

## BOOK REVIEWS

DOWNIE, N. M., AND R. H. ARNETT, JR. 1996. The Beetles of Northeastern North America. The Sandhill Crane Press, Gainesville, FL. Vol. 1, p. i-xv, 16-880 (Introduction; Suborders Archostemata, Adephaga, and Polyphaga, thru Superfamily Cantharoidea), Vol. 2, p. i-x, 891-1721 (Polyphaga: Series Bostrichiformia through Curculionoidea). Hardback. 17.8 × 25.4 cm (7 × 10 in.). ISBN 1-877743-11-9 (set). \$175.

Two publications have been essential to every coleopterist, amateur or professional, interested in the beetle fauna of the continental USA. They are *The Coleopterists' Bulletin*, founded by Ross Arnett in 1947 (the apostrophe was omitted later from the title), and *The Beetles of the United States (a Manual for Identification)* (BOTUS) written by Ross Arnett and published (first edition) in 1960-1963 by Catholic University of America Press (now out of print). For those interested in the fauna of northeastern North America, Arnett has completed the hat trick by co-authorship of *The Beetles of Northeastern North America* (BONENA). Arnett has accomplished a major feat by publication of BONENA. I cannot name anyone who has done more for coleopterists in the USA. Now, is anyone brave enough to attempt a companion book on the Coleoptera of the southeastern USA?

BONENA defines northeastern North America as Greenland, St. Pierre and Miquelon, eastern Canada (Ontario eastward), and the northeastern states of the USA (CT, DC, DE, IL, IN, MA, MD, ME, MI, NH, NJ, NY, OH, PA, VT, and WI). Whereas BOTUS provided keys to adult beetles to the level of genus, BONENA provides keys to the level of species and is the only book to do so for all families of Coleoptera for that area. The only precedents in North America are W. S. Blatchley's (1910) *An Illustrated Descriptive Catalogue of the Coleoptera or Beetles known to occur in Indiana* (The Nature Publishing Co., Indianapolis) and M. H. Hatch's (1953-1971) 5 volumes, *The Beetles of the Pacific Northwest* (University of Washington Press, Seattle).

When Hatch (1953-1971) undertook a similar task, he based it upon his interpretation of the existing literature and specimens available to him, some of which seemed to belong to undescribed species. I am most familiar with his volume 2 (Staphyliniformia) in which he assigned 2 sections to be written by collaborators with specialist knowledge. These sections, and the rest of the book, were written with new generic diagnoses, new keys, new illustrations (a very useful part of the book), and descriptions of new species. Even so, he found the huge subfamily Aleocharinae to be too complicated, needing too much study to resolve, so he omitted it. A quarter of a century later, some parts of Hatch's works remain useful although no revisions were published. His volume 2 is now mainly of historical interest to specialists. This is because of subsequent revisionary studies of genera and tribes, revealing not only many additional species, but also that Hatch had inadvertently misinterpreted parts of the older literature. Hatch could only have avoided misinterpretation by examining type specimens and, therefore, would not have finished the work in his lifetime.

BONENA begins with a manuscript by the late Norville Downie, which was completed by Downie with help from Arnett in 1970-1994. The authors had several advantages over Hatch. They adapted text and illustrations from BOTUS. They incorporated new information (from taxonomic revisions by many authors) which was published after the appearance of Hatch's work, so they had less pioneering work to do than did Hatch. In the later years of their work, they had access to word-processing equipment, so they could more readily than Hatch incorporate additions and changes to produce an accurate, thorough, and up-to-date work.

BONENA will age as new revisionary studies are published by specialists in several families. Aging can be corrected for by publication of revised subsequent editions of BONENA to maintain its currency. Its advantage is, or should be, that it combines the knowledge of thousands of earlier specialist publications and saves the purchaser from need to acquire this earlier literature. It is not entirely adequate, in my opinion, because it is inadequately illustrated.

