

with regard to the main questions all were agreed, as to there being no evidence in the areas examined by them to support the Murchisonian views of a conformable upward succession. Many other facts also of great importance were brought out in these inquiries. The author expressed gratification at the candid manner in which the whole question had been dealt with by the Director-General and the Surveyors in their recent report, and at their readiness in acknowledging that, after due examination in the course of surveying and mapping parts of the areas referred to, they had found the "evidence altogether overwhelming against the upward succession which Murchison believed to exist."

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### CORRESPONDENCE.

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#### THE CLASSIFICATION OF THE JURASSIC SYSTEM.

STR,—Mr. Blanford states that a line of division drawn between the Cornbrash and the Oxfordian has no general value, "the (lithological) change being confined to but a small part of the earth's surface." England, France and Germany may be only a small part of the earth's surface, but I think most English geologists will be satisfied with a classification of the Jurassic rocks that is applicable to these three countries, and a lithological change does take place about this horizon in all of them.

Mr. Blanford proposes to include the Oxford Clay in the Middle Jurassic and to draw the line of separation between this clay and the Coral Rag, but he does not say whether he would include the Argovien or Lower Calcareous Grit in the former or the latter; he will find that foreign authorities differ, and that either course is unsatisfactory, if the line is to separate divisions of primary rank, the Corallian as a whole being as closely connected with the Oxford as with the Kimmeridge Clay.

In conclusion, let me admit that I stand corrected as to the use of the word "stage"; it should be retained for divisions of secondary rank, and I should not have used it in the sense of a primary division.

A. J. JUKES-BROWNE.

*Jan. 19th, 1885.*

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### OBITUARY.

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#### SEARLES V. WOOD, THE YOUNGER, F.G.S.

BORN FEBRUARY 4, 1830. DIED DECEMBER 14, 1884.

Searles Valentine Wood, jun., the son of Mr. S. V. Wood, the well-known palæontologist, was born at Hasketon, in Suffolk, on February 4th, 1830. He was educated first at King's College, London, and afterwards in France. From his boyhood he began to take the liveliest interest in the scientific pursuits of his father. We find him as far back as 1843-5 assisting in the investigations in which Mr. Wood, sen., was then engaged of the Eocene fresh-water beds of Hordwell Cliff. Indeed he may be said to have been educated upon Tertiary Geology from his youth up. In 1862 he wrote an elaborate paper on "The Form and Distribution of the

land-tracts during the Secondary and Tertiary periods respectively, and on the effect upon Animal life which great changes in Geographical configuration have probably produced." It was read before the Geological Society, and was afterwards printed in the *Philosophical Magazine*. In 1863 he wrote a paper on "The events which produced and terminated the Purbeck and Wealden deposits of England and France," and shortly after, another, on "The Belgian Equivalents of the Upper and Lower Drifts of the Eastern Counties," a third on "The Red Crag and its relation to the Fluvio-Marine Crag and the Drift of the Eastern Counties," and a fourth "On the Formation of the River Valleys of the East of England." In the last of these he enunciated a theory which has received but little attention, but which he strenuously maintained till the last. He was elected a Fellow of the Geological Society in 1864. Having long studied the Glacial beds of East Anglia, he read a paper, in the same year, embodying the results of the work he had carried on in this field, on "The Drift of the East of England." The next year he published, for private circulation, a map of the drift over eight counties, together with remarks in explanation of it; the first attempt which had ever been made to map the Glacial beds, and which, constructed at a time when the Geological Survey ignored these deposits altogether, must be regarded as the parent as well as the predecessor of the many glacial maps which have since been issued. He had been designated for the legal profession, having been admitted a solicitor in 1851, but the death of a gentleman with whom he was associated, in 1855, although leaving a lucrative practice in his hands, gave him an opportunity, which he seized with alacrity, of devoting himself to the elucidation of the Glacial beds. In association with his friend, Mr. Harmer, of Norwich, he spent the following six or seven years in the work, during which time more than 10,000 miles were traversed, and every section of importance in the whole district examined, the results being published by the Palæontographical Society in 1872.

Mr. Wood's mental activity and industry were marvellous. Although during the last ten years of his life a confirmed invalid, so much so as to be for a great part of the time incapacitated from all bodily exertion, and during the summer months from all kinds of literary or mental work; papers of the most elaborate kind were constantly issuing from his study. Previously to his health breaking down, he had, in company with the Rev. T. L. Rome and Mr. Harmer, made several excursions into Lincolnshire, Yorkshire, and the neighbouring counties, for the purpose of studying the Glacial deposits of the North-east of England, the result being published by himself and Mr. Rome, in 1867, in the well-known paper on that subject. In 1870 this was supplemented by another elaborate paper, accompanied by what Sir Charles Lyell called "Miles of Sections," "On the Relation of the Boulder-clay without Chalk of the North of England to the Chalky Clay of the South." In 1867 he had given to the Society an account of his views on the structure of the Post-Glacial beds of the South-east of England, having

previously placed in the library at Burlington House a manuscript work of great length on the same subject.

