

form his theory of the formation of the parallel roads of Glen Roy. We have a glimpse of his well-known tone of thought in the question which he says, in one of these essays, one *naturally* asks, "What was the use of this great engine set at work ages ago to grind, furrow, and knead over, as it were, the surface of the earth?" and finds as an answer that it was a special provision for making the surface fertile by ploughing it deeply and preparing it as a grain-growing soil. Perhaps we could not have a better justification for calling teleological arguments "barren virgins," with Prof. Huxley, than this instance, for if the glacial period were a special provision for the wants of man, we should be cut off from the conclusions, now almost proved by evidence, first that man existed in these isles *before* the glacial epoch, and second, that this epoch should rather be called the *last* glacial epoch, as there have been similar ones throughout geologic time. This last conclusion, involving the extension of glacial conditions through a long range of time, at various intervals, a conclusion largely due to Prof. Ramsay, will be only second in importance, when fully established to its extension in space so conclusively proved by Agassiz and others. The longest of the five papers in this collection is the most recent: "On the Physical History of the Valley of the Amazons," in which he gives his reasons for considering the whole of that valley to have been filled with ice, and to have extended much further to the east at that period. This is scarcely the place for discussing conclusions that have been made known in a larger work with the evidence stated; but we may call attention to the fact that no furrows, striæ, or polished surfaces are anywhere to be found there, and the evidence, therefore, is not of that positive character that so remarkable a conclusion would seem to demand. The country is so little known that at any time fresh observations might modify any conclusion drawn from negative or secondary evidence.

*To the Victoria Falls of the Zambesi.* Translated from the Original German of Edw. Mohr. By N. D'Anvers. (London: Sampson Low and Co., 1876.)

In noticing the German edition of this work (NATURE, vol. xii. p. 231) we said that it was well worth translating into English, and we are therefore glad to see that Messrs. Low and Co. have put it within reach of the English reading public. The work is full of interest, and is a really valuable contribution to our knowledge of the region traversed—from D'Urban to the Victoria Falls of the Zambesi. Mr. D'Anvers has done his work of translating very satisfactorily, judiciously omitting a few passages which deal with matter already brought before English readers. All the original illustrations seem to have been retained, including the brilliant but tasteful chromo-lithographs. A new route-map, on a larger scale than the one in the German edition, has been constructed for this translation.

*Sport in Abyssinia, on the Mareb and Tackazee.* By the Earl of Mayo. (London: John Murray, 1876.)

THE Earl of Mayo seems to have published this book to show intending sportsmen in Abyssinia how not to do it. His expedition, organised solely for sport, was rather an unfortunate one. Very little sport was obtained by the author, and ere he had well set to work, he was taken so ill that he had suddenly to return to Massowah to catch a homeward-bound steamer. The work contains some shrewd observations on Abyssinian people and affairs, and will no doubt be appreciated by sportsmen.

*Health in the House.* By Catherine M. Buckton, Member of the Leeds School Board. Sixth edition. (London: Longmans and Co.)

THIS useful book consists of twenty-five lectures on Elementary Physiology in its application to the daily wants of Man and Animals, delivered to the wives and children

of working-men in Leeds and Saltaire. It will be found a great help to national schoolmasters and others engaged in education, who may desire to give their pupils clear ideas of the structure and life of man, together with a practical knowledge of the necessity of fresh air and cleanliness in their daily life. At the end of the book will be found questions on some of the lectures, a list of works useful for preparing lectures, and tables of foods most suitable for health.

#### LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

Corrections in the Address of the President of the Royal Microscopical Society (Vol. xiii. p. 332)

By some unaccountable oversight in copying out the data for calculating the number of molecules of liquid water, the factor expressing the specific gravity of the vapour of water was omitted, and afterwards overlooked. The number of atoms of a gas should really be multiplied by  $\frac{2}{3} \times 770 \times \frac{1}{6239} \times \frac{1}{2} = 617$ . But moreover, on reflecting on the relative reliability of the determinations by the various authors of the number of the atoms in gases, it appears that in taking the mean, greater weight ought to be allowed to that by Clerk-Maxwell, since founded on more recent and accurate data. If his results be considered as of equal value to those of Storey and Thomson (combined), the mean would be reduced to so nearly the same extent as the molecules of liquid water would be increased by the above-named correction, that the numbers given in the address may be considered to be as good an approximation to the truth as can be determined in the present state of the question, and none of the general conclusions need be modified. H. C. SORBY

#### Vivisection

I HOPE that you will permit me to call attention to a passage in the "Statement of the Society for the Protection of Animals liable to Vivisection on the Report of the Royal Commission on Vivisection" (published by the Society, 1, Victoria Street, Westminster). Under the heading "Extracts of Evidence on Extension of the Practice of Vivisection, and Abuses connected therewith," the following words occur (p. 22):—

"Dr. Crichton Brown describes:

"Forty-six animals sacrificed in trying if chloral were antagonistic to picrotoxine. Cases of poisoning by picrotoxine are of very rare occurrence. Twenty-nine animals used in Ferrier's series."

I will leave your readers to judge of the kind of impression which this passage tends to give; I will only ask, is it in accordance with the ordinary principles of justice that the following important details (also gathered from Dr. Crichton Brown's evidence) should be entirely omitted by the compilers of the Statement?

1. "Picrotoxine is sold in large quantities as Barber's poisoned wheat for the destruction of birds" (3218). Concealed in an edible substance, this poison must therefore pass largely through the hands of an ignorant and careless class of persons.

2. Dr. Crichton Brown "succeeded in proving that after a poisonous dose of picrotoxine has been given to an animal, if a dose of chloral be given subsequently the animal will recover" (3163).

3. The operation to which the animals sacrificed were subjected "consisted in the introduction under the skin of a little fluid by means of a perforated needle . . . the pain is infinitesimal" (3218).

4. The after effects are convulsions and death, and "convulsions themselves are not necessarily painful" (3218). This is proved by direct and distinct evidence.

5. In consequence of the use made of Barber's poisoned wheat, "numbers of animals die of it in convulsions every year" (3218). It is almost incredible that a course of action which may result in saving human life should be mentioned in the manner above quoted; while a course of action identical as far as the ultimate effect on the animals is concerned, in which