

locality within the region for each species is recorded; thus, as so large a number of new species are described, it is evident that the volume will be an indispensable necessity to every future student of the Neotropical Adephaga. It contains moreover what is practically a new classification of the family Carabidæ. Its author has long been known and respected as an entomological systematist, for it is now nearly twenty-five years since he inaugurated a rational classification of the Rhopalocera or butterflies. He has been recognised since the death of Baron Chaudoir as the one entomologist possessing an extensive yet intimate knowledge of the Carabidæ of the whole world. But Chaudoir, though he published a crowd of valuable memoirs on the family, died without leaving behind him any general work on its classification. It is therefore a matter for congratulation that the author of this beautiful volume has presented us with a systematic arrangement as complete as the faunistic nature of the work permitted; it is one that requires, indeed, comparatively little supplement from the faunæ of other countries to render it quite complete. Assisted by the labours of Latreille, Dejean, Lacordaire, Schiödt, Leconte, and Chaudoir, and availing himself largely of the valuable work recently published by Horn, he has been able to form of the numerous sub-families, which are the equivalents of Horn's tribes, aggregates of greater importance, which he terms subdivisions. The family Carabidæ is of such enormous extent—12,000 species being known, with a vast number of others to come—that the necessity of some series of intelligible aggregates subordinate to the division, but superior to the tribe or sub-family, is undeniable, and Mr. Bates' attempt to furnish such a series is therefore of great value, even though his subdivisions are at present capable of only loose and partly traditional definition. The division II, of Carabidæ comprises eight of these subdivisions based chiefly on the form and sexual clothing of the male tarsi and on the form of the apices of the elytra. It is evident that the classification of such an enormous complex as the Carabidæ will require for its perfection the combined efforts of many naturalists, and if Mr. Bates's subdivisions are sufficiently natural they will be gradually evolved and perfected by others, and we may therefore indicate that the first of them, viz. the *Diversimani* or *Pedunculati* seems scarcely tenable. The variability of structure of an organ amounts only to a negative, not a positive statement, and is therefore useless for practical purposes; and if we add to this, that other characters now considered in the Carabidæ to be of much importance, such as the number of glabrous joints at the base of the antennæ, are also subject to much variation in the aggregate, it is evident that a change in its composition is inevitable. We would also venture to call in question the propriety of treating the *Pseudomorphinæ* as merely a sub-family of *Truncatipennes*. Horn accords them the much higher rank equivalent to the "division" of Bates, and as they are to a considerable extent synthetic between the universally recognised two great divisions of Carabidæ, it is probable that this will, from a systematic point of view, prove nearly correct. Bates, however, only expresses himself with considerable hesitation on this point, and as the group is chiefly Australian, it will devolve on some student of the Australian fauna to work out this ques-

tion of primary importance to the classification of the Adephaga.

The thirteen plates with which the volume is adorned supply coloured figures of no less than 325 species representing upwards of 100 genera. The figures are lithographs coloured by hand, and though they are, we believe, about the best that can be obtained in this country at present, they are certainly not equal to some of the refined lithographic figures of insects that have in recent years been produced in Austria; they are, however, so good as to enable the species to be recognised from them with certainty, and will therefore be a very welcome boon to entomologists.

Messrs. Godman and Salvin, the editors of the work, are to be congratulated on this satisfactory completion of the first part of the Coleoptera. No faunistic work that has hitherto been published gives anything near to so complete an idea of the vast wealth of tropical nature in insects, it being usual for only a few of the more conspicuous forms of this class to be described or illustrated; and if the *Insecta* can be completed in a manner at all corresponding to this first instalment, we shall have a work quite without rival in its way, and that will be pointed out as an illustration of what can be accomplished in our country and generation by the liberality and energy of private individuals. The assistance rendered to science by the publication of this volume has been supplemented by the presentation to the nation of the magnificent collection of *Geodephaga* accumulated by Mr. Godman for the purposes of the work; it consists of 986 species, and nearly 8000 specimens, something like 400 of the species being represented by the typical examples, and is now in the British Museum of Natural History at South Kensington.

D. S.

#### OUR BOOK SHELF

*Outlines of Natural Philosophy.* By J. D. Everett. (London: Blackie and Sons, 1885.)

"THIS book is intended to supply the widely-felt want of a work at once easy enough for a class reading-book and precise enough for a text-book." "The woodcuts with which the work is profusely illustrated are not thrown in for mere ornament, but have been carefully *designed* and selected for the elucidation of the text, and are fully explained." Had it not been for the single word which we have put in italics in the second of these extracts from the Preface, we should have at once concluded, from its general tenor, that this work was written to explain a long series of plates (most of them unmistakably French) which have already done duty in various elementary books. We were reminded of Warrington's exhortation, when he brought the proof-plate to Pendennis:—"Now, boy, here's a chance for you. Turn me off a copy of verses to this."

These plates form a wonderful collection. Some are really excellent; not only from the scientific, but even from the artistic, point of view. In others, notably Figs. 88, 93, 94, 101, 102, 130, 160, the artistic predominates over the scientific to such an extent as to render them positively misleading to the beginner. Thus in Fig. 88 the shadow of a sphere, cast by a luminous point on a plane, is drawn in such a manner as to outrage all the Laws of Projective Geometry; and the pleasing sketch Fig. 93 can only be explained (if at all) by a most peculiar state of the air over the still water. Thus, the eaves of a house are depicted as seen by reflection at a portion of the water-surface, from which (as the drawing

shows) they are absolutely concealed by a hedge, while the image of the sloping roof above appears exactly as the roof itself does to the distant spectator who is nearly at the same level! Such at least must be the case, unless we make the audacious supposition that the more distant parts of this picture represent a flat surface, the drop-scene of a theatre!! Let the reader try to put his hand and its images in the aspects shown in Fig. 94; or let him try, as in Fig. 101, to see by *all but direct* reflection in a concave mirror an object situated far beyond its rim! On the other hand there are some wierd or Rhadamanthine scenes (as Figs. 134, 135, 138); and a couple at least (Figs. 99, 139) quite Lavaterian in their graphic realisation of human imbecility.

