Ordinary Meeting, 6th Feb., 1860.

The Rev. Thos. Wiltshire, M.A., F.G.S., President, in the Chair.

The following gentlemen were elected members of the Association :
H. S. Bower, Esq.; Alfred Grugeon, Esq.; Cecil Gurdon Moore, Esq.; and John Wright, Esq.

The following donations were announced :---

“The Abstract of Proceedings of the Geological Society of London.” From the Geological Society.

A Collection of Lower Oolite Fossils from the neighbourhood of Sherborne. By J. W. Butler, Esq.

Greensand Fossils from a Phosphate of Lime bed, near Ashwell, in Hertfordshire. By S. Crawshay, Esq.

The following paper was read :—“On the Theory of a Gradual Withdrawal of Heat from the Earth as Explanatory of Certain Geological Phenomena.” By J. Curry, Esq.

The author commenced by stating, that if just views of the various stages of the earth's development be sought for, it is necessary both to bear in mind the various proportions of gaseous, liquid, and solid matter at the different periods, and also to remember that the past and present conditions not being identical, it is not always safe to argue from the analogy of existing phenomena.

He then proceeded to describe the probable events happening in the interval between the formation of the granitic rocks and the deposition of the old red sandstone, such as the gradual cooling of granite originally in a plastic state, and the conversion into water of a vast mass of superincumbent matter, which had at first been of a mixed aërial and aqueous character. The varying relative levels of land and sea at certain epochs were attributed more to a fluctuating ocean than to elevations and depressions of the solid shell of the earth. This crust in the Silurian period was asserted to be of such a thickness and strength as to produce a general and permanent stability: the land was also of a riverless character.

At the commencement of the Carboniferous era the ocean was supposed to have decreased, and the areas of dry land to have increased, producing extended shore-lines and an augmented flora. The Carboniferous system was represented as notable for its trap rock, and for occupying a position on the flanks of elevations favourable for the egress from the interior of molten fluid. The determination of internal heat towards the south-eastern submerged areas of the British Isles, and its effects on the fissures and on the deposition of sediment were noticed. Taking the Pennine chain as the eastern or south-eastern flank of the Cumbrian uplift, the author cited as illustrations of the flow of heated matter from the interior at different eras, the granites in the lake districts, the granitic porphyry of Dufton Pike, the Teesdale basalt, the basalt in the Wear valley, near Stanhope, and the trap-dykes from the vicinity of Middleton, in Teesdale. The reasons for an ultra-tropical climate at the commencement of the mountain-limestone formation, and the causes to which the richness of the lead mining district of the north of England was due, were pointed out; the conditions of mineral veins, faults, &c., were laid down; and suggestions made respecting the contortions of strata, throw of mineral veins, and their mineralization. The effects which the supposed alterations of level of the ocean produced on the vegetation at the close of the mountain-limestone period were remarked.

The coal period was stated to be one of surpassing interest. The atmosphere, abounding in moisture, carbonic acid, and heat suitable for vegetative life, nourished, in this era, a profuse sea-marginal flora. The vegetation being repeatedly uprooted and successively transported (generally to the south and south-east in the region of the British Isles), was submerged in basin-shaped repositories, and being covered up by sediments, and subjected to a considerable warmth, was converted into beds of coal. The sources from whence the carbonaceous matter in the principal coal-fields was derived were separately sketched.

The conditions previously laid down, namely, a large ocean, its oscillations during its decrease, and the general stability of the land, were applied to solve the phenomena of the northern drift. The author concluded by describing the routes of the detritus from the

Lake district, and of the granite from Shap Fell, &c., with a few additional remarks on the theory he had advanced.

Ordinary Meeting, 5th March, 1860.

The Rev. Thomas Wiltshire, M.A., F.G.S., President, in the Chair.

The following were elected members of the Association:—Miss S. G. Tripp; Lieut. J. Barugh; Joseph N. Dalton, Esq.; Rev. John Williamson.

The following donations were announced:—

“The Geologist” magazine for March, 1860, and a Diagram of some of the principal Flint Implements found in the Drift. By S. J. Mackie, Esq., F.G.S.

“The Abstract of the Proceedings of the Geological Society of London.” By the Geological Society.

The following papers were read:

1.—Notes on the Geology of White Cliff Bay, Isle of Wight. By Mark Norman, Esq.

White Cliff Bay is situated about four miles to the north-east of Sandown, being reached after passing the fort, by a path at first skirting the edge of the cliffs, and then crossing over the high land called Bembridge Down, near the monument on its summit.

The beds of the Wealden, Lower Greensand, Gault, Upper Greensand, and Lower Chalk, gradually rise in height until we reach the White Chalk of Culver Cliffs, where, at Hermit’s Hole they attain an altitude of something like 300 feet. All the strata of the above-mentioned deposits partake of the disturbances caused by the rise of the Wealden.

The magnificent chalk cliffs of Culver, says Dr. Mantell, in his “Geological Excursions,” can only be seen to advantage from the sea. The dip of the beds is seventy degrees to the north, and is easily defined, even from a distance, by the layers of flints.