This issue of the Newsletter is full of exciting news and projects. A new section has been added, entitled Methodological Notes, to provide a forum for sharing working practices: please do consider contributing your thoughts and insights. The Member News and Laboratory Updates sections remain, as somewhere to share other news, such as the wonderful Djenj Project. Please also consider sending in images of any amazing skeletons you may have in your collection, or an assemblage, that we could use as a cover story. The history of the sea turtle on the cover of this issue is given in the Bulletin du Muséum national d'Histoire naturelle, 1ère série (1922, volume 28): ‘Description d'une Tortue-Luth pêchée auprès de Biarritz’ par M. F. Angel. It was caught on 22 October 1922 off the coast of Biarritz (France) and donated to the Paris Museum of Natural History on 30 December 1922. The length from the tip of the snout to the tip of the tail is 2.35 m and the length of the carapace is 1.50 m. It weighed approximately 450 kg. The way it has been articulated and mounted, showing the relationship between the skeleton and outer body parts, is both skilful and informative.

As ever, do keep an eye on the deadlines for forthcoming events. The EAA conference has many sessions that will be of interest across our discipline, with a deadline for abstract submission of 13 February, while the Molluscs and ancient human societies conference has a deadline of 20 February.
Volume 20, No. 1, 2020

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ICAZ Executive Committee

President
Sarah Whitcher Kansa, USA
sarahkansa@gmail.com

Vice-President
Terry O'Connor, UK
terry.oconnor@york.ac.uk

Secretary
Christine Lefèvre, France
christine.lefevre@mnhn.fr

Treasurer
Suzanne Pilaar Birch
sepbirch@uga.edu

Current Conference Organizer
Patrick Faulkner
patrick.faulkner@sydney.edu.au

Past Conference Organizer
Evangelia Pişkin
ioannido@metu.edu.tr

Committee Members
Hitomi Hongo, Japan
hongou_hitomi@soken.ac.jp

Hans Christian Küchelmann, Germany
info@knochenarbeit.de

Richard Meadow, USA
meadow@fas.harvard.edu

Mariana Mondini, Argentina
mmondini@filo.uba.ar

Web Administrator
Sarah Whitcher Kansa, USA
sarahkansa@gmail.com

Newsletter Editor
Eva Fairnell, UK
icaznewsletter@gmail.com

About the Newsletter

ICAZ welcomes submissions to its bi-annual Newsletter. Submissions can be emailed to the editor, Eva Fairnell: the deadlines for copy are 15 May and 15 November. Past issues of the Newsletter can be downloaded from the Publications section of the ICAZ website, http://www.alexandriaarchive.org/icaz.

Editor
Eva Fairnell, UK (ICAZNewsletter@gmail.com)

Assistant Editor
Idoia Grau Sologestoa, Switzerland (ICAZNewsletterAssistant@gmail.com)

Cover image: Sea turtle picture taken by Christine Lefèvre
Letter from the President

As we enter a new decade, ICAZ’s membership is strong at 500 individuals from 50 countries. Our numbers have been holding steady, reflecting an engaged membership year to year. Members are active throughout the year in many different ways, such as attending one of the several working group meetings offered annually, contributing a piece to the newsletter, or participating in discussions on the ZOOARCH listserv. I think ICAZ offers an exemplar for how an international professional organization can best serve its members—by supporting many additional opportunities to engage, both in person and online, in between our international conferences.

We are happy to announce that all past ICAZ newsletters are now available on the ICAZ website. The earliest is from 1980, well before many current ICAZ members were born! These provide an interesting view on the history and growth of ICAZ as an organization. A big thanks to Richard Meadow, François Poplin and Jean-Denis Vigne for providing the early newsletters, and to Christine Lefèvre for scanning and organizing them. Have a look: http://alexandriaarchive.org/icaz/publications-newsletter.

ICAZ’s working groups and affiliated groups are inspiring! Check out the reports in the Newsletter from the groups that met in the past year and those coming up. The meetings are well-organized, with interesting programmes and sometimes chance-of-a-lifetime excursions. Several meetings take place every year in various places around the world and these meetings almost always result in publications. The groups update their web pages on the ICAZ website regularly, so you may find a history of each group and their related published outcomes by visiting our website. If a meeting is taking place near you, take advantage of the opportunity to meet people and share your research in a friendly and small-scale setting. I hope the new financial support that ICAZ is offering working groups and affiliated groups has helped the organizers of those meetings in their planning and execution. We would be happy to see more groups take advantage of these funds (see the guidance in Financial support for ICAZ working groups & affiliated groups).

In the last newsletter, I put out a call for participation on a subcommittee to update ICAZ’s Professional Protocols, specifically to include ethical guidance regarding harassment and maintenance of a safe and respectful work and learning environment. I received an enthusiastic response to this call, and in October 2019 we established the 10-person subcommittee, including four Executive Committee (EC) members (myself, Hitomi Hongo, Christine Lefèvre and Mariana Mondini), three International Committee (IC) members (Angelos Hadjikoumis, Albérico Nogueira de Queiroz and Kat Szabó) and three general members (Alex Fitzpatrick, Kara Larson and Albína Pálsdóttir). I’d like to thank all the subcommittee members and others who volunteered to take part. The subcommittee has met twice so far via conference call and, after some discussion and review of approaches other societies have taken, we have determined that we must divide our work into two different tasks. The first is updating the existing ICAZ protocols to take into account changes in the discipline over the past decade, such as new techniques, tools and forms of dissemination. We plan to make this information available in two formats. As before, a PDF of the full protocols will be available to download for offline reference or to share with colleagues. The updated protocols will also be posted in HTML on the website, making them more discoverable and easier to navigate and reference. The second task is to create a separate Code of Conduct, stages of which will be released over time. Elements of this will include a non-discrimination policy that every ICAZ conference and working group meeting can incorporate into its programme and/or other communications related to the meeting for members and attendees to acknowledge. The subcommittee will communicate its progress via email and Newsletter reports. We expect to have completed the majority of this work by mid-2020, in time for discussion during the IC meeting in Stockholm (10–14 June 2020).

Finally, I am delighted to see that we are in strong financial standing, as noted in the Treasurer’s report. ICAZ charges very little for membership compared with other professional societies. In fact, ICAZ’s four-year membership is less than most societies charge for one-year membership! Please consider donating a little bit extra – even just $20 each year from every member would mean an additional $10,000 annually! This is extremely easy to do now because we have a ‘Donate’ button on the ICAZ website. Please join me in contributing a bit extra! http://alexandriaarchive.org/icaz/membership-donate

Sarah W. Kansa, ICAZ President
International Committee meeting update

Contributed by László Bartosiewicz (IC member)

The upcoming meeting of the ICAZ International Committee (IC) will take place at the Osteoarchaeological Research Laboratory of Stockholm University (Sweden), 10–14 June 2020. The main aim of this meeting will be to review and monitor a number of current and future matters relating to ICAZ. In addition to business meetings for the IC and Executive Committee (EC), a short academic session will be held by the participants entitled ‘The future of past animals: global perspectives in zooarchaeology’. The aim is to provide a forum for the committees to discuss the challenges facing our organization beyond the administrative.

Titles submitted for a preliminary programme by the 2019 deadline have demonstrated the clear scholarly purpose of the academic session, supported by the prestigious list of international lecturers. This 2019 programme became the core of a successful grant application: in November ICAZ won generous funding from the Marcus Wallenberg Foundation, Sweden. Financial support will cover the housing costs for all IC members for the duration of the meeting and will include daytime meals during workdays. Hopefully this development, recognizing the importance of ICAZ, will ease the financial burden on those who will still need to procure travel expenses.

Treasurer’s report

Contributed by Suzanne E. Pilaar Birch (Treasurer)

I am pleased to be writing my first report as Treasurer and look forward to serving ICAZ as diligently as my predecessor, Pam Crabtree. I felt lucky to be taking over from Pam in October 2018 because she left the accounts in great shape. Not least, she was able to close our foreign bank accounts and consolidate our funds. We now operate using one US-held checking account with TIAA Bank. We also use PayPal, which makes membership payments (as well as donations!) through the website that much easier.

In December, I completed and submitted the tax forms for fiscal year (FY) 2019. Expenses and income were as follows:

<table>
<thead>
<tr>
<th>Incomings/outgoings</th>
<th>Total in US dollars</th>
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<tr>
<td>Income</td>
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<td>Membership</td>
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<tr>
<td>2022 ICAZ seed funding</td>
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</tbody>
</table>

As of end FY 2019 (30 September 2019), ICAZ had $70,720.53 in its account.

In 2019, we launched the ICAZ Financial Support Fund for Affiliated Conferences, which supported three conferences: the Animal Paleopathology Working Group (APWG) meeting in May at the University of Tartu, Estonia; the Postgraduate ZooArchaeology Forum (PZAF) in June in Yerevan, Armenia; and the Fish Remains Working Group (FRWG) in August in Portland, Oregon. We spent only half of the allocation and encourage working groups to apply for funding in the coming year (see the next page).
Financial support for ICAZ working groups & affiliated groups

Contributed by the Review Committee: Suzanne Pilaar Birch (Treasurer), Virginia Butler (IC member), Erika Gál (WG Liaison and IC member)

ICAZ allocates up to US$5000 dollars each year to support meetings and related activities of ICAZ working groups and affiliated groups (see http://alexandriaarchive.org/icaz/working).

The total amount of any request should not exceed US$1000. These funds are intended to support travel costs for students, junior researchers and unfunded scholars who want to attend a working group meeting, although other needs will be considered. Applications should be submitted by working group coordinators and/or working group meeting organizers, not individuals seeking support. In order to maximize use of the funds, any remaining balance must be returned to ICAZ following the meeting. Please note: working groups should not plan to host meetings in the same year as the ICAZ conference (thus not in 2022, 2026, etc.).

