

Book Reviews

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COMPARATIVE POSTCRANIAL OSTEOLOGY OF HARTEBEEST (*Alcephalus buselaphus*), SCIMITAR ORYX (*Oryx dammah*) AND ADDAX (*Addax nasomaculatus*) WITH NOTES ON THE OSTEOLOGY OF GEMSBOK (*Oryx gazella*) AND ARABIAN ORYX (*Oryx leucoryx*). Annalen van het Koninklijk Museum voor Mid-den-Africa, Zoologische Wetenschappen 280. Tervuren. 83 pp, 31 tables, 21 plates (price 860-920 BF). Peters, J.; Van Neer, W. & Plug, I. 1997.

The title is a faithful exponent of this monograph. The authors have a long experience on african archaeozoology and are deeply acquainted with the bovids from that continent. Thus, in addition to faunal analyses (eg. Peters, 1987, 1990, 1991; Van Neer, 1981, 1989), they have already completed various works, analogous to the present one, with the specific aim of distinguishing on an osteological and a biometrical basis the species of african bovines and antilopines from a series of biotopes. Peters, in particular, has worked with wild cattle (*Bos primigenius*), buffalo (*Syncerus caffer*), Grant's gazelle (*Gazella granti*), grey rhebok (*Redunca redunca*), pelea (*Pelea capreolus*) and springbok (*Antidorcas marsupialis*) (in this last two cases with Ina Plug) plus Bushbuck (*Tragelaphus scriptus*).

This contribution is the last one for the moment in a tradition on papers within mammalian paleontology which dates back to the classical work by Bojanus (1828) on the differences of wild cattle and european bison and includes, amongst its main titles, the works of Rütimeyer, Tscherski, Hiltzheimer, Schertz, Lehman, Bibikova, Stampfli and the world renowned paper by Boessneck, Müller & Teichert (1964) on the osteological differences between sheep and goat. The long series of papers on the differences between wild cattle and european bison, by the way, evidences the difficulties inherent to these atlases as the Ph.D. by

Brugal (1983) so aptly stresses (for a more detailed list of references on this topic interested readers should consult this last author).

Drawbacks notwithstanding, books like the reviewed one are always useful for researchers in particular when reference collections are not readily available or when students start to gain acquaintance with mammalian osteology. Often, even when reference collections are available but still restricted, unacquainted scholars might mistakenly take cases of individual differences as specific differences often with disastrous consequences. It is, therefore, of the utmost importance that they grasp the intricacies of interespecific vs. intraspecific variation from the start.

In the case of the present monograph, the authors aimed at three species of antelopes from arid zones (i.e., steppe, particular kinds of savannah and desert). To these taxa, two additional oryxes, also from arid areas, have been incorporated in the biometrical tables in order to accomplish a coverage as complete as possible. The database has been an exhaustive one incorporating many specimens from various museums and research centres. Still, as the authors adequately stress, half of the sample comes from zoos and bovids from such places sometimes provide misleading results, in particular their osteometry. All in all, 29 skeletons of *Alcephalus buselaphus*, 12 from *Oryx dammah*, 14 *Oryx gazella*, 3 *Oryx leucoryx* and 17 of *Addax nasomaculatus* have been thoroughly investigated. This is an important collection. The dispersion of these materials in different institutions from London, Brussels, Tervuren, Berlin, Hamburg, Munich, Washington, Pretoria and Cape Town might, however, can be a bit of a problem. Thus, although the biometrical analyses might be less affected, the morphological analyses do not benefit from the fact of not having all specimens simultaneously in order to check for key diagnostic characters.

The osteological analysis includes all of the appendicular skeleton as well as three elements

from the vertebral column: atlas, axis and sacrum. Measurements follow the classical criteria of von den Driesch to which a few measures already introduced by J. Peters in his wild cattle: buffalo monograph have been added. Anatomical terms are keen to follow the rules of the *Nomina Anatomica Veterinaria* (third edition, 1983) and we stress keen for vernacular names are the basis of a lot of confusion. The osteometry, on top of isolated values, provides the basic statistics for all samples in a series of tables. One misses here some diagnostic osteometrical indexes to set apart the various species although the interested reader may work them out without further problem given that individual values are readily available. The only problem is that the authors are the ones more acquainted with the specifics of the various taxa and could thus have accomplished this task in a much more reliable way. Such "absence" is neutralized, to a large extent, by the bivariate diagrams made in the case of the metacarpus. These graphs indicate that the differentiation between *Alcephalus buselaphus* and the remaining species is rather straightforward as well as that between *Oryx gazella* and *Addax nasomaculatus* but there exists a certain degree of overlap between *O. gazella* and *O. dammah*. There are also diagrams to set apart males from females of *A. nasomaculatus* according to the values provided by the atlas and axis (based on the differential development of horns on both sexes) and also for the pelves of all species.

