

## BOOK REVIEWS

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### NEW BIBLIOGRAPHIC DATABASES FOR ORNITHOLOGIST'S PERSONAL COMPUTERS

**Absearch Computer Indices and Abstracts for Professional Journals.**—Absearch, Inc., 2457 West Twin Road, Moscow, ID 83843. Telephone 1-800-867-1877.

The rapidly expanding development of, and access to, the information superhighway, and to on-line and CD-ROM computer databases, has made information retrieval easier, faster and cheaper than ever before. However, for searching the literature, this technology is not a panacea. The main drawback of most computer-based bibliographic databases in biology is that they index only fairly recent literature, e.g., Biological Abstracts (from 1991), Life Sciences Collection (from 1982), Wildlife Review (from 1971), and Zoological Record (from 1978). In addition, an unfortunate consequence of the ease of use of these databases is that many people now rely almost exclusively on these databases, and have abandoned use of the printed versions of these databases that cover earlier time periods. As a result, much of this earlier literature is being increasingly overlooked. A sad testament to this is the literature cited, or lack of it, in many of the recently published *Birds of North America* species accounts. Fortunately, Absearch Inc. recognized the need for ornithologists and many other scientists to search the earlier literature by computer, and has produced a series of databases that index a great deal of earlier biological literature. Of greatest use to ornithologists are two databases: The Ornithological Societies of North America database which covers *Auk*, *AOU Monographs*, *Wilson Bulletin*, *Condor*, *Studies in Avian Biology*, and *Bird-Banding/Journal of Field Ornithology* from 1955, and the British Ornithologist's Union database (to be completed shortly) which covers *Ibis* from 1955. Also of considerable use, especially for those in wildlife management, is the Wildlife Society database which covers *Journal of Wildlife Management* (from 1937), *Wildlife Monographs* (from 1958) and *Wildlife Society Bulletin* (from 1973), and the Wildlife Management Institute database which covers *Transactions of the North American Wildlife and Natural Resources Conference* (from vol. 1, 1936). Other more general databases index *Canadian Journal of Zoology*, *Ecology*, *Ecological Monographs*, and *Ecological Applications* (from 1945), and *Conservation Biology* (from vol. 1, 1986) which contain extensive ornithological literature. These databases are provided on floppy disks for loading directly on the hard drive of a DOS or MAC computer. Each database contains approximately 10,000 to 20,000 records, occupies approximately 10–20 MB of hard drive, and typically costs \$89 (except OSNA, which costs \$149; annual updates are \$29/yr or \$67 for three years) this equals less than a penny

per record. Student rates are discounted 15%, and site licenses also are available (two systems: \$250; 10 systems: \$750). Financially, this is a good deal, the cost being comparable to the CD-ROM version of *Wildlife Review* which provides 90,000 bird records for about \$700, and is less than half as expensive per record than the CD-ROM version of *Zoological Record* which provides 150,000 records for \$3,280. More importantly, however, Absearch's databases provide better access to the literature they index than is possible using any other existing computer or printed database. There are three reasons for this. First, all records of articles that have an abstract or a summary contain the entire abstract or summary in the record. In contrast, most other databases lack abstracts or summaries (e.g., *Zoological Record*) or, at best, have abstracts written by the abstracting company (e.g., *Biosis*) and not by the author(s) of the paper. As a result, searches of Absearch databases are more comprehensive because all fields including the entire text of the abstract/summary may be searched. Second, Absearch's databases contain all papers published in the journals indexed whereas coverage of these same journals by other databases (e.g., *Biological Abstracts*) is less complete because they do not index all papers that appear in the journals they cover. Third, published cumulative indices do not exist for many of the journals indexed by Absearch. For example, no such index exists for *Wilson Bulletin*, nor for *Ibis* after 1930, *Condor* after 1958, or *Bird-banding* (superseded by *Journal of Field Ornithology*) after 1960. In addition, most of the published indices that do exist are not nearly as comprehensively cross-indexed or user-friendly.

