

the description of the underground workings is scarcely sufficient to enable the reader to appreciate exactly the value of the author's theoretical conclusions.

H. B.

OUR BOOK SHELF

Den Norske Nordhavs-Expedition, 1876 to 1878. XIII. Spongiadae. Ved G. Armauer Hansen. 25 pp., 7 plates, 1 map. (Christiania, 1885.)

THE thirteenth report on the zoological collections of the Norwegian North Sea Expedition treats of the sponges, and is by one who, though well known as a student of other branches of zoology, has not, we fancy, been hitherto known as a spongologist. We do not know whether we may not associate with this fact the somewhat alarming percentage of new species which he describes; of the forty-five enumerated, thirty, or two-thirds of the whole, are new; many of the species, among which it is interesting to note there is a new *Hyalonema*, *H. arcticum*, are very briefly described; on the other hand, the figures, as in other parts of this report, are well executed, and will be of considerable assistance in the detection of the species by other workers. The author was, unfortunately, unable to obtain any preparations in which he could trace out the canal system, or the structure of the soft parts, and he has, therefore, confined himself to an account of the spicules. With regard to these he has, we are glad to note, made use of the stenographic system which was invented by Dr. Vosmaer; any and every proposition for abbreviating the descriptions of species ought to be tested, for the abundance of "literature" is a very threatening danger to science. It is not likely that all the methods that have been from time to time suggested will be found to be useful; no one, for example, has followed the two methods proposed by the late Prof. Garrod, or that adopted by Prof. Jeffrey Bell in the description of species of starfishes; on the other hand, Dr. Herbert Carpenter has taken up and improved the method suggested by Prof. Bell for the species of Comatulids, and will, we understand, adopt it in his forthcoming *Challenger* Report. The chief objections to formulæ as applied either to species, or spicules, or other organs, are, of course, that a particular method has to be learned, and that, if it is too brief, it tells us too little. The latter, for example, is true of the Owenian method of formulating the dental characters of Mammalia; it tells us that, while *Gymnura* has eight premolars above and below, *Erinaceus* has six above and four below, but it does not tell us which are missing in the latter. If we desire to register our knowledge on this point, we must make use of the more elaborate system devised by Prof. Flower and Dr. Dobson. As to the former objection, we must bear in mind that some spicules have had such names as floricomo-hexradiate, or patento-ternate, applied to them, and we can well imagine that a formula may well be accepted as a not unpleasant alternative.

The Hunterian Oration. Delivered at the Royal College of Surgeons, by John Marshall, F.R.S., &c. (London: Smith, Elder, and Co., 1885.)

NOT only the wide range and perennial importance of the work of John Hunter—the surgeon and anatomist whom the clear judgment of Buckle places second only to Aristotle among inquirers into organic nature—but also the fertility of human ingenuity, is shown by the fact that, for nearly a century, every year has seen some eminent surgeon discourse with more or less variety and freshness upon the life and achievements of this great man.

The novelties of Mr. Marshall's treatment of the well-worn theme are, first, recounting the life of his hero backwards in successive decennia from his grave to his

cradle; and, secondly, bringing Hunter into the modern world of science, and imagining the way in which he would be affected by modern methods and modern results. No doubt he would be delighted to see the splendid collection which has grown out of his "Hunterian Museum," but whether he would be more pleased or puzzled by the technics of histology and the elaborate machines of a physiological laboratory may perhaps be doubted.

An orator must be an eulogist, and in this case there is ample room for praise; but it would be a valuable contribution to criticism if Mr. Marshall, or some equally qualified man, would discuss Hunter's achievements as an anatomist, compared with Meckel and Cuvier; as a surgeon, with his contemporary Pott, and his successors Astley Cooper and Brodie; as a physiologist with Haller and Bichat; and as a naturalist—on the broad ground which includes human and "comparative" anatomy, normal and morbid structure, "the physiology of disease" (to use Hunter's own phrase), as well as that of health—with the only successor he has had, or, we may predict, ever will have, the illustrious Johannes Müller.

To such a critic might be suggested as shades in the intellectual portrait, Hunter's neglect of the aid of magnifying glasses such as were used to good effect before him by Leewenhoeck and Grew; his want of learning and cultivation, with a certain consequent narrowness of mind; and such occasional obscurity of language as may not unfairly be taken to imply some obscurity of thought. "Definitions," he says, "of all things on the face of the earth are the most cursed." But may not the use of terms without definition sometimes excuse a choleric word?

After the most exacting criticism, there is no question that Hunter's name would remain one of the glories of this country—to be mentioned next to those of Harvey, Newton, and Darwin. It is therefore most fitting that his fame should be kept green by the annual piety of successive orators, and of these Mr. Marshall is a worthy compeer.

LETTERS TO THE EDITOR

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[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.]

Notes on the Action of the Wimshurst Induction Machine

AN interesting notice on the different influence-machines now in use occurs in *NATURE*, vol. xxviii. p. 12. Of these ingenious instruments, that lately devised by Mr. Wimshurst is likely to recommend itself beyond others, on account of the ease with which it may be excited, even in a damp atmosphere, and the high tension of the electricity discharged from its accumulators.

The following remarks lay no claim to originality, but they may nevertheless afford some interest to those who would witness its effects at a small pecuniary outlay; indeed its construction is well within the powers of the amateur mechanic.

Makers advertise sparks of fabulous length from comparatively small machines, but dense discharges of $4\frac{1}{2}$ inches may be obtained under favourable circumstances from disks of 15 inches diameter, if care be taken adequately to insulate the collecting apparatus. It is obvious that an *unassisted* spark of 9 inches cannot be produced from plates whose minimum air-spaces of insulation do not exceed $3\frac{1}{2}$ inches. The weakest part of insulation in these machines is usually between the metal inductors and the attachments of the driving-gear and spindle. In the dark, beautiful brushes of light flash across these spaces, and thus they point where the electricity leaks away from the