A committee consisting of one EC officer and two IC members will review each proposal and allocate the funds as appropriate until the budget for a given year is expended.

There is no fixed deadline: applications are accepted on a rolling basis.

Application: Please fill out and submit your application through Google Forms using this link: https://docs.google.com/forms/d/e/1FAIpQLScag0MAE1JvX4zGCEtO1mmzPArpIPaXtf0SA3ZrRHCtLnBg/viewform

ICAZ Newsletter back issues

The ICAZ Newsletter has been published since 1980, with a hiatus from 1993 to 1999. All issues are now available to download from https://www.alexandriaarchive.org/icaz/publications-newsletter.

ICAZ membership

To join ICAZ or renew your membership, visit the Membership section of the ICAZ website, https://www.alexandriaarchive.org/icaz/membership-join. Dues may be paid online or via post. Questions and inquiries may be emailed to the treasurer, Suzanne Pilaar Birch, sepbirch@uga.edu.
Molluscs and ancient human societies

Contributed by Arati Deshpande-Mukherjee, Dept of AIHC and Archaeology, India (amwg2020@gmail.com)

The ICAZ Archaeomalacology Working Group (AMWG) and the Indian Society for Prehistoric and Quaternary Studies (ISPQS) will host an international conference on 'Molluscs and ancient human societies', to which you are invited to participate.

- Dates: 11–13 September 2020
- Venue: Department of Ancient Indian History and Culture (AIHC) and Archaeology, Deccan College Post-Graduate and Research Institute (PGRI), Pune 411006, Maharashtra, India

The broad theme is open to all researchers worldwide studying varied aspects of archaeological shells, such as taxonomy, ritualistic, dietary, cultural, symbolic, socio-religious, seasonality, environmental proxies, taphonomy, craft specialization and shell chemistry.

The programme will consist of single sessions over three days of oral and poster presentations, and a meeting of the AMWG.

A field trip will consist of a one-day tour of archaeological sites nearby: Pune is surrounded by forts, temples and ancient Buddhist rock cut caves (charges will be notified at the time of registration).

Registration will open in March/April 2020. It will cover conference materials, coffee/tea breaks, lunch and dinner.

Because of limited funds, participants are requested to arrange their own travel and accommodation. However, efforts will be made to arrange accommodation for students. Pune is well connected by flights and trains internally, the nearest international airport being Mumbai, which is approximately 5 hours from the venue by road (during rush hour). There are buses, trains and taxis between Mumbai and Pune (but very few flights).

Pune is very pleasant during September, with light showers, and, being mid-semester, it will be a good opportunity for our students to interact with scholars and participate in the conference.

If you would like to submit an abstract, or register your interest in attending the conference, please email amwg2020@gmail.com by 20 February 2020.

We look forward to hearing from you.
Zooarchaeology short courses at the University of Sheffield

Contributed by Mauro Rizzetto and Veronica Aniceti, University of Sheffield, UK (zooarch-shortcourse@sheffield.ac.uk)

- Understanding zooarchaeology I: 20–22 April 2020
- Understanding zooarchaeology II: 23–25 April 2020
- Price for one short course: £200/£140 (student/unwaged)
- Price for both short courses: £350/£240 (student/unwaged)

The next Understanding Zooarchaeology I short course will be run in April 2020. This three-day course aims to provide an understanding of the basic theory and methods that zooarchaeologists use to understand evidence from animal remains.

The introductory course will be followed by Understanding Zooarchaeology II, a three-day course suitable for anyone who has already attended our Understanding Zooarchaeology I course, or who has a basic knowledge of zooarchaeological methods. This course will cover the identification of a wider range of species than our introductory short course, including wild British mammals and birds, and the separation of sheep and goats. It will also provide participants with experience in recording and analysing a real archaeological assemblage.

Both courses will use short lectures, hands-on practical activities, and case studies focused on current zooarchaeological research.

For more information please visit our website: https://www.sheffield.ac.uk/archaeology/research/zooarchaeology-lab/short-course

You can also follow us on Facebook (https://www.facebook.com/Sheffield-Zooarchaeology-Short-Course-100619023380021/?ref=hl) and Twitter (https://twitter.com/ZooarchLabSheff).

For any questions, please feel free to email us at: zooarch-shortcourse@sheffield.ac.uk.
Archaeozoological workshop in the Southern African Development Community (SADC) region

Contributed by Karin Scott (info@azoosa.co.za)

We are pleased to announce the first ever archaeozoological workshop in the SADC region.

- Dates: 24–28 April 2020
- Venue: Florisbad Quaternary Research Station, National Museum Bloemfontein, 36 Aliwal Street, Bloemfontein, South Africa

At this very first meeting for professional archaeozoologists based mainly in the SADC region, we plan to:

- establish this sorely needed networking group
- establish the standards and protocols that are needed in our field and region
- establish common ground and find cross-border research projects
- discuss pertinent issues relating to SADC archaeozoological research
- provide a formal platform for continuing professional development (CPD) training in our region for archaeozoology.

The name of the planned group is Archaeozoologists of Southern Africa (AZOOSA): if you know of archaeozoologists in the SADC region please help us spread the word to them. For more information and registration details please send an email to info@azoosa.co.za.

Fourth meeting of the ICAZ Neotropical Zooarchaeology Working Group (NZWG)

Contributed by the organizing committee of the 4th NZWG meeting

We are thrilled to invite you to the 4th meeting of the NZWG set for 30 September–2 October 2020 in Recife, Pernambuco, Brazil, followed by a field trip to Pedra do Ingá and another to the old city of Recife on the Pernambuco coast. The meeting will take place at the Department of History of the Universidade Federal Rural de Pernambuco (UFRPE; http://www.ufrpe.br/en).

Registration and abstract submission will open soon through our webpage: https://doity.com.br/nzwg-icaz-2020. Both oral and poster presentations are welcome. If you are interested in contributing, please submit your abstract (500 words) via the meeting webpage by 15 June 2020.

The goal of the meeting is to reinforce zooarchaeological research on neotropical contexts and the diversity of human and animal relationships, as well as to encourage exchanges between researchers from all over the world, especially trainees. Papers from all geographic areas of the neotropical region (from Mexico to Chile and Argentina) dealing with different research problems and time periods are welcome.

Recife is the capital and largest city of the state of Pernambuco in the north-east corner of South America. The city was founded in 1537, during the early Portuguese colonization of Brazil, and its name is an allusion to the stone reefs that are present by the city’s shores. Recife stands out as a major tourist attraction of the north-east, for its beautiful beaches, rich cuisine, cultural offerings and night life, efficient tourist welcome, easy access from all parts of Brazil and foreign countries, and for its historic sites, dating back to the Portuguese and Dutch colonizations of the region,
and prehistoric AmerIndian sites, dating back to the early Holocene. The Historic Centre of Olinda, 7 km (4.3 miles) north of the Recife, was declared a UNESCO World Heritage site in 1982, and both cities’ Brazilian carnival are among the world’s most famous.

For more information about the meeting, visit our webpage at https://doity.com.br/nzwg-icaz-2020. Please share, post and circulate this information. Interested colleagues can subscribe to the NZWG through our official email: nzwg.icaz@gmail.com. If you have any questions about the registration, the meeting or travel to Brazil, please do not hesitate to contact us. Thank you and we look forward to welcoming you to Recife.

The organizing committee:

- Caroline Borges (UFRPE, Brazil)
- Suely Luna (UFRPE, Brazil)
- Sebastián Muñoz (CONICET and Universidad Nacional de Córdoba, Argentina)
- Rosa Souza (Universidade Federal Fluminense, Brazil)
- Pablo Fernández (CONICET and Instituto Nacional de Antropología y Pensamiento Latinoamericano, Argentina)

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Tenth meeting of the ICAZ Bird Working Group (BWG)

*Contributed by Hanneke Meijer, University of Bergen, Norway (Hanneke.Meijer@uib.no)*

The next BWG meeting will be held in Bergen, Norway, in June 2021, at the University Museum of Bergen. The meeting will be organized by Hanneke Meijer, Anne Karin Hufthammer, Ramona Harrison and Samuel Walker. It will comprise two days of talks, and we plan to organize a field trip for the day afterwards.

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Ninth meeting of the ICAZ Archaeozoology, Genetics, Proteomics and Morphometrics (AGPM) Working Group

*Contributed by Anna-Kaisa Salmi, University of Oulu, Finland (anna-kaisa.salmi@oulu.fi)*

We are pleased to announce that the 9th meeting of the AGPM Working Group will be held in Oulu, Finland, 23–25 September 2021.

The meeting will be held at the University of Oulu, Linnanmaa campus (https://www.oulu.fi/university/).

- Call for papers will be open 1 February–30 April 2021. Both oral and poster presentations are welcome.
- Registration will be open 15 May–31 July 2021, with an estimated registration fee of €80 per participant (including lunch and coffee)

The AGPM Working Group aims to promote collaboration between archaeology, archaeozoology, genetics, proteomics and morphometrics. The topics covered in the conference include methodological developments in the respective fields and their applications to archaeological material, colonization, animal mobility, animal domestication, animal health and disease, animal adaptation to the human niche and other ways these methods can be used to understand past human–animal relationships.

More information can be found from the meeting webpage https://www.oulu.fi/archaeology/node/193085 and by contacting us at iczagpm2021@oulu.fi.
Archaeozoology, Genetics, Proteomics and Morphometrics (AGPM) Working Group

Contributed by Thomas Cucchi, Muséum national d'Histoire naturelle, Paris, France (thomas.cucchi@mnhn.fr)

The 8th ICAZ conference for the AGPM Working Group was held at the Natural History Museum of Paris, France, on 17–18 October 2019, and was organized by Thomas Cucchi and collaborators. The scope of this working group has been extended to include proteomics, in order to cover a wider range of innovative and emerging research in the field of zooarchaeology. To launch the proposal of this new format, Professor Matthew Collins was invited to deliver a keynote entitled ‘Palaeoproteomics and zooarchaeology, a marriage made in heaven?’.