In some families of Coleoptera it will be possible to identify specimens using the unillustrated keys in BONENA. Yet, every modern revisionary study of Staphyliniformia includes not only illustrations of genitalic structure but, usually, other diagnostic structures also, because these are necessary to reliable identification. BONENA has habitus illustrations of few genera and, unlike Hatch (1953-1971) and comparable European works, lacks illustrations of species-specific characters. Therefore, users of BONENA will have to acquire copies of the earlier publications in order to identify specimens in some families.

It is possible that BONENA was not copiously illustrated in order to save the cost of space. A 50% expansion of space might have been necessary to provide an adequate number of illustrations. In a printed edition this would cause a 50% increase in publication cost and might deter buyers. If, however, the book were to be produced on CD-ROM, the expansion in space could have been incorporated at no additional publication cost and, in fact, a CD-ROM edition could have been produced for much less than the cost of the printed edition. That Arnett did not produce the book on CD-ROM (at lower cost) instead of on paper (at higher cost, even though price per page is modest compared with books from major publishers) suggests that he was concerned not only with preferences of potential buyers (for paper vs CD-ROM) but also with piracy; it would cost pirates less to copy a magnetic version than a printed version.

It is possible that BONENA was not copiously illustrated because of the cost of producing new illustrations. It is a sad reflection on economics that such an important work could not afford to employ an illustrator. However, BONENA is based on earlier taxonomic works, most of whose authors would (in my opinion) have given permission to use their illustrations to the BONENA co-authors simply for an acknowledgment (a few of them evidently were contacted and did so). This would have solved much of the problem of illustration. Instead of contacting more authors for such permission, the BONENA authors seem to have relied largely on illustrations from BOTUS and on old illustrations with expired copyright. The illustrations from BOTUS that were included are useful and generally are well-reproduced in BONENA, but other illustrations have been taken from other sources and are of poor quality. Some are poorly reproduced (partially faded) or misaligned. Some have erroneous captions or are misplaced. A bad example is 3 illustrations (p. 407, 427, 459) taken from Blatchley (1910 p. 483, 484, 462), who in turn had taken them from Erichson (1840, *Genera et Species Staphylinorum* . . . plate 2). Erichson and Blatchley ascribed them to *Lispinus angustatus* Erichson, *Glyptoma crassicornis* Erichson, and *Megalopinus cephalotes* (Erichson), which do not occur in North America, but BONENA ascribes them to the North American *Scopaeus exiguus* Erichson (wrong subfamily), *Thoracophorus costalis* (Erichson) (wrong genus), and *Megalopinus caelatus* (Gravenhorst) (wrong species). The illustrations on p. 376 and p. 385 are transposed.

The text should have been checked more thoroughly for typographical errors. Errors are not just in figure captions (e.g., p. 369, 407, 425, 427, 880) and literature cited (e.g., all 5 publications by Puthz, p. 562) and names of organisms and authors, but in ordinary English words and even in the eulogy to Norville Downie. There are more such errors than in all of Hatch's 5 volumes although they are now easier to detect, by word-processor.

BONENA does not contain descriptions of previously-undescribed species. It adapts keys from the existing literature. Keys adapted from recent taxonomic revisions should work, though in some places with difficulty because of inadequate illustration. Keys adapted from 19th century literature, for example from publications by T. L. Casey, may not work well, if at all, but they do represent the current status of knowledge of some taxa.

Despite these criticisms, I would buy a copy of the book although I have little call to identify specimens from the Northeast. I would do this because of the wealth of information it provides, even though some of the information is incorrect in this edition. Additions and corrections can be made in a second edition: users can help by writing to Arnett to point out errors. He has done a valuable service to coleopterists by producing it, and they should reciprocate by buying it and helping him to improve it. The book ought to become and remain the standard work on Coleoptera of the region indefinitely. Ross: in whom will you vest copyright of your work? Will you make it possible for impecunious coleopterists to continue your tradition, for example a 6th edition of Downie, Arnett et al. in 2050, or will you, by copyrighting your work, make them start from scratch?

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