While engaged in the Survey of Norfolk, Messrs. Wood and Harmer had come across a band of fossiliferous sand in the Middle Glacial deposits near Yarmouth, full of comminuted shells, which were in such a fragmentary condition that few species could be determined. Although presenting so much difficulty, the discovery appeared to Mr. Wood so important that he had about two tons of the material sent over to Brentwood, where he then lived, and spent whole weeks in sifting and examining it. The result was the determination of seventy species of Mollusca, several of them being new to science, the whole fauna showing a much older facies than that of the so-called Middle Sands of Lancashire, which had been up to that time regarded as contemporaneous with them.

In 1871 and the following years Mr. Wood continued to write many papers. In 1880 and 1882 he published his last essay on what he preferred to call the "Newer Pliocene Period." Although the best work of his life must no doubt be regarded as that which he devoted to tracing the history of the younger formations of the East of England, yet he nevertheless took the keenest interest in the Glacial and later Tertiary phenomena of other parts of the globe, and in 1877 he published his views on the subject at considerable length in the *GEOLOGICAL MAGAZINE*. He was meditating a further treatise thereon at the time of his death, although a confirmed invalid, and often racked with pain. The last work in which he engaged was a paper on "The Discovery of the Fossiliferous Beds of St. Erth, in Cornwall," which was read at the Geological Society. His industry was untiring, and considering his feeble health marvellous. Always ready to admit himself in error when the discovery of new facts required it, with a single-hearted desire to ascertain the truth, he was ever willing to place at the disposal of others the knowledge he himself possessed. On the death of his father he was chosen Treasurer of the Palæontographical Society, which office he held until the last. He died on the 14th December, after a few days' illness, at his residence, Beacon Hill House, near Woodbridge, and was buried at Melton Church, in the centre of the district which the labours of his father and himself have made for all time classical ground to students of geology.

The following is a List of Mr. Wood's Papers:—

- On the Probable Events which succeeded the Close of the Cretaceous Period. *Quart. Journ. Geol. Soc.* 1860, vol. xvi. pp. 328-329.
- On the Form and Distribution of the Land-Tracts during the Secondary and Tertiary Periods respectively; and on the effects upon Animal Life which great Changes in Geographical Configuration have probably produced. *Phil. Mag.* 1862, vol. xxiii. pp. 161-171, 269-282, 382-393.
- On the Events which Produced and Terminated the Purbeck and Wealden Deposits of England and France, and on the Geographical Conditions of the Basin in which they were Accumulated. *Phil. Mag.* 1863, vol. xxv. pp. 268-269.
- On the Red Crag and its relation to the Fluvio-marine Crag, and on the Drift of the Eastern Counties. *Ann. and Mag. Nat. Hist.* 1864, ser. 3, vol. xiii. pp. 185-203.
- On the Belgian Equivalents to the Upper and Lower Drift of the Eastern Counties. *Ann. and Mag. Nat. Hist.* 1864, vol. xiii. pp. 393-405.