The conference welcomed 85 participants from 14 countries, allowing the production of a scientific programme of high standard comprising 35 oral talks divided into six sessions (1: Pathogens; 2: Dispersal, mobility and migration; 3: Methods and new approaches; 4: Pleistocene diversity; 5: Domestication, 6: Husbandry) and 20 posters. The programme and abstracts can be viewed via the working group web page: https://alexandriaarchive.org/icaz/icaz_website_formembers/pdf/book_ICAZ_AGPM_9-1.pdf.

The 9th AGPM Working Group meeting will be held at the University of Oulu in Finland and organized by Ana-Kaisa Salmi and collaborators.

Fish Remains Working Group (FRWG)

Contributed by László Bartosiewicz (WG Liaison), Stockholm University, Sweden (bartwicz@yahoo.com), and Virginia L. Butler, Portland State University, Portland, OR, USA (virginia@pdx.edu)

The 20th meeting of the FRWG, held at the Portland State University Campus (Portland, Oregon, USA) between 26 and 30 August, was the greatest event of our working group in 2019. It was organized by Virginia L. Butler (Portland State University), chair of a planning committee whose devoted members included Justin Cramb (University of Georgia, USA), Jen Harland (University of Highlands and Islands, UK), Iain McKechnie (University of Victoria, Canada), Madonna L. Moss (University of Oregon, USA), and Elizabeth J. Reitz (University of Georgia, USA). The conference logo (Figure 1) was designed by Sara Cramb.
The 62 participants of this meeting came from 18 countries representing four continents. Over half of them work at institutions in North America (Figure 2). This was one of the intended outcomes of the conference: thanks to the increasing globalization of ICAZ, various venues are being chosen in an effort to provide international fora for local researchers around the world, thereby also promoting the organization itself (http://alexandriaarchive.org/icaz/pdf/FINAL_FRWG_2019_Program.pdf).

FRWG meetings also offer opportunities to present the fishing cultures of the host countries. The conference was opened by a drum song performed by Sam Robinson (Chinook Indian Nation), and David Harrelson and Greg Archuleta (The Confederated Tribes of Grand Ronde). Their presence and contributions to the meeting highlighted the traditional importance of salmon fishing along the Columbia River and its tributaries.

In his keynote lecture, David Harrelson explained the long history of the complex relationship between the river, its environment and the people, focusing on historic changes and political conflict. He drafted a broad-stroke framework of animal–human relationships focusing on fish, thereby providing ample opportunities for subsequent discussions.

The organizers grouped the presentations into seven thematic oral sessions, and a separate session was dedicated to posters on a mixture of various subjects related to the other sessions. The list of sessions comprised the following:

- Fish remains provide insights on socio-cultural life (11 papers)
- Insights from sampling, ancient (a)DNA and taphonomy (5 papers)
- A global perspective on salmonids (3 papers)
- Posters (11 posters)
- Morphometrics and three-dimensional (3D) modelling (3 papers)
- Ecosystem-scale considerations: fish, people, climate (6 papers)
- Contributions of chemistry to the fish–human story (4 papers)
- Diversity in fishing strategies: from marine coastlines to inland deserts, ancient and recent contexts (10 papers)

An illustrative summary of the topics (Figure 3) shows a strong dominance of archaeological content, with socio-cultural and technological aspects of fishing being best represented in the conference agenda. They are of particular interest in meetings mustering a diverse, world-wide attendance, as FRWG conferences always do. On the other hand, more general, environmental concerns were also discussed. Smaller, more specialized sessions focused on the application of groundbreaking new scientific methods in the study of ancient fish–human relationships. Last but not least, a small session was devoted to salmonids, an iconic fish family not only in north-western USA but also in Old World history.

FRWG meetings have a tradition of including field trips, specifically aimed at presenting artisanal fishing in the host country. This is a unique opportunity to gain some insight into the immense diversity of fish exploitation and its relevance in the modern world. The Portland conference this year included two such visits.

A mid-conference day trip was organized to the Columbia Gorge and the river’s tributaries. We crossed the Columbia into Washington State. Our guides, Jeanette Burkhardt, a watershed planner, and Cheryl Mack, an archaeologist,
informed us of the diverse habitats and archaeological settlement. At Lyle Falls, the Klickitat River gushes between steep canyon walls toward the Columbia river. It is one of the few places where families of the Confederated Tribes and Bands of Yakama Nation still fish from scaffolds using dip nets during the salmon run (Figure 4). On site, Yakama fishermen shared their knowledge of fishing and stewardship with our group during this field trip. The site is also home to a small research station where salmon are caught, tagged and released for further monitoring en route upstream. We also visited the premises of the Bonneville Hatchery, one of the first such institutions established along the Columbia river in 1909. It functions within the Oregon Department of Fish and Wildlife dedicated to enhancing fish runs in the Columbia river basin. Bonneville is still the largest hatchery operated by the State of Oregon. In addition to addressing the challenges salmon face in the modern world, white sturgeon is also supported by this agency (Figure 5).

The conference ended with a weekend field trip to the Oregon coast, which gave visitors a glimpse of the spectacular Pacific coastline, from the alluvial settings visited along the Columbia river. We saw whales breach close to shore, marvelled at barking sea lions hauled up in Newport Bay, and got to see and learn about the range of marine fish and habitats of the Pacific coast at the Oregon Aquarium. A highlight included visiting an intertidal fish weir during low tide, where we learned first hand from Robert Kentta (Tribal Council Treasurer, Confederated Tribes of Siletz Indians) about the importance of fishing heritage to Indigenous people. Over the last quarter of a century, almost a hundred archaeological fishing weirs have been inventoried along the Oregon coast. They were constructed mostly on open tidal flats along the intertidal riverbank or sometimes in salt marsh channels. The group also visited The Confederated Tribes of the Grande Ronde’s cultural centre, Chachalu Museum in the Willamette Valley, where Briece Edwards (Manager, Historic Preservation) shared aspects of colonial history and tribal resilience.

During the FRWG business meeting two proposals were put forward for the organization of our 2021 conference. One of the offers, by Jen Harland (University of Highlands and Islands) would have taken the group to Orkney, an archipelago of spectacular archaeological heritage and maritime tradition. An alternative proposal was made by Alfred Galik (Austrian Archaeological Institute), recommending Vienna as a conference venue, with the Danube river and its tributaries possessing a respectable, archaeologically documented, fisheries tradition. Given the merits of both invitations the choice proved very difficult. In the end an open vote was called that narrowly favoured Austria, given the relatively easy accessibility of Vienna (within Europe) and the fact that Alfred had already withdrawn a previous proposal in favour of another venue. Besides selecting the venue for the 2021 meeting, we also spent part of the business meeting debating the possibility of including workshop or discussion-type sessions at the next meeting, in addition to the formal oral and poster presentations that usually take place at the FRWG.

Thanks to the tireless editing work carried out by Arlene Fradkin, Harry K. Robson and Kenneth Ritchie, 12 papers from the 19th FRWG meeting, held in Alghero and Stintino, Sardinia (Italy, 1–7 October, 2017), were published in 2019 in a special issue of the International Journal of Osteoarchaeology (volume 29, issue 3; https://onlinelibrary.wiley.com/toc/10991212/2019/29/3), entitled ‘Fish and fishing communities: understanding ancient and modern fisheries through archaeological fish remains’. Similar arrangements are planned for the Portland contributions: a collection of abstracts began early in October. The proceedings of the 18th meeting of the FRWG in Lisbon, Portugal, are to be published.
in the monograph series of the Directorate General of Cultural Heritage, Trabalhos de Arqueologia: work is still in progress.

In summary, it is worth reviewing the contribution of the 20th meeting of the FRWG to the long series of successful previous conferences. Such a comparison is possible on the basis of the conference programme booklet, in which the 1981–2015 records from the Lisbon programme and the Sardinia 2017 numbers provided by Barbara Wilkens were compiled by the Portland organizers.

The number of attendants (Figure 6) has shown a clear diachronic increase (rs 0.783, P=0.000), in spite of the challenge posed by several conferences that have been organized outside Europe, the traditional core area of ICAZ. This favourable trend is understandably reflected in the numbers of both oral and poster presentations (Figure 7). In this regard, the Portland meeting is one of only four conferences where this value was more than +1 standard deviation of the four decades' mean value of 40.4 presentations per meeting (standard deviation = 13.5, median = 38.5). A trend line fitted to these data (38 years) also shows that, although following a rapid relative increase at the beginning (because of smaller meetings) the number of presentations shows a slightly degressive tendency, our potential growth is far from being exhausted.

Last but not least, social events related to the FRWG meeting in Portland deserve mention. Given the large number of new young members, a reception held on the 5th Floor Terrace of the Academic and Student Recreation Center at the Portland State University Campus was a great opportunity to introduce ourselves and mingle while enjoying gourmet food and drinks by local caterers. The bright weather and magnificent view seemed to reflect the broad perspectives of our group (Figure 8). By the time of the other event, the conference banquet at Coopers Hall in the city, all the presentations were over, so everyone was known not only by face but by their work as well. Such events are indispensable for personal bonding, which has played a key part in the human and intellectual cohesion of the FRWG over the last four decades.
The 2nd meeting of the MMWG was held at the McDonald Institute for Archaeological Research, University of Cambridge, UK, 20–21 September 2019. The meeting was organized by James Barrett (McDonald Institute for Archaeological Research) and Aikaterini Glykou (Archaeological Research Laboratory, Stockholm University) and was held over two days. The first day focused on papers presenting cetaceans, while the second day was dedicated to pinnipeds. A paper on sea otters was also presented.

