The ICZN Opinion on Species Names

Contributed by Juliet Clutton-Brock

The International Commission on Zoological Nomenclature (ICZN), the official body responsible for ensuring that every animal has a unique and universally accepted scientific name, has returned the following ruling on an application submitted by Mrs. Anthea Gentry, Dr. Juliet Clutton-Brock, and Prof. Colin P. Groves. Their application requested ICZN action to conserve the names of specific wild species for which Linnaeus had similarly named domestic forms. The ICZN has conserves the usage of seventeen specific names based on wild species which are pre-dated by or contemporary with those based on domestic forms. The majority of wild progenitors and their domestic derivatives share the same name, but in the seventeen cases considered (1 Lepidoptera, 1 Osteichthyes; names for wild species with domestic derivatives; 5 mammals; 3 birds) the wild and domestic forms have been separately named and this has created confusion.

The ICZN Opinion on Case 3010 is summarized below. Opinion 2027 (Case 3010) has been published in-full in: International Commission on Zoological Nomenclature (2003). Opinion 2027 (Case 3010). Usage of 17 specific names based on wild species which are pre-dated by or contemporary with those based on domestic animals: conserved. Bulletin of Zoological Nomenclature 60(1):81-84.

OPINION 2027 (CASE 3010)

The usage of 17 specific names based on wild species which are antedated by or contemporary with those based on domestic animals: conserved. Keywords: Nomenclature; taxonomy; Mammalia; Perissodactyla; Artiodactyla; Rodentia; Carnivora; Lepidoptera; Osteichthyes; names for wild species with domestic derivatives: Equus africanus; Equus ferus; Camelus ferus; Lama guanicoe; Vicugna vicugna; Bos primigenius; Bos gaurus; Bubalus arnee; Bos mutus; Capra aegagrus; Ovis orientalis; Cavia aperea; Canis lupus; Mustela putorius; Felis silvestris; Carassius gibelio; Bombyx mandarina; ass; tarpan; Bactrian camel; guanaco; vicuña; aurochs; gaur; water buffalo; yak; bezoar; Asian mouflon; guinea pig; wolf; polecat; wildcat; Prussian carp; gibel carp; mulberry silk moth.

-Ruling-

(1) Under the plenary power: (a) it is hereby ruled that the name for each of the wild species listed in (2) and (3) below is not invalid by virtue of being antedated by a name based on a domestic form • (b) the name ferus Falk, 1786, as published in the trinomen Camelus dromedarius ferus, and all uses of the name Camelus ferus prior to the publication of Camelus ferus Przewalski, 1878, is hereby suppressed for the purposes of both the Principle of Priority and the Principle of Homonymy.

(2) The following names are hereby placed on the Official List of Specific Names in Zoology: (a) africanus Heuglin & Fitzinger, 1866, as published in the binomen Equus africanus (North African wild ass) • (b) ferus Boddaert, 1785, as published in the binomen Equus ferus (Russian wild horse, tarpan) • (c) ferus Przewalski, 1878, as published in the binomen Camelus bactrianus ferus (wild Bactrian camel, now restricted to the western Gobi desert) • (d) guanicoe Müller, 1776, as published in the binomen Camelus guanicoe (South American guanaco) • (e) vicugna Molina, 1782, as published in the binomen Camelus vicugna (South American vicuña) • (f) primigenius Bojanus, 1827, as published in the binomen Bos primigenius (aurochs of Europe, Asia and North Africa, extinct since 1627) • (g) aenee Kerr, 1792, as published in the binomen Bos aenee (Indian water buffalo, arni) • (h) mutus Przewalski, 1883, as published in the binomen Poephagus mutus (Asian yak) • (i) aegagrus Erxleben, 1777, as published in the binomen Capra aegagrus (bezoar of the Middle East) • (j) orientalis Gmelin, 1774, as published in the binomen Ovis orientalis (mouflon of Western Asia) • (k) aperea Erxleben, 1777, as published in the binomen Cavia aperea (South American cavy) • (l) lupus Linnaeus, 1758, as published in the binomen Canis lupus (wolf of the Palaeartic, India and North America) • (m) gibelio Bloch, 1782, as published in the binomen Cyprinus gibelio (Prussian or gibel carp of Central Europe to East Asia) • (n) mandarina Moore, 1872, as published in the binomen Theophsila mandarina (mulberry silk moth of China, Korea and Japan).

(3) To the entries for the following specific names on the Official List of Specific Names in Zoology is hereby added an endorsement to record the ruling in (1)(a) above: (a) gaurus H. Smith, 1827, as published in the binomen Bos gaurus (gaur of India, Burma and Malaya) • (b) putorius Linnaeus, 1758, as published in the binomen Mustela putorius (polecat of Europe, Middle East and Morocco) • (c) silvestris Schreber, 1777, as published in the trinomen Felis catus silvestris (wildcat of Western Europe to Western China and Central India, Africa).

