VON ZITTEL'S HISTORY OF GEOLOGY.

SIR,—I am one of those who in consequence of your notice in the April number at once sent for the translation of Von Zittel's History of Geology, etc. I read it with avidity, and can endorse all that was said about the book. Specially was I interested in the masterly manner in which the subject of metamorphism, the discussion on the Cambrian and Silurian systems, the *Eozoon Canadense*, the North-West Highlands of Scotland, and the unravelling of the Alpine strata were treated, with the various points still open for investigation.

There are, however, on p. 159, which contains statements as to the diameter of the planets, and on p. 168, where the thickness of the solid crust of the earth is dealt with, also on p. 300, where the shortening of the earth's radius is mentioned, figures given which I do not understand. The writer or the translator must have had some modulus of dimension in mind different from any of those stated in the text. It would be well before a second edition is produced that these points should be reconsidered.

The following are the clauses remarked upon :—

Page 159 : " Of the six planets that were known in early astrology, Mercury is nearest the sun in position, and has itself a diameter of 648 miles ; Venus (diam. 1,613 miles) follows Mercury, then the Earth (diam. 1,719 miles), then Mars (diam. 909 miles), Jupiter (diam. 19,000 miles), and Saturn (diam. 16,675 miles). Herschel in 1780 discovered on the farther side of Saturn the planet Uranus with a diameter of about 8,000 miles, and Leverrier in 1846 discovered by mathematical calculation the outermost planet, Neptune, with four and a half times the diameter of the Earth."

The ordinary textbooks give—Mercury, 2,000 miles diameter ; Venus, 7,600 ; Earth, 7,928 ; Mars, 4,430 ; Jupiter, 86,000 ; Saturn, 76,246 ; Uranus, 32,000 ; Neptune, 35,000.

Page 168 : " Hopkins calculated that the solid crust of the earth had a thickness of about $\frac{1}{4}$ or $\frac{1}{5}$ of the earth's diameter, that is, at least 172 to 215 geographical miles."

Page 300 : " Delesse had calculated 1,340 metres as the amount by which the earth's radius had already been shortened ; in other words, the earth's crust in the course of the geological epochs had approached the earth's centre by a distance about equal to the height of Chimborazo or the Himalayas above sea-level."

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May 31, 1902.

THE LIMITS OF LEGITIMATE SPECULATION AT THE GEOLOGICAL SOCIETY.

SIR,—Early in 1900 I submitted to the Geological Society a short paper on Bala Lake and the rivers of North Wales, in which I attempted to show that the great valleys which run through North Wales from north-east to south-west had probably been