The meeting included 19 oral presentations and one poster presentation, covering a wide geographical area, from the North and South Atlantic, the Pacific, the Baltic Sea and the Antarctic, and a broad temporal scale, from the late Palaeolithic to modern times. A variety of topics was presented, including seal and cetacean exploitation based on historical and archaeological sources, reconstruction of hunting practices and subsistence strategies. Various methodological approaches were presented and discussed, such as osteological and osteometrical analysis, ancient DNA, ZooArchaeology by Mass Spectrometry (ZooMS), stable isotopic analysis and radiocarbon dating. The meeting was enriched by papers discussing conservation strategies.

Some of the participants of the 2nd MMWG meeting proudly posing in front of an impressive fin whale skeleton at the Zoology Museum in Cambridge. Image credit: Ana S. L. Rodrigues

A post-meeting visit to the Zoology Museum in Cambridge took place during the second day, where the participants had the chance to see among others, some impressive whale skeletons.

The members discussed some practical issues and we were very glad to receive a proposal for the organization of the 3rd meeting from the University of Groningen (the Netherlands). The next meeting is scheduled for September 2021 and will be organized by Canan Çakırlar, Youri van den Hurk, Sean Desjardins and Emily Ruiz Puerta from the Arctic Centre and the Institute of Archaeology, University of Groningen. More information to be announced.

The Neotropical Zooarchaeology Working Group (NZWG) has recently published the contributions presented at the 3rd academic meeting, which took place in San José de Mayo, Uruguay, in 2017. The complete papers have been put together in a special issue of Archaeofauna, International Journal of Archaeozoology (volume 28; https://revistas.uam.es/archaeofauna), entitled ‘From ocean to ocean, multiple views on the relationships between humans and animals in the Neotropics’.

It comprises 16 papers that deal with different issues relevant to neotropical zooarchaeology:
• Carbon and nitrogen stable isotopes of chinchillid rodents from early and middle Holocene archaeological deposits from the Salt Puna. Mariana Mondini and Héctor O. Panarello
• Before interpretation: geoarchaeological and taphonomical analysis of the P 35 site (Santa Cruz, Argentina). Isabel Cruz, Bettina Ercolano and Clara R. Lemaire
• Taphonomical analysis of the mid-Holocene Yegua Quemada 3 archaeological site (southern Patagonia). Daniela S. Cañete Mastrángelo, Patricia A. Lobbia and A. Sebastián Muñoz
• Zooarchaeology of historical times in the Andean forest of Patagonia Argentina. Continuities and changes in the Lower Manso River Valley. Pablo Marcelo Fernández and Mercedes Grisel Fernández
• The sacred site of Pachacamac: new evidences of animal offerings. Céline Erauw, Fabienne Pigière and Peter Eeckhout
• Zooarchaeology and the study of social complexity in Colombian pre-Hispanic societies: some pending debts. Elizabeth Ramos Roca
• The Templo del Cerro (Salar de Atacama, Chile) faunas as proxies to interpret architectural niches during the Formative period (ca. 3300–2400 BP). Isabel Cartajena F., Patricio López M. and Lautaro Núñez A.
• Zooarchaeology of mollusc remains from the Sambaqui da Tairoba (Rio das Ostras-RJ, Brazil). Tate Aquino De Arruda, Michelle Rezende Duarte, Rosa Cristina Corrêa Luz Souza, Abílio Soares Gomes and Edson Pereira Silva
• Sambaquis as proxies of late Holocene mollusc diversity on the coast of Rio de Janeiro, Brazil. Sara Christina Pádua, Edson Pereira Silva and Michelle Rezende Duarte
• Zooarchaeological analysis of the Lagoa dos Freitas Sambaqui, southern part of Santa Catarina, Brazil: preliminary results and trends in strategies of coastal ecosystems exploitation during the final Holocene. Diego Dias Pavei, Caroline Borges, Marcos César Pereira Santos, Juliano Bitencourt Campos and Amanda Machado da Rosa
• Brazilian shell mounds from a zooarchaeological perspective. Rosa Cristina Corrêa Luz Souza, Kita Chaves Damasio Macario, Rita Scheel-Ybert, Albérico Nogueira de Queiroz, Eduardo Queiroz Alves, Mariana Samór Lopes, Carla Regina Alves Carvalho, Orangel Aguilera and Edson Pereira Silva
• Shell adornment production in archaeological sites from the Rio de la Plata coast (ca. 3000–4000 BP). An experimental approach. Laura Beovide, Marco Lorenzo and Sergio Martínez
• Human–sharks interaction in chroniclers’ accounts from the XVIth and XVIIth centuries: a rich source of information for Brazilian zooarchaeological studies. Simon-Pierre Gilson and Andrea Lessa
• On two legs and all four: the western Mesoamerica and the relationship between the dog, the human and vice versa. An approach through case studies. Aitor Brito-Mayor
• Management of the Andean fox (Lycalopex culpaeus) on the northern Bolivian highlands. An archaeozoological approach from the Formative–Wancarani and Horizonte Medio–Tiwanaku periods. Vela V. Mendoza España
• Exploitation of Conepatus chinga (Carnivora, Mephitidae) in the upper and medium Limay river basin (NW Patagonia) during the late Holocene. Àlin A. Guillermo, Fernando J. Fernández and José A. Cordero

This and other information, notes, reviews, etc., on neotropical zooarchaeology are expanded on in the next issue of the NZWG Newsletter (number 11), which can be found at NZWG web page: https://www.alexandriaarchive.org/bonecommons/exhibits/show/nzwg.

ICAZ NZWG Coordinators (nzwg.icaz@gmail.com):
• Pablo M. Fernández, NZWG Coordinator (CONICET-INAPL, Argentina, pfernand@retina.ar)
• A. Sebastián Muñoz, NZWG Coordinator and Liaison (CONICET-UNC, Argentina, smunoz@conicet.gov.ar)
• Caroline Borges, NZWG Coordinator and Liaison (LEPAARQ–UFPB, Brazil, arqueocarol@gmail.com)
• Rosa Souza, NZWG Coordinator (LABARQ–UFS, Brazil, rccsouza@yahoo.com.br)
The very successful 13th meeting of the WBRG was hosted at the Department of Anthropology at the University of Montreal in Canada from 7 to 12 October 2019, organized by Christian Gates St-Pierre of the Université de Montréal. This meeting marks the first time the WBRG has gone to North America, connecting specialists from the Old and New Worlds in fruitful, face-to-face, discussion centred to some extent on archaeometric issues. It was a chance for many of us from Europe to see the full panoply of interesting research being carried out by colleagues working on Indigenous archaeological materials, as well as material from the continent’s colonial past. At the same time, the meeting provided a forum for North American colleagues to experience approaches to worked bone research that have been developing in Europe and elsewhere. The difficulties and expense, not to speak of the ecological burden of travelling here and there around the world by air, creates the danger of academic silos developing. It is all too easy to start believing that the manufacturing and use patterns encountered in one area represent the only way such objects were manufactured and used in the past. Encounters with wildly different but also sometimes strangely familiar worked bone assemblages from different time periods in far flung parts of the world are an important reminder that the past is always a foreign country to modern researchers and that the patterns we have grown accustomed to in our own material may, in fact, have totally different explanations and cultural trajectories in other assemblages.

In this same open spirit, the organizers of the meeting were at great pains to acknowledge the basic contribution and connections of Indigenous people to both the ‘raw material’ of the conference itself as well as to the very place the meeting was held. Proper recognition of the people whose ancestors made some of the objects at the heart of this conference has been long overdue. The excursions to the modern Mohawk reservation of Kahnawake with local Mohawk guides was coupled with a visit to the excavated and reconstructed Mohawk village of Droulers-Tsionhiakwatha. The two very different, back-to-back, visits, acted as vivid reminders of the living humanity behind the artefacts we study.

Altogether, the 78 conference participants came from 22 countries around the world, including North and South America, Asia, Australia and Africa. Although the majority of participants were women, there was a noticeable and welcome increase in the numbers of men attending, a trend evident at the last few meetings of the WBRG but especially marked at the Montreal meeting. Students comprised 46% of the participants. Altogether 38 papers were presented, in addition to 10 posters. Paper sessions were broken up by an excellent exhibition of Arctic bone, ivory and antler objects as well as visits to departmental laboratories and ethnographic
films focusing on the manufacturing and use of traditional Indigenous objects.

The next meeting of the WBRG will be held at the University of Johannesburg, Paleo Research Institute in South Africa in 2021. The meeting will be organized by Justin Bradfield (jbradfield8@gmail.com). The 2023 meeting will be organized by Marloes Rijkelijkhuizen (marloesrijkelijkhuizen@hotmail.com) in Delft, the Netherlands.

This newsletter seems a good place to announce that changes will be made to the liaison position connected with ICAZ. After almost 25 years, I have decided that this work should be handed over to other, younger colleagues. Participants voted that the position should turn over every 2 years and that the organizers of subsequent meetings should act as liaison. Thus, Justin Bradfield will be the liaison with ICAZ from 2020.

Finally, it is my great pleasure to announce that the proceedings of the 12th WBRG meeting in Granada, Spain, have been published by the organizer of that conference, Manuel Altimarino Garcia in the CPAG (Cuadernos de Prehistoria y Arqueologia de la Universidad de Granada) journal. It is available on-line: https://revistaseug.ugr.es/index.php/cpag/issue/view/661/showToc.

Guided tour of the Droulers-Tsionhiakwatha site, a reconstructed Iroquoian longhouse at the Droulers-Tsionhiakwatha Site Interpretation Center in St Anicet, Quebec

Conference attendees visiting the interior of a traditional Iroquoian longhouse at the Droulers-Tsionhiakwatha Site Interpretation Center in St Anicet, Quebec

Bone tool workshop with archaeologist Martin Lominy from Aboriginal Technologies Inc. Lominy and his assistant offered a free workshop where attendees could experiment with various prehistoric and Indigenous techniques used in making bone tools. Fun and learning in the same activity!

