

occur to future authors to return to the old idea of treating the avifauna of Europe on political ideas, and fencing in the ranges of the birds with political boundaries. Yet it is on these old lines that Mr. Backhouse has written his "Hand-book," and he must be held responsible for a very retrograde step. From his preface, with the short definition of the six zoogeographical divisions of the earth, one would expect to find that he recognized the value of writing on the birds of a well-defined zoological area, but a glance at the countries which he assigns to the Ethiopian and African regions shows that he does not really understand the subject of geographical regions, for, after stating that the Western Palæarctic sub-region includes the countries west of the Jordan, he apparently wishes us to believe that Palestine east of the Jordan belongs to the Eastern Palæarctic sub-region, while Asia Minor is to remain in the western part. We should like to know where the regional differences between Asia Minor and Persia, and, for that matter, Palestine and Syria, begin and end. Arabia seems to be left out in the cold, finding a place neither in the Palæarctic nor in the Ethiopian regions, while the Indian region includes Asia south of the Himalayas with the Indo-Malayan Islands and Formosa, as well as *Madagascar!* With such crude notions as to the limits of the regions which adjoin the Palæarctic, it is not to be wondered at that Mr. Backhouse's ideas of the natural limits of the latter are also ill defined. The mischievous results of these notions of the limits of "Europe" are seen in the appendices of North American birds which are "stated" to have occurred in Europe. Many of the birds mentioned in his list have undoubtedly occurred more than once, and the incompleteness of the plan of the work is shown by their omission from the body of it, because these species may occur again at any time to the "field naturalist" or "collector," for whom the author specially caters, and these will look in vain for them in this "Hand-book." The same with the list of Asiatic and African species which are stated to have occurred in Europe. Many of them have occurred in Europe, beyond the shadow of a doubt, and *Certhilauda duponti* (of *C. lusitanica* the author apparently knows nothing), *Sturnus purpurascens*, and *Falco minor*, have as much right to be considered European birds (even in Mr. Backhouse's acceptance of the term), as *Picus tilfordi* or *Cypselus pallidus* (whose range is not "probably similar to that of *C. apus*," or anything like it).

The main idea running through Mr. Backhouse's "Hand-book" seems to be the same as was exemplified in Colonel Irby's "Key List to British Birds," but we greatly prefer the plan of the latter pamphlet for its method of execution to the more ambitious work of Mr. Backhouse, wherein most of the mistakes of Dresser's "Birds of Europe" are reproduced, even to the omission of the Astrachan Horned Lark (*Otocorys brandti*)! Besides the faults we have noted, all of which are easily capable of rectification in a future edition, there is one cardinal defect in this "Hand-book," and that is in the assumption that the "field-naturalist" and "collector," for whom the author writes, is minutely acquainted with Palæarctic genera, and will know instinctively whether he has a *Hypolais*, an *Acrocephalus*, or a *Lus-ciniola* in his hands.

R. BOWDLER SHARPE.

CRIMINAL ANTHROPOLOGY.

The Criminal. By Havelock Ellis. Illustrated. (London: W. Scott, 1890.)

CRIMINAL anthropology has of late years attracted much attention abroad, where its problems have been largely and often very loosely discussed. Mr. Havelock Ellis performs the useful task of making English readers acquainted with the results. It cannot be said that much progress has been made on the psychological side of the subject since the publication of Despine's "Psychologie" in 1868, but the main conclusions of that author have been abundantly confirmed. On the physical side, numerous dissections and measurements seem to have led to no well established and important fact; they have, however, narrowed the limits within which speculation may legitimately ramble. It is well ascertained that many persons are born with such natures that they are almost certain to become criminals. The instincts of most children are those of primæval man; in many respects thoroughly savage, and such as would deliver an adult very quickly into the hands of the law. The natural criminal retains those same characteristics in his adult life. The author has a very true but not complimentary passage upon the ways of children. He says that the child lives in the present, the desire of the moment blotting out everything else from his mind. That he has no foresight to restrain him from acting according to impulse. That he is a thorough egoist, and will commit any enormity to obtain what he wants. That he is cruel and enjoys the manifestations of pain. That he is a thief for the gratification of his appetites, chiefly of gluttony; and that he is an unscrupulous and often cunning liar, not hesitating to put the blame on innocent persons when his own misdeeds are discovered. In the large majority of our countrymen the savagedom of childhood becomes gradually in part repressed, in part outgrown, and in part transformed. Discipline is one agent, another is the larger growth of sympathetic feelings, and another is the education of a habit of forethought, which prompts selfishness to be wise, and induces many persons to assume throughout life the appearance of virtues for which they have no care, solely through the fear of social or legal punishment. We may freely allow that everybody is liable under some circumstances to fall into crime, for, in the words of the liturgy, "we are set in the midst of so many and great dangers that by reason of the frailty of our nature we cannot always stand upright," but the difference between ordinary persons and natural criminals is that the latter are unable to stand upright even under favourable conditions. There are numerous human beings who have an instinctive aptitude to various forms of ill-doing, no sense of remorse for the sufferings they may have caused, and who possess too little forethought and self-restraint for the fear of retribution to become effective. Abundant evidence of all this is to be found in Mr. Ellis's book, and there seems to be a consensus among experts as to its trustworthiness.

