

modern views on beauty of the female form, occupy the next section.

The average weight of the new-born infant, the greater decrease in weight during the first few days of the male than the female, and of the first-born than the children of multiparæ, along with the subsequent daily increase, is given accurately and in an interesting and comprehensible style.

Although adopting weight *faute de mieux* as a method of comparing brains, the fact that the intellectual qualities of that organ do not vary directly with its mass is recognised, and illustrated by reference to individual cases. Unfortunately, when comparing the results of various observers, no statement is made as to which, if any, membranes are included with the nervous substance.

The book, admirably adapted for students acquainted with anthropometric methods, comprising many original observations, deals mainly with measurements and weights. The absence of instruction as to how they are obtained, detracts from its value to beginners; while the pathological and anatomical details scarcely recommend it for popular instruction.

*Beschreibung der Hauptmethoden, welche bei der Bestimmung der Verbrennungswärme üblich sind.*

By W. Longuinine. Pp. 112, with 4 copper-plates and 21 figures. (Berlin: R. Friedländer und Sohn, 1897.)

THIS excellent work had already been printed in Russian when Berthelot's "Traité pratique de Calorimétrie chimique" appeared. The German translation may, however, be welcomed, because its scope differs considerably from that of Berthelot's book. The estimation of heat of combustion is alone dealt with by Longuinine, the rest of thermo-chemistry being left untouched. One of the results of discussing only a part of a subject is that, as far as it goes, this book is remarkably complete. Besides a full description of the calorimetric bomb and the precautions to be observed in its use, an account is given of the older methods of estimating the heat of combustion, which are still used to some extent, owing to the high price of Berthelot's bomb. Under certain conditions, duly set forth in the text, these old methods give exact results. The illustrations are capital, though unfortunately not drawn to scale, and the whole volume is handsome. By some strange mischance, it is not furnished with either an index or a table of contents.

*Cheltenham as a Holiday Resort.* Part I. *The Neighbouring Hill-Country.* By S. S. Buckman, F.G.S. Pp. 100. (Cheltenham: Norman, Sawyer, and Co., 1897.)

THE geology and archæology of Cheltenham and the neighbourhood are described in this book in a way which will induce the reader to make further inquiries into the why and the wherefore of the interesting characteristics referred to. The book will add to the enjoyment of rambles in the country around Cheltenham, and will be of special value to those who visit the district in search of scientific information. The author has himself made investigations of Cotteswold geology, and his book contains the results of original observations as well as references to the work of others.

*Nature's Diary.* Compiled by Francis H. Allen. Eight photogravures. (London: Gay and Bird.)

ON the left-hand pages are literary extracts, chiefly from Thoreau; on the right, blank paper for the events of the natural year, with here and there a printed note. The naturalist who uses the book must give it all its value. He would do much better to buy a note-book and a copy of Thoreau's "Walden." This is a book for show and not for use. The eight photographs from nature are capital.

L. C. M.

## 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 intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

### Protective- and Pseudo-Mimicry.

I HAVE just been reading the presidential address to the Entomological Society on the subject of mimicry, and one or two statements with regard to mimicry among the *Heterocera* seem to me to stand in need of correction. It is stated on the authority of Colonel Swinhoe that *Teracolus etrida* is accurately mimicked by the geometer *Abraxas etridoides*, and that this supports his contention that the species of *Teracolus* are protected.

I described *Abraxas etridoides* from a single specimen taken on the Palni Hills, South India, by M. Elwes, pointing out its resemblance to the *Teracolus*, which also occurs in South India. This was quite enough for such an ardent student of mimicry as Colonel Swinhoe to base the above statement on, without knowing any more of the species, and probably without ever having seen it, the type being in a private collection. I have, however, lately received more specimens, and been able to learn its habits from collectors on the Palnis, where it rests in damp woods during the day on the plateau, as is the habit of the genus, whilst the *Teracolus* does not occur on the hills, but flies in the hot sun of the plains 6000 feet below; the fact being that all the species of the genus *Abraxas* secrete acrid juices and are distasteful, whilst *Teracolus* is not protected.

Again, it is stated that Danaid butterflies are mimicked by three genera of the *Chalcosia* group of *Zygenide*. These again secrete strong acrid juices, as does the whole family to which they belong, and they are so distasteful that hardly any other animal will touch them; their habits, too, are extremely different from those of butterflies, and no one who knows them in life could possibly believe in protective mimicry between the two groups. The *Chalcosias* sit about on tree trunks, but are very easily disturbed, when they fly with an extremely wavering flight for a short distance and then settle again. The only exception in this habit known to me is the Papilio-shaped genus *Hista*, which flies high over forest trees backwards and forwards with wavering flight, resembling that of the Vapourer Moth in our London squares, and looking so unlike butterflies that not even the veriest tyro could mistake them, besides being about one-third the size of any *Papilio*. Both these cases, therefore, will, I think, have to be relegated to the rapidly swelling ranks of museum-made mimicry.

Protective mimicry entirely depends on community of habit, and it used to be considered that accurate field observations were necessary to establish it. Now that it has been degraded to the matching of specimens in a drawer like ribbons in a shop, being a nice easy subject to philosophise on and entailing a minimum of work, it has lost all claim to serious consideration.

February 8.

G. F. HAMPSON.

### Oat Smut as an Artist's Pigment.

THE deep brown or sepia-coloured spore dust often seen on cereals, and arising from the presence of a fungoid growth, is sufficiently rich in colour to become useful as a pigment for the artist. The colour obtained from smutty oats, for example, is of a deep rich umber shade, sometimes approaching to sepia in tone. Satisfactory experiments were made regarding its fastness to light and atmospheric influences. Specimens of the pigment painted on paper as a water-colour were exposed to direct sunlight for several months; and after this rather severe trial, they were compared with unexposed duplicate specimens. Little change in the appearance of the colours was apparent. With mild diffused daylight—such as that of an ordinary, well-illuminated room—the colour remains quite fast and unaltered. Experiments were made on a small scale with oat smut pigment, and the results seemed highly satisfactory. Several grams of the dry spore dust were collected from smutty oats, and it was found that twelve heads of such oats yielded six grams of the brownish-black dust. This powder, being of a dry and light nature, had first to be moistened with a few drops of alcohol, then mixed with gum and water to form a water-colour pigment. In its deepest tones it is of a fine sepia shade, deepening to a brown-black. On diluting with water or Chinese