Attendees at the conference banquet. Good food, discussions, friendships and future collaborations: that’s what a scientific conference is also about!

Participants at the conference banquet. Good food, discussions, friendships and future collaborations: that’s what a scientific conference is also about!
The 7th Postgraduate ZooArchaeology Forum (PZAF)

Contributed by Maria Antonosyan (Institute of Molecular Biology, National Academy of Sciences, Armenia), Kinga Bigoraj (Institute of Archaeology, University of Warsaw, Poland), and Levon Harutyunyan (Institute of Zoology, National Academy of Sciences, Armenia)

The 7th PZAF took place in Yerevan, Armenia, 12–23 June 2019, after months of prior organization. Once the most important issues had been settled, we advertised the conference via social media (Facebook) and other platforms (i.e. PaperCrowd). After choosing the abstracts, the conference programme could be scheduled (oral presentation, posters, special guests, keynote lectures, etc.). Each step of the process was reported on our Facebook profile (https://www.facebook.com/PZAF1/) and the conference web page (https://pzaf2019.hushardzan.am). The conference web page also provides a link to the abstract book.

The first opening remarks were made by Maria Antonosyan, who welcomed everybody on behalf of the organizing committee and mentioned all our sponsors and supporters. Then a few words were given by Ara Tareverdyan from the Service of the Protection of Historical Environment and Cultural Museum Reservation, Ministry of Culture of the Republic of Armenia, who welcomed our participants to Armenia. Next, Professor Ashot Piliposyan (from the same institution) offered a brief introduction to Armenian archaeology, emphasizing that Armenian scholars look forward to cooperating with their colleagues from different countries, especially in the field of zooarchaeology, which has been underestimated until recently. A short speech was also made by Professor Hayk Avetisyan (YSU, Institute of Archaeology and Ethnography, Armenia).

The first day of the conference (21 June) was divided into two sessions entitled ‘Prehistory of Europe’ (session 1) and ‘Bronze Age Eurasia’ (session 2). The keynote lectures of the first session were presented by Poppy Hodkinson and Richard Madgwick (both School of History, Archaeology and Religion, Cardiff University, UK). They were followed by the rest of the speakers: Jan Wiejacki and Martyna Wiejacka (Institute of Archaeology, Nicolaus Copernicus University, Poland) and Alina Veiber [National Museum of Natural History, National Academy of Sciences (NAS), Ukraine].

The second session was opened by a keynote lecture from Arsen Bobokhyan (YSU, Institute of Archaeology and Ethnography, Armenia). Further oral presentations were then given by Imola Kelemen (Institute of Archaeology and History of Art in Cluj-Napoca, Romania), Stephanie Emra (University of Veterinary Medicine Vienna, Austria), Sharada Channarayapatna (Archaeological Sciences Centre, Department of Humanities and Social Sciences, Indian Institute of Technology, India) and Eduards Plankājs (Institute of Latvian History, University of Latvia, Latvia).

The second poster session at Yerevan State University
The excursion to Zvartnots Cathedral
The last event of that day was the poster session. Participants discussed posters presented by Helene Benkert (Department of Archaeology, University of Exeter, UK), Andrew Simms, Jacob Griffith, Bailey Burdett and Joel Sullivan (all Department of History, Archaeology and Religion, Cardiff University, UK), Chiara Messana (Universitat Rovira i Virgili /URV/, Àrea de Prehistòria, Spain), Lauren N. Lien (Institute of Archaeology, University College London, UK), Hasmik Bagoyan (Institute of Zoology, NAS, Armenia) and Noushig Zarikian (Institute of Archaeology and Ethnography, NAS, Armenia).

The second day of the conference (22 June) was opened by a keynote lecture given by Professor Krzysztof Jakubiak (Institute of Archaeology University of Warsaw, Poland), for the third session of the conference titled ‘Antiquity and the Middle Ages’. Other speakers during that session were Karolina Warecka and Joanna Pawlik (both Institute of Archaeology, University of Warsaw, Poland) and Dimitrije Marković (Laboratory for Bioarchaeology, Faculty of Philosophy, University of Belgrade, Serbia).

The fourth session, ‘Exploring the Armenian Highland’, was designed mostly for Armenian students and young scholars to give them an opportunity to present the results of their research in the field of zooarchaeology and archaeology and meet their colleagues from different scientific centres. The session was opened with a keynote lecture by Professor Levon Yepiskoposyan (Institute of Molecular Biology, NAS, Armenia). This was followed by presentations by Kinga Bigoraj (Institute of Archaeology, University of Warsaw, Poland), Armine Davtyan (Institute of Molecular Biology, NAS, Armenia), Mariam Shakhmuradian, Narek Aspaturyan, Anna Stepanyan and Ani Saratikyan (all YSU, Institute of Archaeology and Ethnography, Armenia), Gwedoline Maurer (Institute of Archaeology, University College London, UK) and Maria Antonosyan (Institute of Molecular Biology, NAS, Armenia).

The scientific part of the day ended with a second poster session. Posters were presented by Lucy Sladen (Institute of Archaeology, University College London, UK), Olga Trojankova (Department of Archaeology, Charles University, Czech Republic), Tatiana V. Oleynik (Department of Archaeology, Institute of Archaeology of Russian Academy of Sciences, Russia), Monika Opeiková (Department of Archaeology, University of South Bohemia, Czech Republic), Sebastian Yrrarrazaval (Departamento de Antropología, Universidad de Chile, Chile) and Nastasija Radovanović and Teodora Mladenović (both Laboratory for Bioarchaeology, Faculty of Philosophy, University of Belgrade, Serbia).

During the conference, lunches were held in a local restaurant that offered traditional Armenian cuisine, where our guests could also observe the traditional production of lavash. The last day of the meeting was an excursion to sites important to Armenian history and heritage (and within a reasonable distance from Yerevan, of course). The first place on the itinerary was the Zvartnots Cathedral, where the conference participants could not only see the magnificent remains of the whole architectonic complex but also listen to a performance of the Zvartnots Quartet and try local apricots. We then visited the Metsamor Historical-Archaeological Museum-Reserve, one of the most important archaeological sites in Armenia, although still somewhat underestimated and not well-promoted. After a lunch break in Yerevan, we went to the Geghard Monastery Complex and later to Garni, to attend a guided tour of the local heritage site (Garni Hellenistic Temple). The final event of that day was a gala dinner in one of the restaurants overlooking the Garni Gorge.

The excursion to Garni temple
As the organizers, we are very happy with the course of the conference. The main goal of our meeting was to promote cooperation between young scholars from Armenia and their colleagues from different countries, and we believe we have made good progress with that, thanks to our gathering in Yerevan in June 2019. Our guests appeared to leave Yerevan with a really good impression: the feedback after the conference has been very satisfying. We are extremely grateful to ICAZ for supporting us in our endeavour and truly hope for cooperation in the future. We also plan to publish the proceedings of the conference, so there will be one more occasion to mention all those who contributed to the event.

Thank you very much.

The 8th PZAF Organizing Committee

- Maria Antonosyan (Institute of Molecular Biology, NAS, Armenia)
- Kinga Bigoraj (Institute of Archaeology, University of Warsaw, Poland)
- Levon Harutyunyan (Institute of Zoology, NAS, Armenia)

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International workshop on minorities and transitions in the Iberian Middle Ages (10th-15th centuries) through zooarchaeology

Contribution by Moisés Alonso Valladares (University of Granada, Spain; moaloval@gmail.com) and Maria João Valente (University of Algarve/CEAACP, Portugal; rvalente@ualg.pt)

The international workshop ‘Minorities and transitions in the Iberian Middle Ages (10th–15th centuries) through zooarchaeology’ was held on 28–29 November 2019 in Granada, Spain. It was hosted by the University of Granada, and we are extremely grateful for the organizational and financial support of several institutions, including the project Poder y comunidades rurales en el reino nazarí (HAR–2015–66550-P), Asociación Arqueología y Antropología Maqabriya, the Programa de Doctorado en Historia y Artes, and the Dpt. de Historia Medieval y Ciencias y Técnicas Historiográficas.

The main subjects of this workshop were the processes and evidence of the transition between Islamic and Christian medieval periods in Iberia between the 10th and 15th centuries. Faunal assemblages reflect the specificities of each main cultural tradition, as well as the presence of cultural (and often religious) minorities, such as Jews, Mozarabs, Mudejar or Mouriscos.

The first session of the workshop was dedicated to the transition from the Muslim to the Christian world. Cleia Detry presented the specific case of the Castle of Palmela (central Portugal), in which archaeological excavations revealed different occupations between the Umayyad period and the first Christian occupations. She gave special attention to the introduction of different animal species and to the evidence of species improvements. Alex Valenzuela Oliver focused his presentation on the port city of Palma (Mallorca, Balearic Islands) and its inhabitants between the 10th and 15th centuries, showing that groups of different socio-economic status (from slaves to social elites) and religious identity (Muslims, Jews and Christians) reflect specific zooarchaeological markers (taxonomic composition, mortality patterns, animal biometrics and meat processing). Simon Davis addressed the evidence for livestock improvement in Portugal during the last two millennia based on osteometric and genetic studies: during the Muslim periods there is a clear improvement of local sheep and goats, while cattle improvement only occurs from the 15th century onwards. Moisés Alonso Valladares (and Silvia Valenzuela Lamas) presented the zooarchaeological evidence of the 13th-century Christian conquest of Luque (Córdoba), including evidence of hippophagy and the alteration of habitual consumption patterns.