With such a frame-work or skeleton what could be expected of the book? Certainly not much; and it is so far to the credit of Prof. Everett that he has realised a fair amount of that little. But to what class of readers this book can possibly be of use, is one of those unfathomable questions which only a Mental Philosopher dares to attack. There is not, so far as we have seen, any *reasoning* in the book. Statements merely, and illustrated by pictures! To each paragraph, when the imprint of its figure-nucleus or *cliché* has been exhibited, we might append a slight but important variation of the usual mathematical formula:—

#### QUOD ERAT MONSTRANDUM!

*The Moon, Considered as a Planet, a World, and a Satellite.* By James Nasmyth, C.E., and James Carpenter, F.R.A.S., late of the Royal Observatory, Greenwich. With 26 Plates and numerous Woodcuts. (London: Murray, 1885.)

THIS is a third edition of a book which we have already reviewed in our columns. The two previous editions were issued in the quarto form, the present one is in the octavo. It is well known that this work contains the most exquisite illustrations of lunar phenomena extant. They chiefly consist of photographs of models which, when placed in the sun-light, faithfully reproduce the lunar effects of light and shadow. Lovers of astronomy are much indebted to Mr. Nasmyth for his brilliant idea, and it is to be hoped that this re-issue in a cheaper form will bring this admirable volume within the reach of many who have previously been debarred from perusing it.

#### 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.*]

[*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.*]

#### Weather Forecasts

IN your number for November 2, 1882, you were kind enough to insert a letter from me on the subject of "Weather Forecasts." The letter was occasioned by what appeared to me a conspicuous failure in the forecast which was published in the newspapers for October 24. In consequence of communications which followed the publication of my letter and my own consideration of the subject, I was led to move in the House of Lords for a Return of the "Storms which have visited the British Islands between January 1, 1874, and December 31, 1883, and of which no warning has been issued from the Meteorological Office; with a Notice of the Quarter from which each Unwarned Storm has reached the Coast." This Return, which was ordered to be printed August 7, 1884, is in some respects a remarkable document. It contains a record of nearly 120 unwarned storms, or an average of nearly 12 in each year. Large as this number appears to be, I was not encouraged by the

correspondence which I had with several experts to hope that much could be done to improve the system of forecasting, and I have taken no further action.

One point, however, connected with the Return appears to me to deserve notice.

On examining it I found to my surprise that the storm of October 24 was omitted altogether. This seemed to me to be strange; but my friend, the Rev. F. Redford, a well-known local meteorologist (since deceased), gave me some technical explanation of the omission with which I was compelled to rest content. In the interesting Blue-Book, however, entitled "Principles of Forecasting by means of Weather Charts, by the Hon. Ralph Abercromby," issued by the authority of the Meteorological Council, I find the failure connected with the great storm of October 24, 1882, duly chronicled and recognised. These are Mr. Abercromby's words (p. 91):—

"Our last illustration will be that of a kind which fortunately rarely occurs, viz. the sudden formation of a cyclone in an unexpected position, which entirely upsets all forecasting. In Fig. 62 [the figure is of course here omitted] we give a chart for 6 p.m., October 23, 1882. In it we see the most familiar features of the westerly type of weather, and though the barometer was falling over the Bay of Biscay and rising over Scotland, there was no reason to expect that the ordinary sequence of that kind of weather would be disturbed, that is to say, that west and south-west winds, with rather showery weather, would prevail. Accordingly the following forecasts were issued."

Then follows the table of forecasts as given in my letter before referred to, and ending with "Warnings, none issued."

"When we come to look, however, at Fig. 63 [this figure here omitted], the chart for 8 a.m. the following morning, we find that a small well-defined cyclone had formed during the night over the English Channel, which moved during the day towards north-north-east, and thereby produced continuous rain with complete shifts of the wind through 180° in many parts of the country, so that the forecasts issued were a complete failure."

Now, observe Mr. Abercromby's practical conclusion:—

"It may be well to consider how failures of this sort may be guarded against. The answer undoubtedly is, by taking observations at shorter intervals than fourteen hours, as on this occasion. On this particular night a halo—a sure sign that the cyclone had begun to form—was seen near London at 10 p.m., and it is therefore certain that if the observations could have been taken at 11 p.m., or midnight, such a complete failure might have been avoided."

These words seem to imply that something more might be done to give warning of storms. If we undertake to give these warnings, we ought not to let any question of expense stand in the way of making the warnings as complete and as correct as possible. An unwarned storm occurring on an average once a month is a serious consideration. It is not worthy of the greatest maritime nation in the world to be neglectful or niggardly in this matter.

H. CARLISLE

Rose Castle, Carlisle, November 20

P.S.—I forward herewith a copy of the Return of "Unwarned Storms."

#### Scandinavian Ice-Flows

REFERRING to the map in Croll's "Climate and Time," which is reproduced in his "Climate and Cosmology" (p. 133), and which traces the ice-flows of the Glacial period from the two sides of the Scandinavian peninsula, it will be seen that the said flow bifurcates in the North Sea, and that the bifurcation is at the position of the Dogger bank. I should be glad to be informed whether this fact has been observed or commented upon in any geological work.

J. D. HOOKER

Kew, November 23