Absearch databases are accessed using read-only versions of Pro-Cite software provided by Absearch with purchase of their databases. Pro-Cite is one of the best bibliographic software programs available (P. R. Neal, 1993. *Bioscience* 43:44–51), and allows complex searches similar to those available on on-line and CD-ROM databases. Pro-Cite also completes searches, even complex ones, of quick-search fields (e.g., author, title, date) in less than 5 sec. Text searches take less than a minute (on a 486 66-MHz computer), a small fraction of the time required by many CD-ROM databases (e.g., *Zoological Record*, *Biological Abstracts*). With proof of purchase of one or more Absearch databases, read-write versions of Pro-Cite (for DOS, Windows, or MAC) may be purchased from Personal Bibliographic Software, Inc. (Ann Arbor, MI) for \$138 versus the normal retail price of \$345.

Absearch's databases will never replace other databases such as *Zoological Record*, *Biological Abstracts* and *Wildlife Review*; nor do they claim to. However, for scientists working in specific subdisciplines, like ornithology, Absearch's ornithology-related databases are wonderful tools to add to our computer toolbox.

Considering the expensive cost of on-line searching (typical connect time costs \$60–100/hr + \$1 per full citation printed/downloaded), the low cost, convenience of use, rapid searching capability, and comprehensive coverage of Abssearch databases makes them a great deal.—CHRISTOPHER W. THOMPSON, Burke Museum and Department of Zoology, BOX 353010, University of Washington, Seattle, WA 98195.

**Handbook of Avian Anatomy: Nomina Anatomica Avium.**—Edited by Julian J. Baumel, Anthony S. King, James E. Breazile, Howard E. Evans, and James C. Vanden Berge. 1993. Publications of the Nuttall Ornithological Club, No. 23. Cambridge. 779 pp. \$65.00.

This second edition of the *Nomina Anatomica Avium* (*NAA*), the nomenclature of avian anatomy, comes 14 years after its predecessor. The five editors are joined by a dozen contributors to update, expand and amend the first edition. The primary objective of the work remains the same, “to promote international scientific communication by establishing an agreed terminology in a universally accepted language” (p. xv). In conjunction with this objective the authors aim to survey a vast avian anatomical literature, present an extensive bibliography and illustrate many structures. As an anatomical reference book for birds, terminology in the *NAA* has been further harmonized with other *Nomina* (covering human anatomy, mammalian veterinary anatomy, histology and embryology).

The book is divided into 16 chapters covering major organ systems, as well as terms for anatomical orientation and external topography. Each chapter consists of a brief introduction followed by a list of terms, which are often grouped by anatomical association. For example, all osteological terms relating to the humerus are found within the wing section of the appendicular portion of the list. Annotated terms are numbered, permitting the reader to proceed to the next section and read more about the term. Annotations are used to define the structure, give synonyms, describe homologues, justify the choice of terminology, give relevant references and point out changes from the previous edition. Figures, which help clarify some terms and obviate the need for some annotations, round out each chapter.

When evaluating a work of this type it seems best to assess its quality from several perspectives. First, are its objectives, particularly its primary one, worthwhile? Is there really a need for a standardized anatomical terminology or are workers doing just fine without one? The answer, not surprisingly, depends on who is being asked. I deal primarily with osteology, myology and neurology. Terminology in these fields varies depending on the specialization. Avian systematists using myological characters have tended to follow the *NAA* nomenclature in recent years. On the other hand, many neurobiologists and developmental biologists using the chick model continue to use older terms from George and Berger's *Avian Myology* (1966) or even mammalian terms for alleged homologues. Yet, these workers communicate just fine between themselves. Those of us who must cross disciplinary boundaries suffer most of the frustration of having to learn

two sets of terms to speak to groups with different names for the same structures. In hopes that biology is moving towards more integration rather than less, I think it remains a sound goal to unify terminologies so that communication can be both promoted and stabilized.

A more sobering question is whether the *NAA* has had any effect in the last 16 years. Are new avian biologists using *NAA* terms? Are established scientists dropping old names for their *NAA* equivalents? This is difficult to judge, but the answer lies somewhere between complete adoption and complete disregard, depending on the field. One hopeful sign is the use of *NAA* terminology in key papers that might induce others to follow. An example is the description of chick thigh muscle cleavage patterns during embryonic development by Schroeter and Tosney (1991). These authors used *NAA* terms and included a table of synonymy for terms used in George and Berger (1966) and in Romer's classic study (1927). The widespread effects of this injection of *NAA* terms into developmental neurobiology remain to be seen.