Medieval minorities, mostly from Jewish contexts, were addressed in the second session. Marta Moreno García provided an extensive presentation on the zooarchaeological visibility of meat preparation and consumption habits between Jewish and Muslim communities, followed by the example of...
the rural site of Mota del Castrillo (Burgos), which showed a diminished number of mammal hindlimb elements, absence of wild game, and relative abundance of chicken and goose remains. Ariadna Nieto Espinet (together with Silvia Valenzuela Lamas, Xavier Payà, Marta Morán and Isabel Gil) talked about welfare and famine in the Jewish quarter of Cuirassa de Lleida (12th–15th centuries): after the late 14th century, the evidence is concomitant with a crisis or famine situation and argues for the consumption of certain ‘non-kosher’ species. Carlos Fernández Rodríguez addressed the Jewish community of Castro de los Judíos near the city of León, occupied from late 10th century to early 13th century. He noted the total absence of hunted species and, even more significantly, of pig remains. Marcos García García addressed the concept of ‘social Islamization’ and how such a process (in which Islam traditions influence everyone, not only Muslims) can be reflected in specific patterns of exploitation and consumption of animals and their products. He focused his presentation on the archaeological contexts of Qurṭuba (Córdoba) from the 8th to the 12th centuries. In a last-minute presentation to this session, Mikolaj Lisowski summarized the main results of his PhD project ‘The identification of Jewish patterns of food preparation and consumption: a zooarchaeological approach to the medieval and early modern evidence from central-eastern Europe’. This addition was most welcome since, amongst other things, it showed the most prominent butchery processes of *porging* (i.e. *nikkur*).

The last session focused on sociocultural markers through zooarchaeology. It began with a presentation by Arturo Morales Muñiz (and Eufrasia Roselló Izquierdo), who addressed Iberian ichthyofaunas as ‘cultural markers’ in the Middle Ages. He discussed the fish species that remained taboo to specific communities and how the biogeographical location of the archaeological contexts was also reflected in their fish remains. Idoia Grau Sologestoa (and Egoitz Alfaro Suescun) focused on the archaeological visibility of the eating practices of Christians, Jews and Muslims, and the existence of non-normative ritual practices. In addition to summarizing the available data from several sites in central-northern Iberia and addressing both the potential and difficulties of using faunal materials in the cultural and religious recognition of communities, this talk focused on the zooarchaeological study of the Jewish quarter of Pancorbo (in Burgos). José Antonio Garrido García spoke of medieval livestock in Andalusia, namely the importance of studying pastoral structures and how palaeobiological indicators (e.g. pollen data) can document temporal changes in livestock activity, which in turn can be connected with historical events. Finally, Maria João Valente presented the zooarchaeological data available for Garb Al-Andalus (south-west Iberia) and the most visible patterns regarding human diets and animal resources (across both time and different types of sites and contexts). She concluded that a full understanding of the Islamic–Christian transition needs better historical and archaeological interpretations, and that the ‘transition contexts’ may need to be treated autonomously.

We thank the presenters and all the attendees, who engaged in long and lively discussions after each session, many of which extended to the coffee breaks and meals. Having the Alhambra and the Sierra Nevada mountains as a backdrop was wonderfully inspiring and, by the end of the workshop, all the ‘out-of-town’ participants concluded that Granada is a wonderful place to work and live!

The presentations and main topics of discussion are scheduled to be published in a special volume of *Archaeofauna* (http://archaeofauna.com/index.php/path/about).
Extraction and purification of protein from archaeological bones: study of contamination processes and implications for radiocarbon dating in LAPREI-INCUAPA, Argentina

Contributed by Paula Vitale, Gustavo Politis, and María A. Gutiérrez,
Universidad Nacional del Centro de la Provincia de Buenos Aires,
Argentina (laprei@soc.unicen.edu.ar)

LAPREI (a sample pre-treatment laboratory for isotopic analysis) is part of INCUAPA-CONICET (Instituto de Investigaciones Arqueológicas y Paleontológicas del Cuaternario Pampeano) directed by Dr Gustavo Politis and located at Facultad de Ciencias Sociales, Universidad Nacional del Centro de la Provincia de Buenos Aires, Argentina. This recently created laboratory has been developed as part of the project ‘Time adjustment of the processes of continuity and change in Indigenous societies of Central-Eastern Argentina’, granted by CONICET and integrated by 40 Argentinean researchers as well as Drs Tom Stafford and José Capriles from the USA.

Knowing the chronology of cultural and faunal events is essential to archaeology and palaeontology. It is crucial in central-eastern Argentina, because, while the archaeological potential is huge, the access to a large number of accurate $^{14}$C dates is severely limited.

There are no laboratories in South America that process small quantities of samples. There is one laboratory that uses conventional methods that require more samples, which is not always available in archaeological research. The purpose of this laboratory project is to introduce high-quality methods for $^{14}$C dating by accelerated mass spectrometry (AMS) in Argentina, improving and developing new chemical procedures for the dating of bones, and designing procedures for sending pre-treated samples for AMS processing.

The project focuses on two objectives. First is to investigate the way that the original composition of the bone interacts with different exotic elements present in the deposit environment. This interaction influences the preservation of the bone protein, which is finally used for radiocarbon dating and for stable isotope analyses. Second, related to the first, is to investigate the best pre-treatment for the extraction of protein from fossil bones under the particular conditions of the study region. These conditions have to achieve a higher purity of proteins and also remove contaminants that influence the results of radiocarbon dating. Both objectives are linked and are intended to solve the chronological problems of the archaeological and palaeontological sites of central-eastern Argentina.

The research currently being developed at the laboratory is the study of the agents and alteration processes of the bone microstructure, including:

- interactions with different elements that could occur in the deposition environment where the material is buried
(through experimental simulations) and how these interactions influence the preservation of the bone protein that is ultimately used for radiocarbon dating and stable isotope analysis

- alternatives for quality determination of collagen extracted from archaeological bones from different sites, with implications of the application of collagen purification techniques for isotopic analysis
- how temperature influences the structure and quality of bone (and bone protein), with proposals for the generation of mathematical models of behaviour and simulation of different scenarios.

Currently, our laboratory is open to researchers and projects who want to analyse the state of preservation of bone microstructure, to maximize the quality of collagen extraction with careful artisanal extraction procedures, understand the possible contamination and choose the best samples for performing isotopic studies.

A year in the Seetah lab

Contributed by Weronika Tomczyk, Stanford Archaeology Center, CA, USA (wtomczyk@stanford.edu)

2019 was a significant year for the Seetah lab, a laboratory based at the Stanford Archaeology Center dedicated to zooarchaeology and environmental archaeology of the Indian Ocean, and study of human health and disease. In April, during the Society of American Archaeology (SAA) annual meeting in Albuquerque, New Mexico, several lab affiliates were recognized with awards for their work. Hao Zhao, a lab alumnus and currently a professor at Zhengzhou University, China, received the Dissertation Award. His PhD research offered a new synthesis and perspectives on the massive bone-working industries of the city of Zhouyan, investigated to understand economic institutions and relationships within early Chinese urban capitals. Weronika Tomczyk, a current lab member, received the Dienje Kenyon Memorial Fellowship, an annual award dedicated to a female PhD student specializing in zooarchaeology. Weronika's award was conferred for her dissertation project investigating animal management practices at Wari Empire sites in northern Peru. Finally, lab director Krish Seetah accepted the Scholarly Book Award for his edited volume, Connecting Continents: Archaeology and History in the Indian Ocean World (Ohio University Press, 2018; https://anthropology.stanford.edu/publications/book/connecting-continents-archaeology-and-history-indian-ocean-world-indian-ocean-studies).

Also during the past year, Krish has successfully obtained a number of competitive grants: the Roberta and Steve Denning International Research Exploration Fund from Stanford's Office of International Affairs; a Seed Grant from Stanford's Institute for Research in the Social Sciences; and Stanford's Human-Centered Artificial Intelligence (HAI) Seed Grant. The awards will advance Krish's studies on predictive modelling of malaria, mainly in Africa, but also with European case studies.

The lab finished the year by celebrating the success of another graduate student, Hannah Moots, who has been part of a team investigating the genetic history of Rome, aiming to reveal migration influxes to the city in the antiquity; Hannah was joint first author for this collaborative research, published in Science in November (8 November 2019; volume 366, issue 6466, pp. 708–714; DOI 10.1126/science.aay6826; https://science.sciencemag.org/content/366/6466/708).

We are looking forward to what the new year brings to our team!

From left: Weronika Tomczyk, Krish Seetah and Hao Zhao with their award diplomas at the SAA conference
Archaeozoology Laboratory at the Integrative Prehistory and Archaeological Sciences (IPAS) of the University of Basel (Switzerland)

Contributed by Idoia Grau-Sologestoa (idoia.grau@unibas.ch) and Sabine Deschler-Erb (sabine.deschler@unibas.ch), University of Basel, Switzerland

What today is the Archaeozoology Laboratory of the University of Basel (https://duw.unibas.ch/de/ipna/forschung/archaeobiologie/archaeozoologie/) was initiated in 1953 by Elisabeth Schmid, author of the Atlas of Animal Bones (1972, Elsevier), which is probably one of the most widely used references in our discipline. In 2003, the lab became part of Integrative Prehistory and Archaeological Sciences (https://duw.unibas.ch/de/ipna/) (IPAS, or IPNA in its German version) under the leadership of Jörg Schibler, former member of the ICAZ Executive Committee (EC), and it is now part of the Department of Environmental Sciences. The lab hosts a reference collection of approximately 2700 skeletons of nearly 350 different European mammal, bird, fish, amphibian and reptile species. The OssoBook database (https://www.archaeobiocenter.uni-muenchen.de/forschung/datenbank/index.html) for recording archaeozoological information was first developed here, released in 1990 by Jörg Schibler and Dieter Kubli, and is now being developed in collaboration with the archaeozoology group of Munich (Germany). Currently, the Archaeozoology Laboratory is represented by a group of about a dozen researchers, including professors, lecturers, post-doctoral researchers and PhD candidates. Apart from research, we also teach on the BSc and MSc programmes of Prehistory and Archaeological Science and the MA programme Archaeology and Sciences at the Faculty of Humanities of the University of Basel (https://pna.unibas.ch/de/studiengaenge/). Moreover, we contribute to cooperative teaching with the universities of Frankfurt am Main (Germany) and Cologne (Germany).

