

species of oyster), by being audibly full of water when shaken. Many contain only sand, lime or earthy matter, perhaps the residue of fossils destroyed.

Collecting the water-bearing nodules is somewhat akin to choosing cocoa-nuts at the greengrocer's. We pick up one after the other from the ground, rejecting the light ones, and those that give forth no sound, in favour of those which, like the cocoa-nuts with milk, bear unmistakeable evidence of containing liquid.

What the nature of this liquid may be,<sup>1</sup> or what duration of time has elapsed since it was sealed up in these portable reservoirs, is not for me at present to say, having as yet made no minute examination. The specimens contained water when we picked them up, as did others when split with the hammer. Since bringing them home, they have been in a warm room, and the water from some reason, probably increased temperature, has evaporated or disappeared. The iron pan which forms the walls of the cavity may be porous, and I have placed them in a vessel of water, expecting them to become water-bearing nodules again; the phenomenon would then be probably explained, by supposing that during periods of wet these nodules absorb the water percolating through the Greensand.

It then becomes a question whether these nodules may not be a cause of diminution in the water supply? in districts where they are largely developed. But against the absorption theory, remains the fact that the weather was very warm and fine when the nodules were gathered, and the recent heavy rains had not set in.<sup>2</sup>

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#### ON THE TERM NEOCOMIAN.

SIR,—In writing his article upon the above subject, in the last Number of the GEOLOGICAL MAGAZINE, my friend Mr. Jukes-Browne appears to have been labouring under a curious and very unfortunate misconception. He says:—

“For many years English geologists were content with the nomenclature employed by the earlier students of the Cretaceous system—Webster, Murchison, Mantell and Fitton. In 1864, however, the French term Neocomian was introduced by Prof. Judd, who adopted it for the Cretaceous portion of the Speeton Clay, and Sir Charles Lyell subsequently used it as a synonym for the whole Lower Cretaceous series in England, as distinct from the Upper Cretaceous series or the beds lying above the Lower Greensand.”

Through the whole of the following pages, the writer of the article enlarges upon this text, treating myself as responsible for the error,

<sup>1</sup> Since writing the above, it has been suggested to me that an analysis of the water might be made. This would of course be a valuable guide to the source of supply.—A. G. C.

<sup>2</sup> For a description of the mode of formation of the ironstone concretions, see Penning, GEOL. MAG. Dec. II. Vol. III. p. 218. Geology of Cambridge, Geological Survey Memoir, p. 12, Penning and Jukes-Browne.

as he regards it, of introducing the term Neocomian into English geological literature.

Now what are the real facts of the case? For the last forty or fifty years the term Neocomian has been quite commonly applied, by many eminent English geologists, to a part or to the whole of the Lower Greensand, and even those who are prepared to credit me with the most phenomenal precocity, could scarcely charge me with leading astray my fathers in science so long ago as that. The author who had the chief honour, as I esteem it, of introducing the term to English science was the late Mr. R. A. C. Godwin-Austen, and his practice dates at least as far back as the year 1843. If my friend Mr. Jukes-Browne will refer to several memoirs by that author—such as those “On the Geology of the South-East of Surrey” (*Proc. Geol. Soc.* vol. iv. (1843), pp. 167–173, 196–198); “On the Age and Position of the Fossiliferous Sands and Gravels of Farringdon” (*Quart. Journ. Geol. Soc.* vol. vi. (1851), pp. 454–478); and “On the Possible Extension of the Coal-measures beneath the South-Eastern part of England” (*Quart. Journ. Geol. Soc.* vol. xii. (1856), pp. 38–73)—he will find that Mr. Austen not only uniformly employs the term Neocomian for a part at least of the Lower Greensand, but that he defends his practice by some very judicious and cogent arguments. If the writer of the article will look through the contemporary geological literature in this country, he will also find that the example of Mr. Godwin-Austen was followed by other geologists of high reputation.