(4) The name ferus Falk, 1786, as published in the trinomen Camelus dromedarius ferus and as suppressed in (1)(b) above, is hereby conserved.

Continued on page 12
Dear ICAZ Members,

The past few months have been a quieter one for those helping to steer ICAZ. The Durham conference has wrapped up, all costs have been accounted for, and we have been gratified to see that ICAZ 2002 was a financial success as well as a great meeting (see Treasurer’s Report pg. 13). All funds advanced by ICAZ to help defray travel and organizational costs of the conference have been returned to ICAZ and the conference overall ended up well in the black. As I write this letter several volumes of conference proceedings are well underway, and we are beginning to look forward to ICAZ 2006.

Most of our recent efforts have been focused on consolidating our membership base as we move forward into the second full ICAZ membership cycle. Email notices have been sent to all members whose membership expired at the end of 2002 and many have responded by renewing their membership. We are sending this Newsletter to those who whose membership expired in 2002 as a final reminder of what you will miss if you do not renew your membership. If you received a special notice and a membership form with the Newsletter this means you need to renew your membership if you wish to continue receiving the Newsletter and other benefits of ICAZ membership.

At present, membership in ICAZ stands at 399. This is down considerably from our post-conference high of 582 and reflects the large number of people who joined ICAZ for the 2002 conference year and have yet to renew their membership for the rest of this membership cycle. We hope to draw at least some of you back into the organization. Even so, the membership rolls reflect a robust and growing interest in ICAZ.

Nearly half (46%) of the current membership in ICAZ is new to the organization (182 members). Individuals taking advantage of reduced fee options (for students, retired and unwaged individuals, and residents of reduced rate countries) number an impressive 172 members (43%). Clearly offering this option has served to broaden the membership base of our organization.

Membership demographics reflect this appeal. ICAZ membership now represents 61 countries around the world (from Argentina to Yugoslavia). Regional representation

IGERT AWARD TO UNIVERSITY OF ARIZONA FOR GRADUATE TRAINING IN ARCHAEOLOGICAL SCIENCE
Drs. Mary C. Stiner (mstiner@u.arizona.edu) and Barnet Pavao-Zuckerman (bpavao@email.arizona.edu) are pleased to announce that the IGERT Program of the National Science Foundation has awarded the University of Arizona a 5-year grant for graduate training in archaeological science, including zooarchaeology and taphonomy, with applications to paleoecology and geoarchaeology. The title of this grant is “Archaeological Sciences: An Integrated Approach to Graduate Training in Human Use of Ancient Landscapes through Chronometry, Paleoecology, and Technology”. The program specifically seeks to train Ph.D. students to work across the current boundaries of all scientific disciplines germane to archaeological research. IGERT-funded graduate students must be U.S. citizens and would typically receive two years of full funding from the IGERT program in excess of 27K per year, supplemented by alternative departmental sources in additional years as needed. Potential applicants interested in this program should begin by consulting the UA web page for information on standard graduate program application procedures and then proceed to the new UA IGERT site (http://datamonster.sbs.arizona.edu/IGERT).

ARCHAEOBIOLOGY RESEARCH EXPERIENCE FOR UNDERGRADUATES
During the summers of 2003-2005, the National Science Foundation and the Andrew Fiske Memorial Center for Archaeological Research at the University of Massachusetts Boston are supporting a ten-week program of archaeological excavation and laboratory work focused on the collection and analysis of archaeobiological data, including animal bones, shells, macrobotanicals and pollen. The program is comprised of one week of orientation in the laboratory; four weeks of archaeological excavation and sample collection at Sylvester Manor; and five weeks of laboratory work studying excavated materials and field data. The fieldwork takes place at Sylvester Manor, Shelter Island, New York, and the laboratory work takes place in the archaeology labs at UMass Boston. Sylvester Manor is a 250-acre site with extensive archaeological remains of a Late Woodland (pre-contact) Native American settlement, and a 1652-1735 agricultural plantation established to ship provisions to the Caribbean. UMass Boston is currently in its fifth season of work at the site. The primary goals of the research are to understand the patterns of cultural interaction and cultural change among the diverse groups on the plantation, and to reconstruct land use and landscape change through time. At UMass Boston the program participants will work in five Fiske Center archaeology laboratories which include a zooarchaeology type collection; equipment for making petrographic thin section; equipment for extracting pollen; reference collections for the identification of archaeological wood, seeds, and pollen; a Flote-Tech machine for processing sediment samples; and equipment and microscopes for extracting and identifying archaeological parasites.

Students receive a $300 per week stipend with the project covering most living expenses. Participants must be US citizens or Permanent Residents enrolled in college.