It is easy to understand that ordinary men who are thrown among criminal associates will soon acquire their furtive expression and other peculiarities of demeanour; but after making all allowance for these acquired characteristics there remain certain natural ones that

predominate among all large groups of criminals. These are well set forth by Mr. Ellis, chiefly under the titles of cranial characteristics, physical insensibility, moral insensibility, and emotional instability. A fresh indication of frequent misshape in their heads may be derived from the three composite portraits of criminals (who were by no means of a bad order) that are given in this volume. Here the outlines of the heads of the composites are very hazy, testifying to large and *various* differences in the component portraits. These composites show no prevalence of any *special* deformity in head or features.

The hope of the criminal anthropologist is to increase the power of discriminating between the natural and accidental criminal. He aims at being able to say with well-founded confidence of certain men that it is impossible to make them safe members of a free society by any reasonable amount of discipline, instruction, and watchfulness, and that they must be locked up wholly out of the way. Also, to say, of some others that it would be both cruel and unwise to treat them as ordinary criminals, because they have been victims of exceptional circumstances: they are not naturally unfit, and therefore still admit of being turned into useful members of society. Extracts are given in this book from the official reports of the prison at Elmira in the United States, where experiments are made in educating prisoners of the latter class. They describe a system of massages and Turkish baths three times a week, courses of literature, æsthetics, and ethics, including a study of Jowett's translation of the "Republic" of Plato, and of the works of Herbert Spencer, together with a gymnasium and a drum corps, suggesting to the unprepared reader a chapter in Gulliver's account of the institutions of Laputa.

FRANCIS GALTON.

ELEMENTARY PHYSIOGRAPHIC ASTRONOMY.

Lessons on Elementary Physiographic Astronomy. By John Mills. (London: Chapman and Hall, 1889.)

THE expressions of approval of the physiography syllabus of the Science and Art Department by the British Association Committee on science teaching lend an additional interest to new text-books of this subject. The book before us covers the portion of the syllabus dealing with the movements of the earth. We believe Mr. Mills has occasionally been employed as an Assistant Demonstrator at the Normal School of Science, and on the strength of this he claims to have had four years' experience as a teacher of the subject in that institution. It is rather late for Mr. Mills to state that, "in the hope of encouraging teachers and students to make the subject a more practical one, instructions have been given for making some inexpensive apparatus," considering that all the practical work given is taken from the book of instructions supplied to students at the Normal School, and which was distributed by the authorities of the Science and Art Department to teachers throughout the country some months ago, with the sole object of encouraging practical demonstrations in classes. Anyone can now obtain the same for twopence. There are many indications that the author is only acquainted with a limited part of the subject. The article on the

use of the micrometer, for example (p. 25) is sure to impart the idea that a definite fraction of an inch represents a definite amount of arc, irrespective of the telescope employed; and that, in consequence, the distance between two stars or the apparent diameter of a planet can be stated in inches; further, the zero for position angles is given as "the normally horizontal wire," which is obviously an inconstant, and therefore useless one. Wrong impressions are also given as to the functions of the "Nautical Almanac," for p. 81 distinctly implies that it is a record of actual observations, whereas it is published three or four years in advance. Again, on p. 20, it is stated that the transit circle is made to read 90° when the telescope is pointing to the Pole, and therefore that "when the telescope is directed to any star crossing the meridian we obtain the north polar distance of the star, and this being known, we can easily determine its declination," which is neither clear nor correct.

After deducting the practical instructions, the most casual comparison with Prof. Norman Lockyer's "Movements of the Earth," will show the source of inspiration of the remainder, although there is not a word of acknowledgment. The head-lines, diagrams, and occasionally the language, remind one of that book. The order of things has certainly been slightly changed, but the only result is to introduce disconnections and anticipations. The micrometer, for example, is described before the chapter on angular measurements, and the chronograph precedes that on the measurement of time. The terms "right ascension" and "declination" are frequently used, although the explanation of them is reserved for the very last page. Further instances might be multiplied almost without limit.

The whole book is of a very sketchy character, and the only redeeming feature is the excellent series of diagrams.

A. F.

OUR BOOK SHELF.

Theoretical and Practical Treatise on the Strength of Beams and Columns. By Robert H. Cousins, Civil Engineer, formerly Assistant Professor of Mathematics at the Virginia Military Institute, Lexington, Va. (London and New York: E. and F. N. Spon, 1889.)

THE author of this treatise comes forward with an attempt at an explanation of the *paradox of the beam*, which is that a beam is about double as strong as theory makes out it should be, when the resistance of the beam to bending is calculated from the tension and pressure of the fibres, considered as acting independently and without lateral support.

To account for this discrepancy, which is well known to practical men, a paper by W. H. Barlow, in the *Phil. Trans.*, 1855, proposed a theory of lateral support of the fibres to account for the extra strength, while his careful experiments showed that the neutral plane was certainly very close to the position which theory assigned to it. Previously it had been usual for practical men to place the neutral plane at the top or bottom of the beam, and thence to calculate the strength; a better agreement with theory being thus obtained.

The author of the present treatise adopts the more modern method of taking a different tenacity and modulus of elasticity of the material for extension and for compression; his calculations are principally directed to finding the breaking load of the beam; but as all the