too, American writers are dismissed without notice, save a passing allusion to F. A. Walker. Carey's theories are occasionally referred to in connection with other names, but no specific account is given of them, nor are other American authors, orthodox or heterodox, better treated. Even a general history ought not, one would think, to have omitted notice of such writers as Lord Lauderdale (whose treatment of Demand and of the Functions of Capital has not received the attention it deserves), R. Jones (whose essay on the Early English Economists might also have been noted in its proper place), Jacob, Stirling (the translator of Bastiat and author of an excellent but well-nigh forgotten work, "Philosophy of Commerce"), Bernhardi (the author of a remarkable treatise on Large and Small Landed Properties), Hübner, H. Thornton, Baumstark, Skarbek, Cieskowski, Saint-Chamans, Esmenard de Mazet, Louis Say, Schön, Canard, and Cazeaux. Dureau de la Malle's work might have been noted in connection with the political economy of the Romans, and De Tracy's name should not have passed without reference to his commentary on Montesquieu.

The translation appears to us generally excellent, and the translator, who is evidently well acquainted with the subject, deserves much credit for the clear and concise English into which she has rendered Prof. Cossa's work.

OUR BOOK SHELF

Avis préliminaire d'une nouvelle Classification de la Famille des Dytiscidæ. Par D. Sharp. (Extrait des *Comptes rendus* de la Société Entomologique de Belgique, Séance du 4 septembre, 1880.)

DR. SHARP is well known to have been long occupied on a work on the water-beetles of the world (at any rate on those of this particular family). The author announces it as ready for the press, and has forwarded to the Belgian Entomological Society a sketch of his ideas of the limits of the family and its classification, from which we learn that about 80 genera are recognised. One of the most important characters, as separating true *Dytiscidæ* from *Carabidæ* and from all other *Coleoptera*, appears to consist of the condition of the metathoracic episternum in connection with the intermediate cotyloid cavities. The family as a whole is divided into two great divisions, termed "*fragmentati*" and "*complicati*," the latter being headed by the anomalous genus *Amphizoa*, the position assigned to which will perhaps not find universal favour. No one can doubt that the book, when it appears, will mark an era in this department of entomology. It is a great pity therefore that Dr. Sharp should throw himself open to the shafts of ridicule in his choice of terms wherewith to designate some of his new genera. We need only allude here to such terms as *Huxelhydrus* (presumably a misprint for *Huxleyhydrus*), *Darwinhydrus*, and *Tyndalhydrus ! ! !* We all honour the names that form the prefixes, and fail to realise the watery connection suggested.

Aid to the Identification of Insects. Edited by Charles Owen Waterhouse. Lithographs by Edwin Wilson. Small 4to, Part I. (London: E. W. Janson, 35, Little Russell Street, W.C.)

MR. WATERHOUSE, whose duties in the zoological department of the British Museum have probably continually caused him to feel the want of some such work as that which he now commences under the above title, has conceived the idea of issuing, at intervals of a month or six weeks, a series of hand-coloured drawings of insects of all orders not previously figured. Every working naturalist knows that a good pictorial representation conveys a more accurate and ready perception of a species than the most elaborate verbal description; and we can imagine no more ready way of widely disseminating a knowledge of the arcana of science than this. Each part is to contain eight or nine plates, each representing a single species, with its generic and specific names, the name of its describer, and a reference to its locality and place of description. The plates can be classified on the completion of a volume (twelve parts), when a title-page and index will be issued.

The first part, just issued, contains some well-executed figures of *Coleoptera*, *Hemiptera*, and *Lepidoptera*. The whole idea is unconsciously a repetition of Prof. McCoy's "Prodromus of the Zoology of Victoria," but with no Government money to back it up.

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 ensure the appearance even of communications containing interesting and novel facts.]

Geological Climates

I HAVE read with much interest Mr. Starkie Gardner's letter in NATURE, vol. xxiii. p. 53.

It is not necessary for me to discuss the question whether I am right in requiring an increase of 20° F. mean annual temperature at Bournemouth in Eocene times, or whether he is right in demanding an increase of only 14° F. to 15°, for I am able to show that the one increase is as *impossible* as the other, on the principles held by Lyell and his followers.

Mr. Starkie Gardner's ideas on the subject of oceanic circulation and its effects upon climate are expressed in the following words:—

"The general cooling effect of incessant oceanic circulation between the North Pole and the Tropics is, I think, scarcely taken into sufficient account; and although it may be contended that conversely the northerly flow of the Gulf Stream mitigates climate, I think that its action in Europe is chiefly in fending off the ice-laden currents from our coasts," &c., &c.

This statement, to my mind, involves so complete a misapprehension not only of the physical causes of oceanic circulation, but also of the whole problem of geological climate, that I shall ask your permission to lay down a few elementary propositions on the subject, which are capable of demonstration.

1. The Gulf Stream of the North Atlantic, so far from acting the part of a policeman in "fending off" imaginary cold water streams from the Polar regions, is the *cause of their existence*. If there were no Gulf Stream there could be no Labrador current of cold water running south. The same statement is true of the Kuro-Siwo of the North Pacific, of the Brazilian current of the South Atlantic, and of the Mozambique curren of the Indian Ocean.

2. If the globe were covered with water, or in the condition of an archipelago pretty uniformly distributed, there would be no exchange of currents between the Tropics and the Poles, and consequently no effect upon climate. Within the Tropics there would be a broad, slow current of warm water moving from east to west, and producing no effect upon climate. In the temperate zones there would be in the northern hemisphere a feeble interchange of south-westerly and north-easterly currents, and in the southern hemisphere a similar interchange of north-westerly and south-easterly currents, both incapable of affecting climate to any sensible degree.

3. If a north and south barrier be constructed to the westward of a locality like the West of Europe; such a barrier as North and South America affords, a gulf stream is, at once, formed, and a corresponding Labrador current running in the opposite direction.[1] The effect of the Gulf Stream is to raise the temperature of the West of Europe to its *maximum*, and the effect of the Labrador current is to depress the temperature of the east coast of North America to its *minimum*.

4. It is *impossible* to suggest any rearrangement of land and water which shall sensibly *raise the temperature of the West of*

[1] The earth's rotation compels the Gulf Stream to impinge on the west coast of Europe, and the Polar current on the east coast of North America.