ANIMAL PALAEOPATHOLOGY WORKING GROUP ONLINE PHOTO GALLERY
The APWG is pleased to announce that their website (www.apwg.supanet.com) now has a photo center where members can upload their own images (provided they are less than 1MB in size). This gallery provides a useful benchmark for the study of bone pathologies and it can also be used in conjunction with our new message board if you want to make images available that relate to a subject of discussion. Further website developments include the continual expansion of our bibliography and a new resources area that contains links to other interesting and useful sites.
Skeletal element abundance studies and surface modification mark analyses are two common ways that zooarchaeologists present quantitative information, yet there are methodological problems that make comparison between different faunal collections and analysts difficult if not impossible. Most zooarchaeologists employ some type of derived measure of skeletal element abundance, such as the minimum number of individuals (MNI) or minimum number of animal units (MAU), which are ultimately based on the minimum number of elements (MNE). The estimate of MNE from faunal fragments is the essential foundation for all inferences emanating from skeletal element abundance, yet the process of estimating the MNE is not standardized, and rarely made explicit. From our review of the literature, there are two main approaches, one using a database to count chosen anatomical features or zones to find the MNE, and one seeking overlaps of faunal fragments to find the MNE. Inter-analyst differences abound in the choice of characteristics or zones, or the method itself, and the overlap approach is highly subjective and lacking in reproducibility.

Another important category of zooarchaeological data is the frequency of surface modification found on bone fragments (tooth marks, burnt areas, percussion marks, and cutmarks). There are a variety of methods currently used to quantify surface modifications, and we use cutmarks as an example. Some analysts count the number of fragments that have a cutmark; others count the number of cutmarks; and both counts can be expressed as simple counts, or as a count of some more derived measure of skeletal element abundance. In addition to this inter-analyst variance, fragmentation of specimens impacts the frequency of cutmarks (an other surface modifications) in an assemblage, biasing inter-collection comparisons. Inter-analyst and inter-collection variation is thus a severe problem for comparative studies because it makes it difficult, if not impossible, to compare zooarchaeological data.

In Marean et al. (2001) and Abe et al. (2002), we argued that an image-analysis approach using the latest GIS software could overcome the methodological problems in both MNE estimation and cutmark (and by extension all surface modification) counting. Using the capacity of GIS software to turn vector (e.g., polygon) files into raster (grid) files and to tie in database information to spatial coordinates, we presented a method where we treat each fragment as a pixel image and overlying these fragment images on a template (picture of whole skeletal element) to find the maximum number of overlaps, i.e. the MNE (Marean et al. 2001). This process could be run for the whole element, or an analyst-specified anatomical zone. This computer-based method reduces the inaccuracies of the overlap methods, provides data compatible with previously done studies based on anatomical zones, and provides a digital copy of a faunal collection that can be re-analyzed in the future without going over the whole collection again. This method could eliminate the problem of inter-analyst variation in estimating the MNE. In addition, the approach has very flexible database management such that analyses can be easily re-done on new aggregations of provenience units.

We have also shown that this image-analysis approach provides a new method of expressing surface modification counts that is not impacted by the degree of fragmentation (Abe et al. 2002). Accurately quantifying surface modification frequencies is a surface area problem similar to sampling problems involving surface area in other disciplines. For example, when ecologists sample habitats to estimate population size, the proper correction is population divided by area. Zooarchaeologists have tried to use the MNE as a proxy for area, but it does not work because bone portions do not all have an equal chance of surviving attritional processes. By recording surface modifications, together with fragments, as images in the image-analysis approach, we are able to express surface modification in relation to preserved surface area, which is calculated by the GIS software using the fragment images. As with the MNE process, the GIS software allows the analyst unlimited flexibility in the focus of the analyses, such as different anatomical zones or different kinds of cutmarks. In summary, GIS-based image-analysis approach provides one solution to the problem of eliminating inter-analyst and inter-collection bias.

We believe that all zooarchaeological methodology will eventually migrate to image-based recording and analysis, and our approach is a first step in this migration. The software was developed between 1997 and 2002, and is available gratis from Marean by e-mailing him at curtis.marean@asu.edu. You must have ArcView 3.2 or later, and this is typically site-licensed at many universities.


1Yoshiko Abe, Interdepartmental Doctoral Program in Anthropological Sciences, SUNY at Stony Brook, Stony Brook, NY 11794-4364, USA. 2Curtis W. Marean, Institute of Human Origins, Department of Anthropology, PO Box 872402, Arizona State University, Tempe, AZ 85287-2402, USA.
On Preparing Animal Skeletons: A Simple and Effective Method

Contributed by Polydora Baker, Simon Davis, Sebastian Payne, and Michael Revill


First, a few words of caution. Preparing animal skeletons requires some care where health and safety are concerned. We never prepare animals that have died of unknown causes in case of possible zoonoses. Rubber gloves are recommended when preparing a carcass. Care is also needed to avoid injuries, and the enzymes we use are better in liquid form rather than powder (which is more hazardous as it might be accidentally inhaled). We use acetone to degrease bones. This is very inflammable, so smoking is certainly not recommended, and a fume hood should be used. We have, in the past, used various chemicals to deflesh, bleach and degrease bones, but we do not recommend their use. For example, caustic soda can damage bone and is very corrosive. Chemical bleaches may also damage bone, and chlorinated hydrocarbons and methanol, which may be used to degrease, are both more toxic than acetone.