- The Bridlington Crag. *GEOL. MAG.* 1864, Vol. I. pp. 246-247.
- On the Structure of the Red Crag in Suffolk and Essex. *Quart. Journ. Geol. Soc.* 1864, vol. xx. p. 121; *Phil. Mag.* 1864, vol. xxvii. p. 155.
- On the Formation of the River and other Valleys of the East of England. *Phil. Mag.* 1864, vol. xxvii. pp. 180-190.
- On the Drift of the East of England and its Divisions (1864). *Q. J. Geol. Soc.* 1865, vol. xxi. pp. 141-142 (abstract); *Phil. Mag.* 1865, vol. xxix. pp. 240-241.
- Remarks in Explanation of the Map of the Upper Tertiaries of the Counties of Norfolk, Suffolk, Essex, Middlesex, Hertford, Cambridge, Huntingdon, and Bedford, with parts of those of Buckingham and Lincoln, and accompanying Sections, for 1865, pp. 24; with Map and Sections (*privately printed*.)
- On the Structure of the Thames Valley and of its contained deposits. *GEOL. MAG.* 1866, Vol. III. pp. 57-63, 99-107.
- On the Structure of the Valleys of the Blackwater and the Crouch and of East Essex Gravel, and on the Relations of this Gravel to the Denudation of the Weald. *GEOL. MAG.* 1866, Vol. III. pp. 348-354.
- On the Relation which the East Essex Gravel bears to the structure of the Weald Valley. *GEOL. MAG.* 1866, Vol. III. pp. 398-406.
- On the Structure of the Red Crag, by S. V. Wood, sen., with an Explanation of the Diagram Section by S. V. Wood, jun. *Quart. Journ. Geol. Soc.* 1866, vol. xxii. pp. 538-552; *Phil. Mag.* 1866, vol. xxxii. pp. 230-231.
- Faults in the Drift at Hitchin. *GEOL. MAG.* 1867, Vol. IV. pp. 37-40.
- Age and Position of the Drift-Deposits of the Eastern Counties. *GEOL. MAG.* 1867, Vol. IV. pp. 189-191.
- Drift-Deposits of the Eastern Counties. *GEOL. MAG.* 1867, Vol. IV. pp. 375-376.
- A Memoir in Explanation of the Structure of the Glacial and Post-Glacial System . . . . over the E., S.E., S., and part of the S.W. of England (1867). Large folio MS. and Maps, in Library Geol. Soc.
- Boulder-Clay and Drift of Norfolk and Suffolk, and on the North Side of the Thames Valley. *GEOL. MAG.* 1867, Vol. IV. pp. 479-80.
- On the so-called Deposits of the old Estuary of the Yare. *GEOL. MAG.* 1867, Vol. IV. pp. 560-561.
- On a Section at Litcham affording Evidence of Land-glaciation during the earlier part of the Glacial Period in England (1866). *Quart. Journ. Geol. Soc.* 1867, vol. xxxiii. pp. 84-87; *Phil. Mag.* 1867, vol. xxxiii. p. 153.
- On the Structure of the Post-Glacial Deposits of the S.E. of England. *Quart. Journ. Geol. Soc.* 1867, vol. xxxiii. pp. 394-417; *Phil. Mag.* 1867, vol. xxxiv. pp. 402-403. (Corrections in *GEOL. MAG.* Vol. V. pp. 43, 534.)
- Reply to W. Boyd-Dawkins, on the Thames Valley Deposits, etc.; and to A. H. Green, on the Ouse Valley at Buckingham. *GEOL. MAG.* 1868, Vol. V. pp. 42-46.
- On the Glacial Clay of the Ouse Valley, the Thames Valley, etc. *GEOL. MAG.* 1868, Vol. V. pp. 147-148.
- On the Pebble-Beds of Middlesex, Essex, and Herts. *Quart. Journ. Geol. Soc.* 1868, vol. xxiv. pp. 464-471; *Phil. Mag.* 1869, vol. xxxvii. pp. 148-149.
- On *Astarte excurvens* and *A. modesta*. *Ann. and Mag. Nat. Hist.* 1870, vol. vi. p. 423.
- Observations on the Sequence of the Glacial Beds. *GEOL. MAG.* Vol. VII. 1870, pp. 17-22, 61-68, and Vol. VIII. 1871, pp. 406-412, 477.
- The Boulder-Clay of Caithness. *GEOL. MAG.* 1870, Vol. VII. p. 347.
- On the Relation of the Boulder-Clay, without Chalk, of the North of England, to the great Chalky Boulder-Clay of the South (1869). *Quart. Journ. Geol. Soc.* 1870, vol. xxvi. pp. 90-110; *Phil. Mag.* 1870, vol. xl. pp. 72-73.
- On Mr. Croll's Hypothesis of the Formation of the Yorkshire Boulder-Clay. *GEOL. MAG.* 1871, Vol. VIII. p. 92.
- 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 (1870). *Quart. Journ. Geol. Soc.* 1871, vol. xxvii. pp. 3-26; *Phil. Mag.* 1871, vol. xli. p. 319.
- On the Assumption of the adult form by the genera *Cypræa* and *Ringicula*, and by certain species of the genus *Astarte*. *Ann. and Mag. Nat. Hist.* 1871, vol. vii. pp. 171-172.
- The Raised Beach on Portsdown Hill. *GEOL. MAG.* 1872, Vol. IX. pp. 92-93.

