

## OUR BOOKSHELF.

*Miners' Nystagmus: its Causes and Prevention.*

By Dr. T. Lister Llewellyn. With a preface by Prof. J. S. Haldane, F.R.S., and a legal appendix by Douglas Knocker. Pp. xix+158+plates. (London: *The Colliery Guardian Co., Ltd.*, 1912.)

MINERS' nystagmus is a disease which incapacitates a large number of coalminers, and is estimated by Dr. Lister Llewellyn to cost the country 100,000*l.* a year. It is characterised by rapid involuntary movements of the eyes, associated with defect of vision, photophobia, and night-blindness. Many theories have been brought forward to account for the disease. Of these the myopathic theory has been most supported in England, chiefly owing to the writings of the late Mr. Simeon Snell, of Sheffield. The work is carried on in constrained positions, often necessitating prolonged exercise of the extra-ocular muscles in an abnormal manner. It is now generally admitted that undue weight was attached to this factor, and attention has been specially directed to the view that the real cause is the poor illumination, a suggestion first made by Romi e, who, however, thought that excessive accommodation was an essential concomitant.

Dr. Llewellyn, as a former medical officer to a South Wales coal and iron company and as Tyndall Research Mining Student of the Royal Society, has had excellent opportunities for investigating the disease. He has used his opportunities to the full, and his work is a model of what such a research should be. He has shown conclusively that miners' nystagmus is practically limited to coal mines in which safety lamps are used, those in which naked candles are employed being exempt except for cases which have been transferred from safety-lamp mines. He has made exhaustive inquiries into the conditions of work and the illumination at the coal face. The estimations of illumination appear to have been made with great care and accuracy, and the same may be said of the clinical investigations. In addition to his own researches, his book contains an admirable *r sum e* of the opinions and work of previous writers on the subject. The criticisms are judicial in tone, and the exposition of his own views allows the facts and arguments to carry conviction without undue stress. The work is of interest not only to those specially associated with the mining industry, but also to the physician and physiologist. We consider that Dr. Llewellyn has accomplished a difficult task with distinguished success.

*Catalogue of the Lepidoptera Phalaenae in the British Museum.* Vol. xii.: Catalogue of the Noctuid e in the Collection of the British Museum. By Sir George F. Hampson, Bart. Pp. xiii+626. (London: Printed by Order of the Trustees, 1913.) Price 17*s.* 6*d.*

THE subject of this volume of the "Catalogue of Moths" is the classification of part of the Noctuid subfamily Catocalin e. The remaining portion of the subfamily, together with the small subfamilies

Momin e and Phytomatrin e, will appear in vol. xiii. The Catocalin e are represented in the present volume by sixty-three genera and 643 species, and are characterised as follows:—Vein 5 of the hind wing is developed fully and arises close to the lower angle of the cell; the eyes are smooth and not overhung by "cilia"; the mid tibi e are always spined, and the fore and hind tibi e may also be armed similarly. The subfamily is a modification of the Quadrifid section of the Noctuid e; it is distributed fairly evenly in the temperate and tropical zones, but has few arctic or alpine forms.

*Volcanoes: Their Structure and Significance.*

By T. G. Bonney. Third edition. Pp. 379. (London: John Murray, 1912.) Price 6*s.* net.

PROF. BONNEY'S well-known volume was reviewed at length in the issue of NATURE for May 11, 1899 (vol. lx., p. 27), at the time of its first publication. Many minor alterations have been made in the present edition, and several paragraphs inserted dealing with volcanic eruptions which have taken place recently. The chapter on the theories of volcanoes has been considerably modified so as to incorporate the results of research accomplished during the last fourteen years. Some new illustrations also have been added.

## LETTERS TO THE EDITOR.

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## The Radio-elements and the Periodic Law.

AT a meeting of the Royal Society on February 27th, Mr. F. Soddy made a verbal communication which was published under the above title in the *Chemical News* of the following day. The importance of the conclusions which are drawn justifies an examination of the evidence on which they rest. I do not approach the question unsympathetically, and I am quite willing to take some risks, but, when asked to accept a theory, I like to draw a distinction between a guess, a reasonable generalisation, and a well-established conclusion. If Mr. Soddy only wishes to put forward a theory which is not inconsistent with the facts so far as they are known at present, I have nothing to say, but if he claims anything approaching to experimental proof, some critical comment may be forgiven.

Mr. Soddy believes in the existence of a number of bodies which differ in molecular weight but "are non-separable by any known process"; these are also supposed to have identical spectra. Among "known processes" I count gravitation, diffusion, and mechanical processes, such as separation by centrifugal forces, among which diffusion, perhaps, is the only available one. Is there any reason to suppose that molecules which, ex hypothesi, differ in mass, cannot be separated by diffusion? Some of the bodies concerned are gaseous, others no doubt are volatisable, and though diffusion may not act very effectively, owing to the close approximation of the densities, the presumption is that the molecules, having different masses, travel with different speeds, and that it is