During the last few years, many new developments have taken place within our research group. Jörg Schibler is gradually retreating from his position as group leader while Sabine Deschler-Erb, a member of the ICAZ International Committee (IC), is taking over. Another major development is that we have received important research funding from various institutions for several of our research projects: the project HumAnimAl has been funded by the Swiss National Science Foundation, and the projects Lakebos and ZooRoMed have been funded by the European Commission through two Marie Sklodowska-Curie Individual Fellowships to Lizzie Wright and Idoia Grau-Sologestoa (details below).

We undertake assessment and analysis of assemblages of animal remains from any periods of human history. Our team of experienced archaeozoologists offers a range of expertise, including analysis of mammal, bird and fish bone, microfauna, insects, molluscs and crustacea. Another important aspect of our research is worked bone and antler. Furthermore, the great facilities at IPAS allow us to work in close collaboration with our in-house specialists in genomics and isotopes, as well as specialists in other archaeological sciences such as use wear analysis. A large amount of the work that our lab carries out is done so in collaboration with the archaeological services of the different Swiss cantons, other universities and research institutions.
HumAnimAl

HumAnimAl (https://duw.unibas.ch/de/ipna/forschung/archaeobiologie/archaeozoologie/projekte/humanimal/) is a unique interdisciplinary project that aims to provide new scientific data on the handling and care for animals – equids and dogs – by humans in the past. So far, we have only been able to study the human–animal relationship by means of written and iconographic sources (history) as well as individual studies on health (archaeozoology). Analyses from other, mainly biochemical and medical disciplines, which allow much more precise results on individual topics such as feeding, health and living conditions, should, when combined with classical archaeological and historical methods, permit different points of view. In this context, new insights about the handling of animals in ancient times can provide a valuable contribution to current discussions about two of the oldest human alliances, which has endured for thousands of years.

ZooRoMed

ZooRoMed (https://duw.unibas.ch/de/ipna/forschung/archaeobiologie/archaeozoologie/projekte/zooromed/) investigates changes in animal husbandry between the late Roman period and the early Middle Ages, by comparing two different regions of the Rhine Valley: Basel Region (Switzerland) and North Rhine-Westphalia (Germany). The two geographical areas chosen for the project were a frontier region of the Roman Empire and were later located at the core of the Carolingian Empire. The project looks at the reasons, timings and regional variations in the response (resilience or adaptation) of animal husbandry practices to the socio-political changes, including the progressive diversification of production, the decrease in livestock size, the generalization of extensive or free-range feeding regimes, and the limited mobility of livestock. For this, the project is undertaking a thorough investigation of livestock body size and shape and integrating the zooarchaeological data with stable isotope analysis to investigate changes in the ways livestock were managed.

LAKEBOS

Livestock animals and farming innovations spread across Europe during the Neolithic via two distinct dispersal routes: along the Danube corridor and through central Europe and along the Mediterranean coast. This resulted in two distinctive cultural areas linked with particular modes of animal husbandry: a central European area with cultures based on cattle herding, and a Mediterranean area with cultures based on caprine husbandry. Switzerland is located between these two geographical and cultural regions, and the Neolithic and Bronze Age cultures here represent a rare interaction point between them, yet very little work has explored the nature of this phenomenon. Switzerland also has many large assemblages of perfectly preserved faunal remains from prehistoric lake dwelling sites, where precise dating of different settlement phases can be achieved, representing a rare opportunity for the study of human–animal interactions with incredible temporal precision. The LAKEBOS (https://duw.unibas.ch/de/ipna/forschung/archaeobiologie/archaeozoologie/projekte/lakebos/) project will use cattle, the most common domestic species at Swiss prehistoric sites, as a proxy for investigating the way in which prehistoric agricultural practices from central European and Mediterranean cultures passed through this region and interacted with each other. It will use archaeozoological methods to investigate body size and shape change and demographic fluctuations on both a spatial and temporal scale. It will also use ancient DNA to investigate the genetic diversity of cattle groups in the region.

ICAZ Bibliographic Database

Please remember to submit your publications to Idoia Grau Sologestoa (icaznewsletterassistant@gmail.com) in order to have them included in the database. The database currently holds more than 1000 references related to zooarchaeology, which are searchable via either the ICAZ website, https://alexandriaarchive.org/icaz/publications-zooarch, or the Zotero library, https://www.zotero.org/groups/353233/icaz.
The Djenj Project: Bininj fishing past, present and future

Contributed by Morgan Disspain, Gundjeihmi Aboriginal Corporation and Niche Environment and Heritage, and Lynley Wallis, Gundjeihmi Aboriginal Corporation

During the 2012 excavations at the 65,000-year-old site of Madjedbebe, in the Northern Territory, Australia, large quantities of djenj (fish) bones and otoliths, were recovered. This was a catalyst for the emergence of The Djenj Project: Bininj Fishing Past, Present and Future (http://mirarr.net/stories/djenj-project-the-djenj-project-bininj-fishing-past-present-and-future). This community-led project is based on two-way knowledge sharing between Bininj (Aboriginal) rangers, children and community, and Balanda (European) researchers, with fish and waterways at its heart.

The cultural, social, environmental, spiritual and economic connections of Bininj people to water sources and fish in West Arnhem Land, Northern Territory, are extremely significant. Yet, to the present day there has been little direct, substantive or sustained involvement of Bininj in local research related to fish and waterways. This community-led project has been run throughout 2019, and aims to:

- encourage children to improve their numeracy and literacy skills by connecting with the educational curriculum in meaningful ways
- teach Bininj children and rangers about western djenj and water research techniques to improve employment opportunities
- provide opportunities for senior Bininj people to share traditional ecological knowledge (TEK) with Bininj children, rangers and researchers
- collect modern fish reference materials and traditional knowledge to inform the analysis of the Madjedbebe archaeological assemblage.
The Djenj Project is focused on the north-eastern part of Kakadu National Park and adjacent Aboriginal Land Trust lands in West Arnhem Land, and is being undertaken jointly by local Aboriginal ranger groups and two local public schools, with the support of Njanjma Aboriginal Corporation, Gundjeihmi Aboriginal Corporation and ERA. The project was initially conceived in August 2018, and will run until at least mid-2020, funded through the Kakadu West Arnhem Social Trust.

This project brings together scientific and traditional ecological knowledge through classroom and field-based activities, with Bininj students developing their literacy and numeracy skills through culture, such that the learning occurs without them realising it. Key outcomes have included the creation of a bilingual *djenj* terminology booklet, multiple training sessions in schools and with rangers, fishing trips, traditional fish trap-making sessions, creation of fish skeleton reference collections, interpretation of archaeological fish skeletal remains, conference presentations, museum visits, and visits to *bim* (rock art) sites with Traditional Owners to share cultural and traditional ecological knowledge about fish. Importantly, for Bininj the project has demonstrated the value of scientific inquiry where it sincerely engages with, responds to, and benefits the local community. In critical ways, the Djenj Project provides a new measure of genuinely ethical community engagement against which future research projects may be judged.
METHODOLOGICAL NOTES

Palaeofaeces as reservoirs of taphonomic and palaeobiological information: the case of the scat from Peñas de las Trampas 1.1, Catamarca, Argentina, with the oldest puma DNA and the oldest parasite DNA ever found*

Contributed by Mariana Mondini, Laboratorio de Zooarqueología y Tafonomía de Zonas Áridas (LaZTA), Instituto de Antropología de Córdoba (IDACOR), CONICET - Universidad Nacional de Córdoba, Argentina, and Universidad de Buenos Aires, Facultad de Filosofía y Letras, Departamento de Ciencias Antropológicas, Ciudad Autónoma de Buenos Aires, Argentina (mmondini@conicet.gov.ar)

Fossil droppings and pellets represent a highly valuable source of taphonomic and palaeobiological information, as do bromalites generally (Hunt et al., 2012). Although archaeologists have often dismissed them, they provide information that is sometimes only preserved that way. Such information is mainly taphonomic in the broadest sense, as it refers to both the formation of the fossil record (be it archaeological or palaeontological) in terms of biases, as well as the palaeoecological context in which it was generated and has been modified until its current conformation (Gifford-Gonzalez, 2018). Therefore, as Gifford-Gonzalez points out, natural agents are not merely ‘background noise’ that archaeologists must try to eliminate in order to make inferences about the human past, but, instead, they provide us with important palaeobiological information about what the world was like in the past.

That is the context of a project that we have been developing for several years now, focused precisely on palaeofaeces as reservoirs of taphonomic and palaeobiological information (Mondini, 2000, 2004, 2012; see https://www.researchgate.net/project/Paleofaeces-and-pellets-as-palaeobiological-archives). As part of this project, we have been analysing both current and fossil mammalian carnivore droppings from arid areas of southern South America through a multiproxy approach.

The case reported here is the most recent study, carried out in collaboration with the rest of the archaeological team of Antofagasta de la Sierra, Catamarca, headed in this case by Jorge G. Martínez (CONICET-Universidad Nacional de Tucumán, Argentina; see Martínez, 2014, and bibliography therein), and the palaeoparasitology team headed by Martín H. Fugassa and Romina S. Petrigh (CONICET-Universidad Nacional de Mar del Plata, Argentina) (see Fugassa & Petrigh, 2017; Petrigh & Fugassa, 2017; among others).

