxley has since, in conjunction with Dr. E. P. Wright, read a paper on these fossils before the Royal Irish Academy; and as the part I took in first pointing out their true character was not alluded to on that occasion, I consider myself justified in stating the facts as they occurred.

As the concluding paragraph of Mr. Ethridge's notice of this important addition to the fauna of the Coal period may induce the belief that the remains of such forms of Reptilia in the true Coal are of unusual occurrence in that formation, it may be useful to cite the principal instances extant of the discovery of such fossils, according to the date of their publication. We find then, quoting Sir C. Lyell,¹ that as early as 1844, H. von Meyer described the *Apateon pedestris* as the first skeleton of a true Reptile from the Coal of Münsterappel, in Rhenish Bavaria².

Three years later, in 1847, Professor Von Dechen found in the Coal-field of Saarbrück the skeletons of three distinct species of air-breathing Reptiles, described by Professor Goldfuss under the name of *Archegosaurus*, a form of reptile which he considered to be transitional between the fish-like Batrachians and Lizards.

Since then, in our own country, Professor Owen has given, in the Quarterly Journal of the Geological Society, vol. ix. (1853), p. 67,

¹ Manual of Elementary Geology (1855), p. 400.

² Herman von Meyer, *Apateon pedestris*, aus der Steinkohlen formation von Münsterappel, in Leonhard and Bronn Neues Jahrb, 1844, p. 336, and Paleontographica Bd. 1, Lief. 4, 1848, p. 153, 154.

a notice of a Batrachoid fossil, which he observed in the Earl of Enniskillen's collection (then Lord Cole), from British Coal-shale, the exact locality from which it was obtained being doubtful, but probably from Carluke, in Lanarkshire, named by him *Parabatrachus Colei*; and in the same volume *Dendrerpeton Acadianum* (Wyman and Owen) is described from the Coal-shale of Nova Scotia.

In January 1854 (JOURN. GEOL. SOC., vol. x., p. 207), Professor Owen described under the name of *Baphetes planiceps*, a Sauroid Batrachian of the family Labyrinthodontia, from the Pictou Coal of Nova Scotia; and in March 1857, Professor Wyman, in the American Journal of Science and Art, describes a species of *Raniceps* found in Cannel Coal at Yellow Creek, Ohio, United States.

Other Reptilian remains, amongst them *Hylonomus Lyelli*, etc., found with terrestrial mollusca, and an insect in the hollow trunk of an erect *Sigillaria*, from the same Coal formation, and a new species of *Dendrerpeton* are alluded to in vols. 16 (1860) and 19 (1863), Quarterly Journal Geological Society, by Dr. J. W. Dawson. In the same, vol. 19 p. 56, Professor Huxley describes *Anthracosaurus Russellii*, a Labyrinthodont from the Lanarkshire Coal field. Lastly, Professor Owen described a new genus of air-breathing reptiles from the Coal Measures of Llantrissant, Glamorganshire, discovered by Mr. John E. Lee, F.G.S., of Caerleon, which he named *Anthrakerpeton crassosteum*, in the GEOLOGICAL MAGAZINE, vol ii., p. 6, pl. I. and II.

It will be seen, therefore, that in accordance with the progress of Palæontological knowledge during the period of the Coal formation in Ireland, we have further confirmation only of what was previously known as to the existence of a peculiar group of Reptiles adapted to the conditions of living in marshes, or amidst the vegetation of a humid climate, such as the Flora of the Coal period discloses to us, consisting of large succulent Arboreal Plants and Ferns, accompanied by Sauroid Fishes and amphibian Reptiles.

At a subsequent period, we find a distinct type of Labyrinthodonts come into being, adapted for a less aqueous existence, represented by the *Labyrinthodon* or *Mastodonsaurus* of the Trias or New Red Sandstone.

We see, therefore, that the laws which governed the creation and distribution of Animals and Plants in the past, remain still the same, each being adapted to its peculiar conditions of life: and, remembering this harmony of existence as displaying the perfection of wisdom in the Great Creator, we should not be led to expect, neither do we find, any departure from such laws in these records of the past which Palæontological discovery discloses to us.—Very truly yours,

WILLIAM HELLIER BAILY.

DUBLIN, January 16, 1866.

THE EFFECTS OF WEATHERING ON ROCKS.¹

• To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—Some kinds of rocks waste freely under the influence of

¹ See the January number of the GEOLOGICAL MAGAZINE, p. 46.