What follows is an account of how a fresh or decomposing carcass can end up as a clean disarticulated skeleton. This method, which can also easily be done in the field or even at home without full laboratory facilities, can take as little as a few hours, thanks to “proteolytic enzymes” like the ones in biological washing powders or meat tenderizers.

The first step is enzymatic proteolysis. We use an enzyme called Neutrase (the liquid form), made by Novozymes, a large chemical company in Denmark, with agents in many parts of the world. You can find more information about where to purchase it via Novozyme’s web site: http://www.novozymes.com (In Britain, Neutrase can be ordered from Eurzyme.com 122 Springhill Avenue, Blackrock, Co. Dublin, Ireland. tel +353 1 2897562/2070754, or +353 87 9079299 fax +353 1 2898230 e-mail info@eurzyme.com web: www.eurzyme.com It costs Sterling £17.90/kg for 25L; at the moment 25L is the minimum order.). Neutrase is a protease used to degrade proteins in the flour used for biscuit and cracker production, presumably to render the cereal proteins more digestible. If you cannot afford to buy Neutrase, you can use biological washing powders (some come in liquid form too) such as Ariel or Biotex or even meat tenderizers like papain, an extract of the papaya fruit.

The cooked carcass, now devoid of much of its meat, is incubated in a solution of the enzyme—two or three teaspoonfuls (10-20 ml) per 20 litre bucket of warm water is usually sufficient. Enzymes are large complex organic molecules and do not last for very long at raised temperatures; it is important to let the carcass cool down below 50ºC before adding the Neutrase, and not to use water that is too hot, otherwise the enzyme will be deactivated. We use a converted ostrich egg incubator to maintain a temperature of 45ºC. However, incubators are expensive, so a cheaper alternative is an aquarium heater, which only costs about £12 and may be purchased in a pet shop.

At 45ºC, Neutrase activity declines after a few hours. Hence after 3-4 hours, if there is still some residual meat left, it is best to change the liquid completely and add fresh warm water and enzyme. Generally the bones are clean of blood, muscle and tendons after 2-3 changes of enzyme solution; in very old animals with tough ligaments, it may be necessary to go through more cycles. If the carcass is left in unchanged enzyme solution for longer than a few hours, bacterial decomposition sets in which creates more smells.

When preparing small mammal or bird skeletons, several carcasses may be processed simultaneously in the same bucket of enzyme solution by placing each in a separate bag made by tying the ends of lengths of nylon ladies tights or stockings. These resist not only boiling water and enzyme solution but also the acetone used to degrease. In order to keep tabs on each specimen, a metal tag is added to each bagged carcass. Use heavy-duty metal foil, the sort sold in hardware stores for draught exclusion. It is easy to cut into small squares with kitchen scissors and the accession number may be embossed with a ballpoint pen. If you want to keep the small bones of left, right, front and hind feet separate, again these can be put into separate bags.

After incubation the bones will be lying at the bottom of a “soup” containing the broken down meat proteins and fat. This soup needs to be thoroughly washed away with hot water, through a sieve to avoid losing small bones, and the bones usually need to be rinsed once or twice. The resulting cleaned disarticulated bones should then be left to dry thoroughly.

Bones generally contain a lot of grease. This means that (unless the unfortunate animal died of starvation) it will be necessary to degrease. If this is not done, the bones can become unpleasant and smelly. Over the years, grease breaks down as a result of bacterial decay and the resulting acids attack the bones. Degreasing is therefore very important and is done by leaving the bones (small specimens are better left in their tights) in acetone for several weeks (chlorinated degreasing solvents are best avoided, as they are mostly toxic and/...
CHECK YOUR CONTACT INFORMATION
This is a reminder to all ICAZ members to please check your contact information and make sure that it is accurate and up-to-date. You can find this information in the Membership Directory of the For Members section of the ICAZ Website (rathbin.si.edu/icaz). Please notify ICAZ Secretary Arturo Morales (arturo.morales@uam.es) of errors.

REQUEST FOR INFORMATION ON MARINE TURTLES
There are seven living species of marine turtles (6 in the family Cheloniidae and 1 in Dermochelyidae). These animals have been exploited and celebrated by diverse societies for millennia as they are found throughout tropical and subtropical oceans of the world. Because marine turtles are large in size, their bones are bulky, robust and distinctive. Their remains are commonly found in coastal sites throughout the world. Cultural artifacts made from, and representing, marine turtles are also common. I am compiling information on prehistoric and ancient interactions among marine turtles and humans, and would be very grateful for any information on: 1) sites where remains have been found (including other general information such as estimated age of the site, cultural context, turtle species or family if known, types and numbers of bones found, etc.) 2) sites where cultural manifestations of marine turtles have been found 3) publications that provide the above information, including “gray literature reports” 4) names of people or institutions where work on marine turtles is, or has been, carried out.