To help with the anatomical differences, a series of 21 plates, with excellent illustrations, have been included. In many instances diagnostic features are evident but in other cases, as so often happens, the diagnosis is rather a "more or less" thing than a straight "yes" or "no". The authors stress the convenience of incorporating more than one diagnostic feature in order to accomplish a reliable determination. They seem to be fully aware that in some bones, such as the smallest ones from the hand and foot, the specific assignation is not always possible.

To summarize, we believe we have here a sound piece of work, invaluable for workers forced to take decisions in the field in the absence of reference specimens. To people interested in the so-called middle-range theory topics, the book might be probably not that interesting. Still, without such type of contributions, archaeozoology could never move away from the stage of

theoretical hypothesizing. This book is basic stuff. Interested researchers will find it very useful indeed!

JESÚS ALTUNA: *Sociedad de Ciencias Aranzadi. San Sebastián, España.*

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A GUIDE TO THE IDENTIFICATION OF FISH REMAINS FROM NEW ZEALAND ARCHAEOLOGICAL SITES. *New Zealand Journal of Archaeology*. Special Publication. Kilbirnie, Wellington (129 pp.; \$ 40 NZ) Leach, F. 1997.

It should come as no news that fish bones are difficult things to deal with. To problems of retrieval, having to do with inadequate techniques, one should add the sheer diversity of groups and osteology which forces researchers to rely on reference collections to a larger extent than is the case for other groups of vertebrates. Such bottleneck, added to the fact that most fishes exhibit rather restricted distributions, reaches to the point that ichthyoarchaeologists all over have been forced to build up their own comparative collections at a particular spot previous to any study of a local archaeological fish fauna. In some cases they have reached the stage of carrying their reference specimens to and fro the site with every field season! No wonder that archaeoichthyology has lagged behind traditional zooarchaeology despite some early attempts at standardization of research methods (Casteel, 1976).

Lately, however, we are witnessing a renewed interest at providing tools for use in the field within this discipline throughout the world (Falabella *et al.*, 1995; Polaco & Guzmán, 1997) and it is within such context that the present contribution should be framed. Foss Leach is no newcomer to the field since he has been working on fish remains throughout the South Pacific since 1969. His book, therefore, is written with the insight of a deep understanding of the drawbacks inherent to archaeoichthyological studies and, therefore, aims at providing something more than a mere collection of nice drawings on bones from New Zealand fishes, thus its title (i.e., "Guide to the identification..." vs. "Atlas..."). If only for this brave attempt, the author must be congratulated.

As so often happens with any complex undertaking the book has its good and its not-so-good things, whatever that might mean since such a dichotomy changes dramatically from person to person. In my own case, a firm disliker of bone atlases myself, I believe that in this case the former far outweigh the latter. The book conveys, from its first page, an undeniable sense that it is embed-

ded in a philosophy different to that which inspires most works of this kind in the west. Perhaps this is not so much a result of geographical/cultural differences as it is a matter of choice. Thus, the guide does not attempt an exhaustive treatment of New Zealand fish osteology (with some 1000 fish species such a work would be impossible!), nor an comprehensive osteology of the most common taxa found on archaeological sites (some 50), so, those looking for a more or less complete coverage will be dissatisfied.

The book has been instead constructed on sound "cost-effective" criteria. The list of species has been determined on the basis of more than twenty years of uninterrupted archaeoichthyological research (Leach & Boocock, 1993). It includes the 44 more common fishes in New Zealand Maori sites but also the beak of the broad squid (*Sepio- teuthis bilineata*) which occasionally turns up in the faunal assemblages.

The reasons for restricting the guide to five paired cranial bones (i.e., Dentary, Praemaxilla, Articular, Maxilla and Quadrate) are likewise utilitarian and briefly explained in pp. 6-8. The philosophy is straightforward. To Leach, one of the major objectives of archaeoichthyological analysis is establishing the relative abundance of the catch and this fact has a major influence on how one should go about identifying bones. Thus, the aim to set about to identify *all and as many bones as possible* meets two serious problems: a) some bone categories change dramatically from group to group and b) some bone categories in particular species are much more diagnostic than in others. The end result, the author argues, is that we might end up with proportions of taxa which do not reflect their original importance but, rather, biases inherent to their osteological features. The sensible alternative, to identify *only those parts of the anatomy which are characteristic of all taxa*, is the reason for choosing only those five bones. This is a sound argument and one we have made use of when large collections are at hand. It probably works perfectly well with New Zealand (i.e., Maori) archaeoichthyological samples but for us, forced to work with a far larger level of heterogeneity, Leach's reasoning is a bit too narrow. What happens with very small samples? What happens when fish are processed in ways which distort skeletal representativity from the very beginning? Leach acknowledges such drawback (pp. 12-13) but clearly stresses that his is a Guide to New Zea-

