

from west to east throughout the whole of this period. We find that its delta advanced and receded with the depressions and elevations which led to the formation of this part of the Eocene.

The Bracklesham Beds are the deposits of an almost tropical sea, which extended south over France, but is not traceable north of the Thames. The depression seems to have travelled from south to north-east and caused the outfall of the Eocene river to shift towards Hampshire. The Barton Beds show an influx of the northern sea into the Bracklesham Sea, resulting in the migration of all the most tropical forms — so that the dividing isthmus which previously existed must have been broken through. The position of the river was scarcely changed and the land fauna and flora remained tropical until the close of the Headon period. Upheaval having caused the recession of the Barton Sea, the southern sea again appeared in the Brockenhurst Beds of the Middle Headon. The changes of level during the Oligocene in England are similar, but affected smaller areas, and were accomplished in a gradually diminishing temperature.

I have touched very briefly on the physical conditions which prevailed during the Eocene period, as my views on this part of the subject have been already published. These conditions can, however, be traced with great minuteness and comparative certainty.

NOTICES OF MEMOIRS.

- I.—1. SILURISCHE KORALLEN AUS NORD RUSSLAND UND SIBIRIEN; VERZEICHNET VON G. LINDSTRÖM. Bihang till K. Svenska Vet. Akad. Handlingar, Band 6, No. 18.—Silurian Corals from North Russia and Siberia, described by G. LINDSTRÖM. Supplement to the Transactions of the Royal Swedish Academy of Science, Stockholm, 1882. 8vo. pp. 23, with a Plate.
2. ANTECKNINGAR OM SILURLAGREN PÅ CARLSÖARNE. AF G. LINDSTRÖM. Öfver. Af. Kongl. Vet. Akad. Forhandlingar, 1882, No. 3.—NOTES ON THE SILURIAN STRATA OF THE CARLS ISLANDS. By G. LINDSTRÖM. Proceedings of the Royal Swedish Academy of Science. 8vo. pp. 30, with a Plate and Five Woodcuts.

IN the first of these papers Prof. Lindström describes 27 species and varieties of corals, which have been collected from Silurian strata in four different and widely separated localities in Northern Russia and Siberia. Most of the forms belong to the familiar Silurian genera *Favosites*, *Heliolites*, *Halysites*, etc.; but in addition to these, there are no fewer than three new genera, which have been named *Rhaphidophyllum*, *Cyrtophyllum*, and *Palæarea*; this last is remarkable from the similarity of its structure, in many important respects, to that of the Tertiary genus *Litharea*. From a table appended it appears that 17 of these Siberian species occur also in Sweden; 12 in the English Silurian, and 8 in North America (including *Halysites catenularius*, L., and *H. escharoides*, Lam., which are omitted from the list of American species, though of common occurrence in that country). It is curious to note that two distinc-

tive American species, *Calapæcia cribriformis*, Nich., and *Columnaria alveolata*, Goldf., make their appearance in the Siberian beds, though they have not as yet been recognized in the intermediate Silurian areas of Western Europe.

The second paper contains a detailed description of the Silurian strata displayed in the Great and Small Carls, two small islands situated within a short distance of the west coast of the Isle of Gotland. The beds consist of an underlying series of soft greyish shales, which in places have been remarkably contorted, and their upper surfaces denuded, previous to the deposition of the limestone strata which cover them. The limestones are distinguished by being in many instances almost entirely composed of Corals and Stromatoporæ, and some of the beds are made up of tightly packed individuals of but a single species, whilst in others two or three species have lived and died together, so as to form beds which reach a thickness of 16 feet. Professor Lindström gives a list of the fossils from these islands, and compares them with those met with in similar strata on the Isle of Gotland. The characters of a new genus of corals, *Helminthidium*, are also defined. In an appendix he refers to the descriptions of the corals from these islands given by Dr. W. Dybowski in his "Monographie der Zoantharia Sclerodermata rugosa aus der Silurformation Estlands, Nord-Livlands und der Insel Gotland," and shows pretty conclusively that the 12 species therein described, 8 as new, may be reduced to 6, and these were all previously known and described.

G. J. H.

II.—BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE,
FIFTY-SECOND MEETING, SOUTHAMPTON, 23RD AUGUST, 1882.

[C. W. SIEMENS, Esq., D.C.L., LL.D., F.R.S., etc., *President*.]

A.—TITLES OF PAPERS READ IN SECTION C. (GEOLOGY).

President: ROBERT ETHERIDGE, Esq., F.R.S., F.G.S., etc.

The President's Address.

Professor J. Prestwich, M.A., F.R.S.—Notes relating to the Drift Phenomena of Hampshire:—1. Boulders, Hayling Island; 2. Chert débris in the Gravel; 3. Elephant Bed, Freshwater Gate.

H. B. Woodward.—Notes on the Bure Valley Beds and the Westleton Beds.

Professor V. Ball, M.A., F.R.S.—On the Sources of the Salt Supply of India.

Professor W. C. Williamson, F.R.S., and W. Cash.—Preliminary Report on the Flora of the "Halifax Hard Bed," Lower Coal Measures.