What is it that makes establishing a universal terminology so slow and arduous? The greatest impediment may be a natural resistance to change. An analogy can be made with another standard that has been adopted to the benefit of the scientific community, the metric system. What is the incentive to home builders, for example, to change from using inches and feet to centimeters and meters? If architects, tool makers and lumberyards continue to measure in inches and feet, what could induce a construction worker to start using metric? The answer, of course, is nothing (aside from a feeble plea to “do the right thing”). Similarly, if developmental neurobiologists use and understand myological terms other than those in the *NAA*, why should they change? Nomenclature, like momentum, tends to be conserved.

Adopting a new set of names is annoying at best. Having taken the plunge mid-project, I know that it can be an organizational nightmare. I was dealing with the names of only seven muscles, but having notebooks, surgical records, chart recordings and computer data all labelled with two different terms was simply dreadful. We were particularly prone to errors because the same name applied to two different muscles under the old and *NAA* schemes. Yet, once completed, the new terms are no more difficult than the old, and we have found some relief knowing that they may remain stable for some time.

This confession leads to a significant question: why did we (or anyone in the last sixteen years) initiate a study without originally using *NAA* terminology? Are weaknesses of the book itself entirely to blame? Unfortunately, the format of the book is partially responsible. As a reference book of avian anatomy, it remains remarkably unapproachable. The second edition *Handbook of Avian Anatomy*, like the first edition, is no place for a beginner. Despite the annotations and illustrations, it remains impregnable to those not at least somewhat familiar with the primary literature. Undergraduate and graduate students find its almost aloof brevity especially frustrating. It is not a dissection guide (and does not pretend to be), or even an easy way to identify specific structures. For someone sitting

down to dissect a bird for the first time this book is best used as an armrest.

Where does one turn for a more inviting plunge into avian anatomy? Unfortunately, it might be a well-illustrated, easy-to-read guide that does not employ *NAA* terminology. In my work on the locomotor system, Raikow's review (1985) is helpful and uses *NAA* terms. However, George and Berger (1966) includes valuable discussion of variation between species, which is why we adopted their terms in the first place. Proctor and Lynch's recent *Manual of Ornithology* (1993) is so much more accessible that it may be where students turn first; unfortunately, it does not employ *NAA* terms. Yet, what ornithology teacher would make his or her students learn terms different from those in the attractive illustrations? Thus, the second edition of *NAA* finds itself in the same difficult position as the first. Its objective is a good one, but the *Handbook of Avian Anatomy: Nomina Anatomica Avium* may be fatally flawed in that the message will never be delivered in its current packaging.

However, this should not be construed as a complete condemnation of a fine book. Could any one work do all that we ask of the *NAA*? Such depth and breadth is a daunting task. The other *Nomina* are simply lists of terms. The need to augment such a list points to an important difference. A list of avian anatomical terms would not stand on its own, whereas those of human and domesticated mammals can. Birds are more diverse yet less well described, making complete coverage of interspecific variation of even a single system, much less the entire body, impossible in a single volume. Despite its dryness, the *NAA* does establish avian nomenclature that bird workers can choose to adopt. It promotes the use of these terms as best it can while providing an excellent bibliography and a place for specialists to turn.

The real success of the book depends on readers adopting the terms in their own work and nudging, coaxing, seducing or possibly bludgeoning others in the same direction. If the concept of standardization is acceptable, a heavy-handed approach would be for journal editors to insist on the use of *NAA* nomenclature. Just as with SI units and AOU Check-list names, contributors would have no choice but to present their findings using *NAA*-approved terms. Ornithology and morphology journals should lead the way, followed by more general journals and publishers of ornithological texts. This may never happen, but it is a mechanism to make the standards take hold and spread quickly. Simple diffusion is too slow and the barriers are too high to cross fertilize fields where traditional, non-standard terminology will continue to thrive.—STEPHEN M. GATESY, Department of Ecology and Evolutionary Biology, Brown University, Providence, RI 02912.

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