Thank you very much for any information that can be provided. Please contact: Jack Frazier • Conservation and Research Center • Smithsonian Institution • 1500 Remount Road • Front Royal, VA 22630 USA • Tel: 540-635-6564 • E-mail: kurma@shentel.net.
This is the third Spring ICAZ Newsletter to feature recent publications in archaeozoology. For the past three spring issues, we have e-mailed the ICAZ membership asking members to send us references to recent publications that would be of interest to their ICAZ colleagues. When we asked members to help with this list in 2001, we received more than 90 submissions. This number grew to an impressive 150 submissions in 2002. With the current Spring 2003 ICAZ Newsletter, the Recent Publications section features more than 190 submissions—6+ pages. Due to space considerations, we have omitted from the following list publications in-press, papers presented, printed abstracts, and publications prior to 2000. Many thanks to all who contributed!

**Recent Publications**


Ethnography of Livestock: Archaeology, Linguistics, and Medieval History of the Volga Basin Territory


Bone remains. In Ratchevskoje: Osteologic Analysis of Mammals’ Territory of the Kama Region During Ancient Epoch. 282 (special issue).


BOATKINA, O.G. (2003). Terrestrial remains from grotto “Snow-White”. In Terrestrial from Russia and contiguous territories, pp. 52. Moscow [in Russian].


GREENFIELD, H.J. (2000). The origins of metallurgy in the central Balkans based on the analy-


MONDINI, N.M. (2001). Taphonomic action of foxes in Puna rockshelters: a case study in Antofagasta de la Sierra (Province of Catamarca, Argentina). In *Ethnoarchaeology of Andean South America: Contributions to Archaeologi-


Continued from page 1- ICZN Opinion placed on the Official Index of Rejected and Invalid Specific Names in Zoology.

-History of Case 3010-

An application for the conservation of usage of the first available specific name based on a wild population for 15 wild species of mammals with domestic derivatives was received from Mrs. Anthea Gentry (Cuckfield, Haywards Heath, West Sussex, U.K.), Dr. Juliet Clutton-Brock (Working Group on Nomenclature, International Council of Archaeozoology, c/o The Natural History Museum, London, U.K.), and Prof. Colin P. Groves (The Australian National University, Canberra, A.C.T., Australia) on December 14, 1995. The case was published in March 1996 in the Bulletin of Zoological Nomenclature 53:28-37.

-Original References-


Continued from page 2- Letter from President is quite even with 50% of the membership from Europe, 41% from the Americas, and 9% from Africa, Asia, and Oceania. The breadth of regional representation in the residence of ICAZ members is matched by their wide ranging regional research interests. Just under half of the membership (49%) works on research problems centered in Europe, 25% work on topics centered in North America, 7% in South and Central America, 17% on Asia or Oceania, and 2% in Africa. There is a wide and even spread in both temporal span of research interests and in taxa studied by ICAZ members.

But perhaps one of the most exciting things about the current ICAZ membership is its youth. More than half of ICAZ members are under 40, with 28% of members in the 20-29 age range and another 28% in the 30-39 year age range. The dominance of young researchers in the organization signals a vibrant future for ICAZ.

There is also a growing increase in the representation of women among younger ICAZ members. While women make up only 23% of ICAZ members over 60, their proportional representation increases in each age group reaching 60% of ICAZ members in their 30s, and 66% of members in their 20s. This increase is in step with the steady increase in women in archaeology graduate programs and in the ranks of young professional archaeologists documented in the Americas (Zeder 1997), and likely also seen in other regions around the world.
The Treasurer wishes to acknowledge the generosity of the University of Durham for waiving fees that could have been charged in relation to credit card transactions during the ICAZ 2002 conference. He also wishes to extend his appreciation to the organizers of ICAZ 2002 for their excellent financial management that resulted in reimbursement to ICAZ of all funds advanced to them for creating a conference webpage and for providing individual members with help to attend the conference. As a result of these happy occurrences, ICAZ is in excellent financial health.

US Dollar Account

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Notes: 1) The format of the present report follows that of 15 April 2002; 2) Payments of $1500 and $4500 were made to the University of Durham for expenses relating to the 2002 International Conference of ICAZ. These payments were reimbursed to ICAZ in January 2003; 3) The International Committee of ICAZ authorized the Treasurer to pay to Southern Illinois University the sum of $1300 per year for the webpage maintenance and newsletter editing services of Heather Lapham. The additional $30 was paid for banking fees that are to be refunded; 4) Does not include newsletter expenses for the Fall 2002 and Spring 2003 newsletters. Cost for the former was $573.75, for the latter, not yet available; 5) Credit card payment of dues totaled £2020. Surcharges for non-members registering for ICAZ 2002 totaled £2130, much of which was applied to the dues of those individuals who had paid the surcharge but who joined ICAZ at the conference. The University of Durham kindly waived fees on these transactions; 6) Interest of 13 pence has accrued due to a banking error; 7) The International Committee of ICAZ authorized the Treasurer to pay the conference registration fees for three members who assisted the officers of ICAZ at ICAZ 2002 at the membership tables; 8) The International Committee of ICAZ authorized the Treasurer to pay Juan Rofes the sum of $1000 (€675) for helping to update and maintain the ICAZ member database in the office of the General Secretary. • Submitted 16 April 2003 by Richard H. Meadow, Treasurer, ICAZ.
PIER FRANCESCO CASSOLI