C. E. De Rance.—On the Iron and Lead Measures of Tynehead, Alston Moor.

W. Keeping, M.A.—On the Geology of Cardigan Town.

W. Pengelly, F.R.S.—On the Post-Miocene Deposits of the Bovey Basin, South Devon.

E. Wethered.—On the Origin of the Hæmatite Deposits in the Carboniferous Limestone of South Wales.

- Professor J. Milne.* — Report on the Earthquake Phenomena of Japan.
- Professor W. J. Sollas, M.A.*—Report on the conditions under which ordinary Sedimentary Materials may be converted into Metamorphic Rocks.
- Rev. G. F. Whidborne, M.A., and Professor W. J. Sollas, M.A.* — On some Fossils from the Inferior Oolite.
- C. E. De Rance.*—Report on the Circulation of the Underground Waters in the Permeable Formations of England.
- A. R. Hunt, M.A.*—Evidence of Wave-Action, at a depth of 40 fathoms, in the English Channel.
- W. Whitaker, B.A.*—List of Works on the Geology and Palæontology of Oxfordshire, Berkshire, and Buckinghamshire.
- Professor James Thomson, LL.D., F.R.S.*—Mention of an example of an early stage of Metamorphic Change in an Old Red Sandstone Conglomerate near Aberfoil.
- Professor James Thomson, LL.D., F.R.S.* — On features in Glacial Markings noticed on Sandstone Conglomerate at Skelmorlie and Aberfoil.
- Professor J. Prestwich, M.A., F.R.S.*—On the Equivalents in England of the Sables de Bracheux, and on the Southern limits of the Thanet Sands.
- J. S. Gardner.*—Suggestions for a Revised Classification of the British Eocenes (see p. 466).
- J. W. Elwes.*—On the Classification of the Oligocene Strata in the Hampshire Basin.
- E. B. Tawney, M.A.*—On the Outcrop of the Brockenhurst Beds near Lyndhurst.
- Dr. C. Ricketts.*—On Subsidence as the Effect of Accumulation.
- J. S. Gardner.*—The Cause of Elevation and Subsidence of Land.
- Professor W. Boyd Dawkins, M.A., F.R.S.*—On the Geology of the Channel Tunnel.
- C. E. De Rance.*—On Proposed Channel Tunnels in their Geological Aspects.
- W. Topley.*—On the Synclinal Structure of the Straits of Dover.
- R. J. Ussher.*—Report on the Exploration of Caves in the South of Ireland.
- T. W. Shore and E. Westlake.*—On the Southampton Artesian Well.
- Rev. H. W. Crosskey.*—Report of the Committee on Erratic Blocks.
- G. R. Vine.*—Report on the British Fossil Polyzoa (Jurassic Species).
- Professor W. J. Sollas, M.A.*—On the Formation of Flints.
- Rev. E. Hill, M.A.*—Problems in the Geology of the Channel Islands.
- Rev. A. Irving, B.Sc.*—Notes on Alpine Post-Carboniferous (Dyassic) and Triassic Rocks.
- Professor J. D. Everett, F.R.S.*—Summary of Reports of the Committee on Underground Temperature.
- R. B. White.*—Notes on the Geology and Mining of the United States of Columbia, S.A.
- W. Topley.*—Report on the Progress of the Geological Map of Europe.

B.—TITLES OF PAPERS, BEARING UPON GEOLOGY, READ IN OTHER SECTIONS.

SECTION A.—PHYSICAL SCIENCE.

Professor Everett.—(1) Report of Committee on Underground Temperature. (2) Synopsis of all previous Reports of this Committee.

Professor Schuster.—Report of Committee on Meteoric Dust.

Professor Balfour Stewart.—On a Supposed Connexion between the Heights of Rivers and the Number of Spots on the Sun.

G. H. Darwin.—On an Estimate of the Earth's Rigidity.

SECTION B.—CHEMICAL SCIENCE.

Professor Divers and Marachika Shimosé.—On the Occurrence of Tellurium and Selenium in Japan.

Professor von Baumhauer.—On the Application of the Diamond to Mineralogical and Chemical Analysis.

SECTION D.—BIOLOGY.

W. S. Duncan.—Evidence as to the Scene of Man's Evolution, and the prospects of proving the same by Palæontological Discovery.

W. Pengelly, F.R.S.—Prehistoric Remains in the Deposits of the Bovey Basin, South Devon.

Professor Boyd Dawkins, F.R.S.—The Light thrown by the Exploration of Caves on the Conquest of Britain.

SECTION E.—GEOGRAPHY.

J. Thomson.—On the Geographical Evolution of the Tanganyika Basin.

Professor V. Ball.—On the Identification of certain Ancient Diamond Mines in India.

M. Pierre de Tehihatchef.—The Deserts of Africa and Asia.

SECTION G.—MECHANICAL SCIENCE.

J. Clarke Hawkshaw.—The Channel Tunnel.

REVIEWS.

I.—TABULAR VIEW OF THE GEOLOGICAL SYSTEMS, WITH THEIR LITHOLOGICAL COMPOSITION AND PALÆONTOLOGICAL REMAINS. Especially adapted for Students preparing for the Royal Military Colleges of Woolwich and Sandhurst. By Dr. E. CLEMENT. (London: A. Swan Sonnenschein & Co., 1882.)

WE are sorry that we cannot endorse the opinion expressed by the author of this work in his preface that it "will be found of great use to both masters and pupils": its errors, both of omission and commission, are so numerous that any utility which such a work might otherwise possess appears to us to be entirely destroyed. In the some dozen pages on Stratigraphy, for instance, we find no mention of the Pre-Cambrian rocks of England and Wales, nor