

Our Bookshelf.

Meteorological Office: Air Ministry. British Rainfall, 1923. The Sixty-third Annual Volume of the British Rainfall Organisation. Report on the Distribution of Rain in Space and Time over the British Isles during the Year 1923, as recorded by about 5000 Observers in Great Britain and Ireland. (M.O. 269.) Pp. xxii + 256. (London: H.M. Stationery Office, 1924.) 15s. net.

AN analysis of the rainfall for the year is given covering the whole of the British Isles. The year was decidedly wet, being the wettest year since 1916 except in Ireland. The largest excesses occurred in the west. There were more days with rain than in any other year since comparable statistics began in 1903. The average monthly rainfall during the year over the British Isles as a whole varied from 6.5 in. in February to 1.4 in. in June; only two months, March and June, showed considerable deficiencies. February 1923 is said to be probably the wettest February on record. Rainfall maps for the British Isles are given for each month, as well as for the summer and winter seasons and for the year.

Examples of dramatic weather during the year are given, these occasioning floods in different parts during July and November. Serious floods occurred at Carrbridge in Inverness-shire on July 8, and on the night of July 9-10 a memorable thunderstorm was experienced, and about 7000 flashes of lightning occurred during 6 hours in London and the suburbs, while 4.55 in. of rain fell in Sussex.

A special article is given on the fluctuations of annual rainfall; a comparison is made of different groups of 35 years in the period 1868 to 1921, and also with the standard period 1881 to 1915, the 35 years' average in general use in the Meteorological Office. The averages for the different periods of 35 years show a good general agreement.

C. H.

Bearbeitung einheimischer Tiere. Herausgegeben von Prof. Dr. E. Korschelt. Erste Monographie: Der Gelbrand *Dytiscus marginalis* L. Erster Band. Pp. v + 863. Zweiter Band. Pp. vii + 964. (Leipzig: Wilhelm Engelmann, 1923-24.) n.p.

THESE two bulky volumes constitute the first of a series of monographs dealing with the fauna of Germany, the subjects selected forming a series of "types" of the animal kingdom for study in the university courses. Probably no better subject for the study of insect structure and metamorphosis than the "Gelbrand" could have been selected. Not only is the Great Water-Beetle hardy and easily kept in captivity, with a comparatively rapid metamorphosis, but it illustrates remarkably well the specialisation of a primitive type in response to the special circumstances of its environment.

Vol. 1 deals with the skeletal system, its appendages and sense organs, and the nervous, muscular, respiratory and circulatory systems of both adult and larva. Vol. 2 completes the structural treatment with the consideration of the fat-bodies, and the alimentary and reproductive systems, passing on to development and metamorphosis and various aspects of its bionomics. Finally, there are two very interesting chapters on its early literature and systematics. After each chapter is given a very full bibliography for that particular part

of the subject. Both volumes are abundantly supplied with excellent illustrations.

Owing to unavoidable delay in the appearance of the work as a whole, it was felt that the results of certain pieces of research should be separately published in anticipation, so that some of the chapters in the complete work are practically reprints of papers previously published by Dr. Korschelt or his collaborators.

In view of the great attention to detail evidenced throughout the work, it is a little surprising to find no mention of the "pigment-spot" on the wings, an organ that has recently been claimed to serve a stridulatory function; neither, indeed, do we find any reference to the well-known stridulatory powers of the insect, and but the briefest mention of Finkler's experiments on the transplantation of the head from one individual to another.

An index would have facilitated reference, though its lack is to some extent compensated for by a very full list of chapter headings and subheads for each volume.

A History of Bleaching. By S. H. Higgins. Pp. viii + 176 + 9 plates. (London: Longmans, Green and Co., 1924.) 10s. 6d. net.

AN investigation into the early history of any industry is of much interest, and may be of considerable value in throwing light on modern practice. Sometimes, as in the case of the bleaching of textiles, fairly detailed records of ancient processes are found, but it is not possible to compare the results obtained then and now, because a fabric bleached even one hundred years ago inevitably will have become more or less discoloured. On the other hand, there are many cases in which we can examine the results of ancient craftsmanship, but have no knowledge of the methods by which they were produced.

The demand for a "perfect" white on cotton, linen, and other textiles is comparatively modern. From an æsthetic view-point, the slightly brownish or greyish tint of white, which must have been the ultimate product of the bleacher before the introduction of chloride of lime, is more pleasing than the more luminous bleached white of to-day; which is probably the outcome partly of trade competition and partly of the requirements of some modern methods of textile printing.

The development of bleaching processes has taken place along two main lines, chemical and mechanical, and Mr. Higgins in his book traces the improvements due, in the first place, to the increase of chemical knowledge, and secondly, to the necessity of dealing with larger quantities of material. Chemical engineering received its early stimulus through the exigencies of the alkali industry and its offshoots, and thus early turned its attention to bleaching and the allied industry of calico printing; the mechanical developments in dyeing processes coming much later.

With the single exception of the introduction of bleaching powder about the beginning of the nineteenth century, there has been no fundamental change in bleaching processes since a very early period. The magnitude of the industry at the present time is indicated by the statement in the last paragraph of the book that about 2,000,000 miles of cloth are bleached