land (Maori) sites when talking about the Western European societies' habit to cut the heads off fish and discard them as inedible: "... so far as I know it is universal amongst Pacific Island societies... to favour the head as an important food delicacy... it is hard to imagine that any prehistoric society in the region cut the heads off and threw them away in a place which later archaeologists would not discover along with the rest of their midden debris" (p. 13). Lucky guys those Pacific archaeoichthyologists! They should know that quite a few of their colleagues don't happen to deal with such "straightforward" samples! In many instances, in fact, the disappearance of cranial bones is simply a taphonomical event which has little to do with past human behaviour. For example, salmonids, one of the main fishing resources throughout the Northern Hemisphere in the past, have such large amounts of fat in their bones that most of the flat cranial elements simply disappear as fatty acid saponification literally bursts them. As a result, only vertebrae remain.

There are other reasons for favouring additional elements, vertebrae in particular, as part of any archaeoichthyological analysis and these have more to do with biological reasons than with strictly cultural ones. In any taxocenosis rare species tend to be stenoic (vs. eurioic) in their habits thus highly valuable as bioindicators. Being infrequent, however, implies standing smaller chances of being found. This automatically means that if one's aims include not only the reconstruction of fishing strategies, feeding patterns, etc. but also the inference of paleoenvironments, past climates, etc. one should focus on such rare taxa. Obviously, in terms of time and budgetary restrictions, such task may prove unfeasible. Still, one should never forget that there are two sides to any archaeological fauna and Foss, himself an archaeologist, has planned his guide with a different perspective to that of a more biologically-oriented archaeoichthyologist.

Other aspects which add to Foss's "cost-effective" approach is to incorporate some very diagnostic elements, (i.e., spines, rays, otoliths) from a few additional species or the ones already covered in the "conventional" way, prone to appear on the samples. Also some of the initial sections on the taxonomic level to identify (pp. 17-18), sorting, re-bagging and steps in the identification process to itself (18-24), how to use the book (pp. 26-29) and notes on common identifi-

cation problems (pp. 29-34) are extremely helpful for unacquainted students which have to start "from scratch" so to speak. Still, we believe a section on how to measure bones would have proved of interest since there is also a section on estimation of fish size. Reading through this last section we miss some reference to the paper of Jean Desse (1984) and to the "fiches d'identification" project which he has generously sponsored from the Centre de Recherches Arqueologiques at Sophia Antipolis. Being myself a close friend of Foss, I should perhaps feel embarrassed to mention our now out-of-print and much outdated "Guide to the Measurements of Fish Bones from Archaeological Sites", co-authored with Knud Rosegard (Morales & Rosegard, 1979) since this means that I never told him a word about it. Equivalent guides, although with different outlook, are those of Falabella *et al.* (1995) for Chilean marine fishes and of Polaco & Guzmán (1997) for Mexican fishes.

Other good things? Well, for one, the fantastic illustrations by Murray Webb, which turn each plate into a masterpiece, and the great idea of drawing both right and left bones from the same specimen, live size, in both lateral and medial views. As a matter of fact, the guide may even prove useful outside New Zealand due to its depiction of vicariant genera (e.g., *Scorpaena*, *Conger*, *Anguilla*, *Polyprion*, *Pagrus*, *Helicolenus*) and species (e.g., *Thunnus albacares*, *T. alalunga*, *Katsuwonus pelamis*, *Naucrates ductor*) from areas, like the NW Atlantic, far away from the South Pacific.

To sum up, Foss Leach has tried to fill a gap in the New Zealand archaeozoological literature and, even though we are not much acquainted with that field, we believe his effort has been very successful. The initial portion of the book discusses practical matters which will be similarly useful to a far larger audience of archaeoichthyologists and archaeozoologists alike. Even if your inspiring philosophy is strongly opposed to that of the author, one must nevertheless acknowledge that the drawings are sheer pleasure. My recommendation? Buy the book!

ARTURO MORALES-MUÑIZ: *Laboratorio de Arqueozoología. Departamento de Biología. Universidad Autónoma de Madrid. Cantoblanco 28049 Madrid, España.*

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