These seem to be sad times not only for the world as a whole but also for our little international community. Only a few days after the terrible news of the death of Francisco Hernandez Carasquilla, we heard that Pier Francesco (“Piero”) Cassoli had also passed away on March 24, 2003. Piero was a pioneer of the study of animal bones from archaeological sites and although his approach was originally paleontological, he soon developed an interest in addressing archaeological questions, helped in this by his long collaboration with Antonio Tagliacozzo. He spent most of his career at the Museo Nazionale Preistorico ed Etnografico Luigi Pigorini in Rome, but also had close links with the Istituto di Paleontologia Umana where he curated one of the best collections of bird skeletons in the world. Piero analyzed and published faunal material from an incredible number of key prehistorical (and occasionally historical) Italian sites. Mainly known for his fantastic expertise in bird skeletal morphology, Piero was in fact extremely competent also on other classes of vertebrates. I will always remember going to Rome as a young and inexperienced researcher to ask for his help in identifying some bird bones, and when I showed him a tiny and rather shapeless bone he identified it straight away as part of the internal structure of a sheep skull! In the following fifteen years I have met no one with the same knowledge of the smallest details of bone morphology. A few years ago Piero retired and although he had decided to keep away from any bone work he inevitably ended up with more assemblages to study—unfortunately for him too many people knew of his expertise. Piero was immensely liked and respected in the research community—particularly in Italy where he worked for all of his life. This is not only because he was good at his work, but also because he loved what he did and never gave the impression of having a hidden agenda or a desire to push for a better career (which, incidentally, he would have fully deserved). I am sure that all who have had the privilege of meeting him will agree that we have lost a beloved colleague and a sincere friend. Rest in peace.

Umberto Albarella, University of Durham

FRANCISCO HERNÁNDEZ CARRASQUILLA

On March 16, 2003, after a dreadful seven-month fight against leukemia, Francisco Hernandez Carasquilla (“Fran”), passed away in Madrid. Born in 1964, Fran enjoyed a short but productive life for, as far as he could remember, he had always been mesmerized by birds. Birds made him a successful bird-ringer well before going to a university and birds led him into biology (he hated genetics). When the time came for his post-graduate studies, Fran had started helping me in a casual way cleaning bones, but at some point he realized that there was more to birds than just the ringing and observation that he was so familiar with. In many ways he was probably surprised to see that he was able to determine a species from the right splinter just as accurately as he could do from just hearing a few notes or seeing a silhouette in flight. Still, his background in field studies was systematically brought into his analyses of bird bones since he was unable to detach the identification of a bone from the wealth of data he had previously amassed on that particular species. “Bones sing to me their identity!”, he once told me and I stared at him thoroughly confused. But, in fact, this was true. Fran did with ease what most of us take a lifetime to achieve, and then only in an imperfect way, namely, to proceed beyond raw data. I felt envious for that gift and I still do, but I know he will forgive my envy.

During his short, but intensively productive career, Fran managed to review a fantastic amount of archaeological bird faunas from Iberia that had been waiting for years, like Sleeping Beauties, for their prince to show up. One of these Sleeping Beauties (Cartuja) became his Master’s thesis and a second one (Cueva de Nerja) his Doctoral dissertation. In all his works—42 in all, including heavyweight papers like the one in Science—Fran left his “not-just-bones” imprint so that all his studies were thorough and of high standard. I want to think that I may also have my share on this last aspect but, to tell the truth, Fran was not a man in need of much guidance. He knew his way from the start.

Fran was a joy to work with, a perfect team worker and a good friend. Some six years ago he settled down with his family and left our lab to start a “serious” life, but he neither gave up on birds (he became head of the Bird Ringing Office of the Spanish Ministry of the Environment) nor bird bones. Several Sleeping Beauties— Gorham’s Cave, among others—were still awaiting his kiss at the time of his untimely death. I am sure he would be happy to learn that new princes will appear to continue his work. Fran left a wife and two children (aged two and four) and lots, lots of friends. His death has been a great loss for our profession, but still larger for those of us who loved him. The best we can do now is to keep his memory fresh for those who follow. May he rest in peace. Amen.