Of course Mr. Godwin-Austen—who happened to have a remarkably extensive acquaintance with continental geology—was well aware of the fact referred to by Mr. Jukes-Browne, that at Neuchatel there is no exact representative of our Lower Greensand; but Mr. Godwin-Austen’s arguments, based on the fact that the fossils of our English formation (or at least of the lower part of it) are very similar to those of the Neocomian, while they are on the whole very different from those of the Upper Cretaceous, have always seemed to me to be worthy of the most careful consideration; and many other geologists, I find, have acknowledged their weight by following his example.

My own part in connection with this question was very different from what my friend supposes; it consisted in describing a series of strata, in Lincolnshire and Yorkshire, which are for the most part older than the Lower Greensand, and correspond in age with strata on the Continent which all geologists, including Mr. Jukes-Browne, agree in calling Neocomian. At the same time, as I have already stated in a paper in this Journal (*GEOL. MAG.* Vol. VII. 1870, p. 220), I have always regarded Mr. Godwin-Austen’s proposal to extend the use of the term as originally defined, so as to include the English Lower Greensand, to be much more logical and defensible than that of M. D’Orbigny—which was to restrict the name to one part of the series.

Considering, as I do, the Neocomian to be a great continuous

system of strata, with no very important breaks in it, the conventional limits which are to be adopted for the Upper, Middle and Lower divisions, respectively, appear to me to be a question of by no means great importance. At the same time, any attempt to disturb, without very good cause shown, names which have come into general use, or to alter the definition of terms which have been generally accepted—whether the attempt be made by officers of the Geological Survey, in their individual or their corporate capacity—will, I strongly suspect, prove a hopeless, as I am sure that it is a useless, task. Consequently, I trust the idea of “formulating a new nomenclature” as the result of “the revision by the members of the Geological Survey” of the Cretaceous rocks of England, is one that will, in moments of calmer reflection, be abandoned. Scientific names go through a “struggle for existence,” and the fittest survive. I trust my friend Mr. Jukes-Browne will draw a moral from the fact, that the name Neocomian has shown a very considerably greater vitality than he seems to have suspected.

But while Mr. Jukes-Browne gives me credit for that of which I cannot possibly accept the honour, he himself assumes a responsibility which, it seems to me, he is not called upon to bear. In speaking of “the merits of the name (*Vectian*) which I have already proposed as a substitute for Lower Greensand,” he must surely have forgotten a well-known passage in the works of Dr. Fitton. After remarking that he had long since stated his objections to the use of the term Lower Greensand, that author writes as follows:—“If hereafter a change be thought desirable, he conceives that the new denomination should be taken from the *Isle of Wight*, where this portion of the sub-cretaceous groups was first distinguished, and where the sections on the coast are remarkable for their distinctness; and if such a case should arise, he suggests the name *Vectine* for the strata now called Lower Green Sand, from the ancient name of that island,—*Insula Vectis* of the Romans” (Quart. Journ. Geol. Soc. 1845, vol. i. p. 189).

As the paper in which this passage occurs was read in 1844 and published in 1845, it seems to me scarcely more likely that Mr. Jukes-Browne could have offered useful hints on the subject to Fitton than that I was engaged in a previous year in improperly influencing Godwin-Austen.

JOHN W. JUDD.

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**ERUPTION OF MOUNT TARAWERA, NORTH ISLAND, NEW ZEALAND.**—A most destructive volcanic outburst occurred on the night of the 9th of June, from Tarawera, a mountain not more than 3000 feet high, which rises near the lake of the same name, and about nine miles from Rotomahana. At two o'clock a shock of greater violence occurred followed by a terrific roar, a pillar of light shot up from the summit of Tarawera, molten lava and hot mud were rained abroad, while huge rocks were thrown up and around in all directions. Showers of hot cinders and boiling mud covered the settlement of Wairoa, killing on the spot or burying alive numbers of persons. For sixty miles the destruction has spread. About 100 persons have perished, whilst villages and settlements are covered with eight or ten feet of mud or ashes. We hope to give a fuller account in our next number.