

Letters to the Editor

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NOTES ON POINTS IN SOME OF THIS WEEK'S LETTERS APPEAR ON P. 461.

CORRESPONDENTS ARE INVITED TO ATTACH SIMILAR SUMMARIES TO THEIR COMMUNICATIONS.

Hooke as Geologist

Two comments on Mr. W. N. Edwards's article on Robert Hooke published in *NATURE* of January 18 seem worth making. The first concerns the date of Hooke's really important geological work, the second the interpretation of a passage which Mr. Edwards has, I think, taken on trust from earlier authorities. My points are condensed from an article on "The First English Geologist" published in the *Durham University Journal* of June 1935, in which Hooke's evolutionary doctrine was also examined.

(i) Hooke's earliest papers date between June 1667 and September 1668 ("Posthumous Works" 1705, pp. 279-345): that is, they were delivered before Steno's "De Solido" (1669) was published. The third paper connects with the fourth, dated February 1686-87: after which all the papers are later. But all the important theories will be found in the two papers of 1667-68 (for example, Mr. Edwards's citations from those of 1694 and 1699 will be found earlier, on pp. 312-14, and especially p. 314). The later papers only repeat the earlier, under the influence of Pythagorean theories and Burnet's "Theoria Sacra" (1681) or "Sacred Theory of the Earth" (1684), which converted Hooke, and geology with him, to cosmology, to the grave detriment of science. This earlier dating of all Hooke's important geological thinking gives him a claim to be regarded as among the greatest of the early workers in this science, as Mr. Edwards suggests; but his genius suffers if the later papers are confused with the earlier.

(ii) There seems to be no real evidence that Hooke anticipated William Smith in recognising "the possibility of identifying strata by their fossils and 'raising a chronology' out of them". If it is, as Mr. Edwards says, "well known", it is because an important passage was misread by Lyell, whose conclusions (and often his italics) have been repeated by von Zittel, H. B. Woodward, and others. This passage, written in 1688, is based on two earlier ones too long for quotation here ("P. W.", pp. 321 and 335), in which the authenticity of fossils as "Monuments of Nature" is argued by a parallel with antiquarian relics. In 1688 ("P. W.", p. 411), repeating the parallel he says:

"And though it must be granted, that it is very difficult to read them, and to raise a *Chronology* out of them, and to state the intervals of the Times wherein such or such Catastrophies and Mutations have happened; yet 'tis not impossible, but that, by the help of those joined to other means and assistances of Information, much may be done even in that part of Information also."

Lyell quotes as far as "impossible", where he puts a full-stop and leaves it at that ("Principles", 1840, i, p. 48), thereby altering the sense considerably.

His "*raise a Chronology*" in italics makes everyone think of Smith, but there seems to be no evidence that Hooke ever thought of fossils as guides to the identification of strata. All that he seems to have had in mind was a modest hint that the "chronologies" of the "scripturists" might need revision. The reference on p. 412 to "the ingenious author that has lately writ of that subject" (the Flood) shows that this passage was written with Burnet's "Sacred Theory" in mind, and that his intention was no more than to carry terrestrial history beyond the then accepted date of the Deluge (c. 4000 B.C.). He undoubtedly saw the possibility of extending history further back in time, for he said these "greatest and most lasting Monuments of Antiquity" might "far antedate all the most ancient Monuments of the World" (p. 335); but his main concern, like that of Woodward, Ray, Burnet, Whiston, and lesser men, was with the Flood. (See p. 341 and the repetition of his doubts in 1687-88 on p. 408.) In other words, Hooke's "chronology" has been misinterpreted, just as his "earthquakes" have; but he himself remarked that words are "ill set marks on very confused Notions".

Hooke was in 1667-68 a very great and original geologist; he was the first uniformitarian; he was a considerable pre-evolutionist; but he was not a stratigrapher. There is something ironical in the repeated attribution of a discovery he did *not* make to one whose lightnings so frequently illuminated others: and I join Mr. Edwards in surprise and regret that his tercentenary has passed with so slight acknowledgment.

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MR. ROSSITER does well to underline the early date of Hooke's geological work, but he might have gone further. For example, Hooke's observations on petrified wood, read before the Royal Society on June 17, 1663, were published in John Evelyn's "Sylva" (1664, pp. 96-7) as well as in "Micrographia" (1665), where Hooke also briefly outlined his views on fossils and refuted Stelluti's opinions on "*lignum fossile*". On p. 439 of the "Posthumous Works", Hooke refers to his "lectures in 1664" on the agency of earthquakes in modifying the earth's surface. In my article I gave the date 1668 for certain passages because they were taken from the first section of the "Discourses of Earthquakes", which concludes (on p. 328) with the words "Ended Sep. 15, 1668". I should be sorry if anyone thought that Hooke's reputation suffered because other passages dated 1694 and 1699 were also quoted.