- On the Climate of the Post-Glacial Period. *GEOL. MAG.* 1872, Vol. IX. pp. 153-161.  
 Reply to Mr. James Geikie's "Correlation of the Scotch and English Glacial Beds." *GEOL. MAG.* 1872, Vol. IX. pp. 171-176, 352-355.
- Note on the Shells from the Lower Boulder-Clay of Dawpool. *Quart. Journ. Geol. Soc.* 1872, vol. xxviii. p. 392.
- The Climate Controversy. *GEOL. MAG.* Decade II. Vol. III. 1876, pp. 385-398, 442-451, and Vol. IV. 1877, p. 43.
- Physical Geology of East Anglia in the Glacial Epoch. *GEOL. MAG.* 1876, Decade II. Vol. III. pp. 284-286.
- American "Surface Geology," and its Relation to British, with some Remarks on the Glacial Conditions in Britain, especially in reference to the "Great Ice Age" of Mr. James Geikie. *GEOL. MAG.* Decade II. Vol. IV. 1877, pp. 481-496, 536-551, and Vol. V. 1878, pp. 13-29, 187-188.
- Sub-Glacial Origin of Till. *GEOL. MAG.* Decade II. Vol. V. p. 335.
- The Newer Pliocene Period in England (part 1), Comprising the Red and Fluvio-marine and Crag and Glacial Formation. *GEOL. MAG.* Decade II. Vol. VII. pp. 231-235; *Quart. Journ. Geol. Soc.* 1880, vol. xxxvi. pp. 457-528.
- The Glacial Deposits of Cromer. *GEOL. MAG.* Decade II. Vol. VII. pp. 189, 190.
- Further Remarks on the Origin of the Valley System of the South-Eastern Half of England, prompted by the Result of a Boring near Witham, in Essex. *GEOL. MAG.* 1881, Decade II. Vol. VII. pp. 502-504.
- On the Origin of the Loess. *GEOL. MAG.* 1882, pp. 339-343, 411-416.
- On the Newer Pliocene Period in England (concluding part). *GEOL. MAG.* Decade II. Vol. IX. 1882, pp. 331-334; *Q. J. G. S.* xxxviii. 1882, pp. 677-745.
- Reply to Mr. Mellard Reade. *GEOL. MAG.* Decade II. Vol. X. p. 240.
- On the Cause of the Glacial Period. *GEOL. MAG.* 1883, pp. 293-302.
- Chalk-Masses in Cromer Drift. *GEOL. MAG.* 1883, pp. 334, 335, 430.
- Further Remarks on the Origin of the Loess. *GEOL. MAG.* 1883, pp. 389-397.
- On the Long Meadend Bed. *GEOL. MAG.* 1883, pp. 493-497, 573, 574.
- Further Remarks on the Long Meadend Bed. *GEOL. MAG.* 1884, pp. 65-73.
- On a New Deposit of Pliocene Age at St. Erth, 15 miles east of Lands End, Cornwall. *GEOL. MAG.* 1884, pp. 572-573; *Q. J. G. S.* 1885, vol. xh. pp. 65-71.
- Wood, Searles Valentine, and Harmer, F. W.* On the Glacial and Post-Glacial Structure of Norfolk and Suffolk. *GEOL. MAG.* 1868, Vol. V. pp. 452-456; *Brit. Assoc. Report for 1868 (Sect.)*, pp. 80-83.
- On a Peculiar Instance of Intraglacial Erosion near Norwich. *Quart. Journ. Geol. Soc.* 1869, xxv. pp. 259-260, 445-449; *Phil. Mag.* 1869, xxxviii. p. 466.
- On the Palæontological Aspects of the Middle Glacial Formation of the East of England, and their bearing upon the Age of the Middle Sands of Lancashire. *Brit. Assoc. Report for 1870 (Sect.)*, pp. 90-91.
- An Outline of the Geology of the Upper Tertiaries of East Anglia, published as an Introduction to part i. 1872, of S. V. Wood's *Crag Mollusca*, *Pal. Soc. Mon.* pp. ii.-xxxii. (with Map and Sections).
- The Kessingland Freshwater Bed and Weybourne Sand. *GEOL. MAG.* 1877, p. 386.
- Observations on Later Tertiary Geology of East Anglia. *Q. J. G. S.* 1877, pp. 74-119.
- Wood, S. V., and Rome, J. L.* On the Glacial and Post-Glacial Structure of Lincolnshire and South-East Yorkshire. *Phil. Mag.* 1867, vol. xxxiv. p. 480; *Q. J. G. S.* 1868, pp. 2-3, 146-184. [A Map of this area was separately issued.]

### ALFRED TYLOR, F.G.S.

BORN, 1823. DIED, 1884.

Alfred Tylor, F.G.S., of Shepley House, Carshalton, who died on December 31st last, will be remembered as a promoter of technical education at a time when its vital importance was little recognized, and the English manufacturing mind was generally set against it. He was intimately associated with Dr. von Steinbeis, whose energy in this direction did so much to give to the little kingdom of Wurtemberg its industrial prominence in Germany, Mr. Tylor's work, "Education and Manufactures," arising out of his Jury-