

will continue in spite of all contradiction, and the absolute fact that not a single example is known with certainty to have occurred within the Arctic Circle. However, slight flaws like these do not seriously compromise Capt. Moore, who has certainly succeeded in condensing a greater amount of really valuable information into a small space than any other ornithological writer with whom we are acquainted.

LINKAGES

Linkages. By J. D. C. De Roos. Van Nostrand's Science Series, No. 47. 18mo, 87 pp. (New York, 1879.)

IT is not often that one is able to trace a pedigree with such success as we have been able to achieve in the case of this little book. It appears from the title-page that it is reprinted in its present form from *Van Nostrand's Magazine*, having been translated from a series of articles by M. de Roos in the *Revue Universelle des Mines*. The latter gentleman admits his obligations for the major part of his work to a translation which appeared in the *Revue Scientifique* of November 24, 1874, of the well-known lecture delivered by Prof. Sylvester at the Royal Institution in the same year, which was based on M. Peaucellier's discovery described in the *Nouvelles Annales* of 1873, but contained a large amount of original matter. For the residue, with one exception, to which we shall presently return, M. de Roos appears to be indebted to a paper by M. Liguine, which he mentions without stating where it is to be found, and which, together with a memoir by M. Saint Loup referred to by M. Liguine, is apparently regarded as all that has been written on the subject since the publication of Prof. Sylvester's lecture. M. Liguine's paper is to be found in the *Nouvelles Annales* for 1875; it discusses Prof. Sylvester's lecture, the "contra-parallelogram" of Mr. Hart, the "kite" of Mr. Roberts, and one of Mr. Kempe's earliest linkages. The description of these discoveries of Mr. Hart and Mr. Roberts is stated by M. Liguine to have been obtained from an article by Prof. Sylvester in the *Revue Scientifique* in 1875, but no mention is made of the source from which a knowledge of Mr. Kempe's linkage is derived. There is, however, internal evidence that it is M. Antoine Breguet who published an article in the *Revue Industrielle* early in 1875, which discusses the discoveries of Messrs. Kempe and Hart referred to, and states that the writer's information is derived from their original articles in the *Messenger of Mathematics* of November, 1874.

It is not to be wondered at, after this, that the work before us, though recently published, contains no information of later date than 1874, a time when the theory of linkages was in its infancy. Under such circumstances it would have been more creditable to the editor of "Van Nostrand's Science Series" if, to the statement in his preface to M. de Roos's book that "the subject has not even yet received the attention which is fully its due," he had added the qualifying words, "though very much more has been done than is contained in M. de Roos's work, which is at the present time, from the rapid advance which has been made during the past five years, somewhat antiquated." As a matter of fact, not the slightest hint is conveyed, from the beginning of the work to the

end, that it does other than represent the present state of the science of linkages.

The book bears no signs, as far as editor and translator are concerned, of being only vol. i., but M. de Roos does conclude with a promise in a "future note" to discuss a "new element," of which a diagram is given, briefly noticed (not described) in a paragraph containing a misleading misprint of O A . A B for O A . O B, which in the absence of the "future note" may make it difficult for the reader to understand what the new element is. The translator proposes to name it the "Element of De Roos," "in honour of its inventor;" an examination in the light of the correction we have indicated will, however, show that whatever claim to novelty might have been advanced five years ago (though we feel somewhat doubtful whether even then the "discovery" of a combination of half a "Peaucellier" and half a "Hart" would have entitled the discoverer to have his name affixed to it), at the present time when more general linkages have been discovered of which it is only a particular case, none such could be sustained.

The bulk of the volume consists of applications of the Peaucellier inverter and Prof. Sylvester's modifications to the description of curves, the extraction of roots, &c. These, though decidedly interesting, would in many cases be superseded at the present time by less cumbersome methods. The pages are plentifully supplied with diagrams, which are, however, occasionally marred by the omission of links. This is particularly to be regretted in the case of Fig. 48, which exhibits one mode of practically applying Peaucellier's parallel-motion to a beam-engine. It may not be uninteresting to note that this method is the same as that employed by M. Peaucellier in a model furnished by him to the Conservatoire des Arts et Métiers in Paris.

We cannot but regret that what appears to be a useful science series should be marred by the introduction of a work which, possibly through no fault of the author, must by its antiquity mislead its readers as to what has been and remains to be done on the interesting subject of which it treats.

OUR BOOK SHELF

The American Entomologist. New Series, No. 1. January, 1880. C. V. Riley, Editor; A. S. Fuller, Assistant Editor. (New York: Max Jaegerhuber.)

We are glad to welcome an old friend in an old face, after nine years' absence. The idea of this journal originated from that lamented entomological genius the late B. D. Walsh, in the form of the *Practical Entomologist*. This developed into the *American Entomologist*, and to this was subsequently added, as part of the title, and *Botanist*. The *American Entomologist* is now resuscitated, under its former editor, the energetic Prof. C. V. Riley, and bids fair to be a success. Purely descriptive entomology evidently finds little favour in the eyes of the editors, "descriptive" papers being limited to one page in each number, or if more extended, the cost is to be paid by the author, and the space so occupied is to be supplementary. Thus, the aims of the journal are almost exclusively biological and economic. It is just possible this idea may, at some future time, be slightly modified. The editors crave that indulgence usually accorded to first appearances, but, having no doubt fully in mind the fact that one of them is an old stager, they have produced a "first" number of a most varied and useful