Arturo Morales, Universidad Autónoma de Madrid

EITAN TCHERNOV

Eitan Tchernov, our cherished mentor, colleague and friend, passed away on December 13, 2002, after a valiant and unrelenting struggle against cancer. The character traits which most readily spring to mind when thinking of Eitan are his infinite curiosity and indefatigable enthusiasm.

Eitan was born in Tel Aviv in 1935 and from an extremely early age showed a keen and active interest in natural history. So much so, that by the time he began his studies in zoology at The Hebrew University he had already given up on birds (he became head of the Bird Ringing Office of the Spanish Ministry of the Environment) nor bird bones. Several Sleeping Beauties— Gorham’s Cave, among others—were still awaiting his kiss at the time of his untimely death. I am sure he would be happy to learn that new princes will appear to continue his work. Fran left a wife and two children (aged two and four) and lots, lots of friends. His death has been a great loss for our profession, but still larger for those of us who loved him. The best we can do now is to keep his memory fresh for those who follow. May he rest in peace. Amen.

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Arturo Morales, Universidad Autónoma de Madrid
equipped laboratory and was successful in greatly expanding ex-
tant collections of palaeontological, archaeozoological and com-
parative fauna from Israel. These now comprise the most com-
prehensive collection of their kind for the region. The collection
has attracted students and researchers from all over the world for
whom the laboratory serves as a second home as well as research
centre. This was largely due to Eitan’s gregarious personality and
generosity, and was also evidenced in his ability to maintain long
term collaborations with other scientists and former students.
Notable is his life-long collaboration with archaeologist Ofer Bar-
Yosef, with whom he engaged in excavations of numerous prehis-
toric sites in Israel, such as Ubeidiya, Hayonim and Kebara Caves.

In addition to Eitan’s devotion to biology, he had a deep love
of cooking, gardening, literature and especially music. Conse-
quently, conversations in the laboratory ranged across an exten-
sive, often bewildering, spectrum of topics. In a similar fashion,
Eitan’s academic career was notable for its interdisciplinary na-
ture. This is expressed in the broad spectrum covered by his re-
search and over 150 scientific publications: microevolutionary
processes in birds and mammals during the Neogene and Quater-
ary in the Levant; biogeographical history, biotic turnovers and
extinctions in Southwestern Asia; spatial and temporal changes in
the structure of faunal communities; paleoenvironmental and
palaeoecological changes during the Neogene and Quaternary of
the southern Levant and the ecological impacts of humans on glo-
bal and regional changes in habitats; dispersal events and palaeo-
distribution of hominins; biochronology and the origin of mod-
ern humans; sedentism, socialization and the processes of early
domestication; management of natural reserves and conservation
ethics; biological pest control, to name but a few.

Eitan was internationally known as a specialist on the Order
Rodentia, and his research on micro-mammalian evolution, which
began with his doctoral research on the Pleistocene rodent fauna
of Israel, continued throughout his career. Seminal publications
include: his doctoral dissertation (1968, Berlin: Paul Parey); a
monograph on the Pleistocene birds of Ubeidiya (1980, Jerusa-
lem: Israel Academy of Humanities and Sciences), one on East
and North African crocodiles (1985, Paris: CNRS), another on
the fauna from the Pre-Pottery Neolithic A site of Netiv Hagdud
(1994, Harvard University: Peabody Museum); and editor of a
volume on the fauna from the site of Ubeidiya (1986, Paris: As-
sociation Paleorient).

Since 1975 Eitan served as a member of the ICAZ steering
committee. He served as mentor for a new generation of Israeli
archaeozoologists and it is primarily due to his dedication and per-
severance that this field is now a recognized area of study in this
country.

Although primarily focusing on the zoology, archaeozoology
and palaeontology of Israel, Eitan’s research activities extended
beyond its borders and included collaborations with international
scholars in East Africa, America, France, Greece and other Near
Eastern countries. His most recent research focused on material
from the Cretaceous site of Ein Yabrud (Israel) and included col-
laboration with Dr. O. Rieppel and Prof. L. Jacobs (USA) in de-
scribing a snake with vestigial limbs from this site. Their findings
have led to major revisions of Ophidian taxonomy and evolution.

Eitan was actively involved in the establishment and develop-
ment of the Israel Nature Reserves Authority and served as its first
ranger. In later years he was a member of its scientific advisory
board as well as that of the Society for the Protection of Nature. He
continued to play a leading role in nature conservation in Israel
serving as its representative on the UNESCO-MAB committee (Man
and the Biosphere) and SCOPE (Scientific Committee on the Prob-
lems of the Environment), and since 1986 was co-editor of the
Hebrew magazine Sevivot, dedicated to environment and environ-
mental education.

With his passing, Eitan has left a huge hiatus in all areas that
he touched upon; as a teacher, colleague and friend.

Liora Horwitz, Rivka Rabinovich, and
the Department of Evolution, Systematics and Ecology
The Hebrew University, Jerusalem

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Continued from page 4 On Preparing Animal Skeletons

or flammable and/or carcinogenic). Move specimens through a
“sequence” of jars containing increasingly clean acetone. The
grisliest specimens go into Jar 1. Specimens are then moved to
Jar 2, which contains cleaner acetone and thence on to Jar 3,
which contains the least greasy acetone. Fish grease being rather
light, tends to dissolve out quickly, so fish skeletons de-grease
rapidly. Degreasing old museum specimens may take several
months, as old grease seems to be harder to dissolve.

The degreased specimen is dried. Some zoarchaeologists
like clean white specimens and bleach them. But chemical bleaches
can damage bone and the white color may obscure surface mod-
delling and small surface details. This can be a particular problem
with small bones when viewed under the microscope. One rem-
edy is to stain with tea—black Indian or Ceylon tea being best.
Pour hot strong tea over the bones; leave them a few minutes,
and then wash and dry. Staining may also be useful to distin-
guish certain parts of the skeleton, say left side from right.

The final process is marking up. Each skeleton in a collec-
tion needs to be labelled with an accession number. This is es-
sential. The use of a reference collection usually entails tempo-
rarily removing certain bones to compare them with the archaeo-
logical specimens. It is all too easy to return bones to the wrong
box afterwards! In many ways marking bones is the most labori-
ous part of the process—writing on mouse bones for example can
be exceedingly tedious. Use a drafting pen (such as a Rötring),
the finer ones being better for small bones. The inks for these
pens have the advantage of being fairly robust and if subsequent
further degreasing is needed, they are acetone resistant. Do not
use felt-tip pens as the inks tend to be light-sensitive and fade
and of course are dissolved in acetone. Marked up disarticulated
bones may then be housed in labelled boxes.

Preparing animal skeletons, contrary to what many people
imagine, is easy, quick and really not too smelly. Remember too,
if you can, eat your specimens—your local fishmonger, butcher,
food market, may well be a good source— but ask for birds “in
the feather” or fish “uncleaned” (this way you’ll have the feet of
the bird and be able to sex the fish!).

Any questions? Contact: Polydora Baker (Polydora.Baker@en-
lish-heritage.org.uk), Simon Davis (sdavis@ipa.min-
cultura.pt), Sebastian Payne (Sebastian.Payne@english-
heritage.org.uk), or Michael Revill (Michael.Revill@english-
heritage.org.uk).
CALENDAR

AUGUST 21-25, 2003
The 3rd International Workshop on South American Camelid Zooarchaeology, hosted by the ICAZ Grupo Zooarqueología de Camélidos, will be held in Tilcara, Argentina. Organized around the theme “The Management of South American Camelids”, the meeting will emphasize current approaches used to study management practices (i.e., harvest profiles, seasonality, diet, primary and secondary product use, etc.). The first three days will be dedicated to paper presentations and the last two days for an excursion to see vicuñas and llamas and to visit some interesting archaeological sites. For details, please contact the organizers: Guillermo Mengoni Goñalons (wmengoni@yahoo.com.ar), Daniel Olivera (deolivera@movi.com.ar), and Hugo Yacobaccio (yacobaccio@aol.com).

SEPTEMBER 26-28, 2003
The 12th ICAZ Fish Remains Working Group Conference will be held in Guadalajara, Jalisco, Mexico. Contributions, including both papers and posters, are invited on the different aspects of archaeoichthyology. We expect to devote at least four days to presentations and discussions in order to avoid parallel sessions. The conference will be held from the 9th-12th. For more information, contact: Ana Fabiola Guzmán, Laboratorio de Arqueozooología, Subdirección de Laboratorios y Apoyo Académico, Instituto Nacional de Antropología e Historia, México 06060 D.F. MÉXICO, Tel: 00 52 55-55224162, E-mail: fguzman@ipn.mx.

SEPTEMBER 4-12, 2003
The next ICAZ Executive Committee Meeting will be held in conjunction with the Fish Remains Working Group conference in Guadalajara, Jalisco, Mexico. For more information, contact: Melinda Zeder (zeder.melinda@nmnh.si.edu).

NOVEMBER 26-28, 2003
The Colloquium “Les Equides en Mediterranee orientale, de l’age du Bronce a la fin de l’Epoque Imperiale” will be held at the French School in Athens, Greece. For more information, contact: Armelle Gardeisen (armelle@cns-mop.fr) or Antoine Hermary (hermary@mmsh.univ-aix.fr).

UPCOMING MEETINGS IN 2004
MAY 2004
The next ICAZ International Council Meeting will be held in Copenhagen, Denmark. Exact dates to be decided. For additional information, contact: Nanna Noe-Nygaard (nannan@geo.geol.ku.dk).

JULY 25-28, 2004
The 5th Meeting of the ICAZ Bird Working Group, hosted by Institute of Palaeoanatomy and the Bavarian State Collection of Anthropology and Palaeoanatomy, will be held in München, Germany. For details, contact: Cornelia Becker, Germany (cobecker@zedat.fu-berlin.de).