It is the case of a carnivore scat from the palaeontological–archaeological site Peñas de las Trampas 1.1 (PT1.1; Figure 1), in Antofagasta de la Sierra, Province of Catamarca,

Figure 1: Peñas de las Trampas 1.1 (picture by Jorge G. Martínez)

*A Spanish version of this report has been published in the 11th issue of the newsletter of the ICAZ Neotropical Zooarchaeology Working Group (NZWG): https://www.alexandriaarchive.org/bonecommons/items/show/2037
Argentina. This rock shelter is located in the arid Salty Puna, at 3582 m above sea level. It contains megafauna occupations (Megatheriinae and Mylodontinae gen. sp. and *Hippidion* sp.) from the late Pleistocene, and human occupations dated from the terminal Pleistocene, with no signs of coexistence between them (Martínez, 2014, and bibliography cited there).

The analysed scat (Figure 2) was described following the criteria common in the literature (Chame, 2003; Jouy-Avantin *et al*., 2003; Sanz *et al*., 2016), and it was attributed to a large feline based on size and morphological characteristics. It was radiocarbon dated to 13,910 ± 30 AP (UGAMS 32587), or 16,573–17,002 cal. AP, an age somewhat younger than that of the stratum that contained it. This may be because of the intensive trampling of the megafauna that inhabited the rock shelter at that time: a fact that highlights the need for taxon dates for such relevant remains.

Some of the results of the analysis of this case, recently published in the journal *Parasitology* (Petrigh *et al*., 2019), were of great relevance. The identity of the predator could be determined by the analysis of mitochondrial DNA, confirming the hypothesis that it was a puma (*Puma concolor*), the only big cat to survive until today in the region. Although the presence of *P. concolor* in South America was recently demonstrated from Ensenadan according to morphological characters (Chimento & Dondas, 2018; Prevosti & Forasiepi, 2018), until now there have been no molecular records to confirm its presence from such ancient times as the Pleistocene. In truth, it is rare to obtain genetic material of such long standing at these latitudes, with the exception of rock shelters in areas as arid as this, which can provide excellent conservation (Shockey *et al*., 2009). In this case, such conservation has allowed the identification of the presence of this top predator from its traces even in the absence of its remains, and the case constitutes the oldest molecular determination of puma, and the oldest molecular determination of a coprolite in South America and one of the oldest worldwide.

Not only could the identity of the predator be determined, but also the gastrointestinal parasites contained in the excrement could be identified, both morphologically (eggs of *Toxascaris* sp.) and using its DNA, through which *Toxascaris leonina* was determined (Petrigh *et al*., 2019) (Figure 3). This indicates the presence of this nematode parasite in America since at least the final Pleistocene, presumably before the arrival of humans, something that had not been proven so far. This has implications for the common current belief that the presence of *T. leonina* in modern New World wild carnivores was solely a consequence of contact with domestic carnivores. The large number of *T. leonina* eggs and their larval state in the puma coprolite studied suggest a high infective capacity of this parasite, with zoonotic risk for other potential hosts, both definitive and intermediate or paratenic, including humans. Thus, the world’s oldest DNA was also obtained for a parasite, providing a new maximum age for the recovery of old DNA of this origin.

The bones contained in part of this scat were also analysed (Mondini, 2019) (Figure 4). The criteria proposed by Andrews (1990), Fernández-Jalvo *et al.* (2016), Montalvo and Fernández (2019), among others, were taken into account, although, as the preferred prey of these big cats do not include microfauna, other criteria were followed that are more suitable for larger prey (see Campmas *et al*., 2018; Mondini, 2000; among others). Only one bone specimen could be identified out of more than 20, just at the order level: an unfused metapodial.
epiphysis of a newborn artiodactyl, possibly a <30-month-old camelid. The other specimens are mostly assignable to medium/large mammals. All specimens display a high/ extreme degree of digestion damage (sensu Campmas et al., 2018), despite the high hair content of this scat, which acts to protect other organic remains from the effects of digestion. Only one specimen had a tooth mark. Another similar excrement from the same site that was analysed contained similar bones. It should be noted that some of the bone specimens recovered from the sediment layers at the site display digestion damage consistent with those described here, so they probably also have a scatological origin.

In addition, the analysis of hairs and other remains contained in these faeces is ongoing. It is noteworthy that the prey consumed is possibly a camelid, and if this is further confirmed by means of ancient DNA we will have a very old record of this taxon as well (which is a key ungulate with which humans have coevolved in the region) and of puma–camelid interactions. Other similar scats from this site are currently under study.

It should be noted that studies have been conducted on megaherbivore droppings that abound in PT1.1, which have also provided important palaeoecological information (Buckley et al., 2015; Martínez et al., 2010).

Altogether, these studies have important implications for the biogeographic history of these parasites, for the natural history of the region, for the taphonomic characterization of the Pleistocene fossil record and for the palaeoecological reconstruction of the area during the period close to the first arrival of the humans. They are also informative about the predator community in which the earliest human populations had to be inserted. In this regard, it is worth highlighting the overlapping interest of large carnivores and humans in the same prey: camelids. Finally, these studies also demonstrate the potential of Neotropical drylands for the preservation of the oldest molecular record and the information that it can provide for all these aspects of the natural history of the region.

References
The importance of recording petrous bones in archaeofaunal collections

Contributed by Albína Hulda Pálsdóttir, Faculty of Agricultural and Environmental Sciences, The Agricultural University of Iceland & Centre for Ecological and Evolutionary Synthesis (CEES), Department of Biosciences, University of Oslo, Norway (alinap@gmail.com)

The petrous bone is found in the temporal region of mammal skulls and houses parts of the hearing and balance organs (Mallett & Guadelli, 2013; O’Leary, 2010). The petrous bone is extremely dense and therefore preserves very well in the archaeological record (Mallett & Guadelli, 2013; O’Leary, 2010). In some zooarchaeological recording systems skull bone fragments without teeth are not systematically identified, and specifically the identification of the petrous bone has often been neglected in zooarchaeological analysis (Bar-Oz & Dayan, 2007; Mallett & Guadelli, 2013).

In recent years it has come to light that the petrous bone is one of the best bones to sample for (a)DNA studies (Hansen et al., 2017; Pinhasi et al., 2015) and therefore there has been a rush to get access to petrous bones from archaeological excavations, both human and animal (e.g. Austin et al., 2019; Fox & Hawks, 2019; Makarewicz et al., 2017; Pálsdóttir et al., 2019). Even small fragments of petrous bones can be good for aDNA sampling and we need to know what we have so we can make good decisions about destructive sampling of archaeofaunal material (Pálsdóttir et al., 2019).

Identifying petrous bones
One of the reasons for the under-identification of petrous bones is that until recently there were few published resources on speciation of petrous bones, and many zooarchaeologists did not realize that this bone is highly identifiable to species. In the past few years a number of excellent resources for the identification and recording of petrous bones from various mammal species have been published. For identification of petrous bones from caprine species, publications by Mallett and colleagues (Mallett & Guadelli, 2013; Mallet et al., 2019) are good resources. In my experience it is easy to separate sheep and goat petrous bones, and in fact it is easier to misidentify pig petrous bones as sheep than it is to confuse sheep and goat. For the most common domestic and wild mammalian taxa of the Old World, petrous bones from various mammal species have been published. For identification of petrous bones from caprine species, publications by Mallett and colleagues (Mallett & Guadelli, 2013; Mallet et al., 2019) are good resources. In my experience it is easy to separate sheep and goat petrous bones, and in fact it is easier to misidentify pig petrous bones as sheep than it is to confuse sheep and goat. For the most common domestic and wild mammalian taxa of the Old World, baroz et al. (2019) and a master’s thesis by Lembo (2018) are useful, and from the anatomical literature O’Leary (2010) has drawings of a wide range of artiodactyls. Of course having access to a good reference collection makes identification to species even more accurate, but the fact that many collections mostly have whole skulls can mean that it is hard to see the petrous bone in any detail and I have found that identification based on the shape of the medial side of the petrous is easiest.

Recording the petrous bone
Ideally petrous bones should always be recorded even when they cannot be identified to species. When recording...
nearly complete skulls, note whether the petrous bone is present in the skull. In some species, petrous bones break from the rest of the skull fairly easily (e.g. pigs) and it is not uncommon to find them loose in bone collections (personal observation) (Figure 1). Sheep and goat petrous bones are more common in conjunction with other parts of the skull (personal observation) (Figure 2). Before any destructive sampling, petrous bones (and other bones and teeth) should be documented in detail (Pálsdóttir et al., 2019).

In short, by identifying petrous bones to species and recording them zooarchaeologists can increase the quality of their analyses as well as help provide an overview of the quantity available of a limited but much sought after resource for aDNA analysis.

References


Figure 1: Loose pig (Sus scrofa) petrous bone from late medieval layers in Hungate, York, UK. Scale 2 cm. Photo: Agata Gondek

Figure 2: Sheep (Ovis aries) petrous from medieval layers in Mindets tomt in Norway with some of the associated skull bones. Photo: Agata Gondek
James S. Brink 1957-2019

By Lloyd Rossouw, HOD, Florisbad Quaternary Research Station, Bloemfontein, South Africa

James Simpson Brink was appointed as a junior researcher in archaeozoology at the National Museum Bloemfontein in 1983 where he took over from Dr Ron Clarke in 1984 to lead an interdisciplinary palaeo-environmental research unit at the museum’s Quaternary Research Station at Florisbad. With missionary zeal, James not only began an in-depth study of the archaeozoology of the Florisbad Spring and Living Floor Assemblages, which represents the type site of the Florisian Land Mammal Age, but also initiated the expansion of an extensive vertebrate osteological reference collection in what would eventually grow into a world-class research collection for students and scientists alike. With an extensive discussion on the taphonomy and re-evaluation of the fossil collections from Florisbad, James received an MA degree in Archaeozoology in 1987 from the University of Stellenbosch. During 1987 and 1988 he completed a course at the Institut für Palaeoanatomie, Faculty of Veterinary Science, University of Munich (Germany), which included, among others, the comparative osteology of mammals in the Old World, the history of animal domestication in the Old World, the comparative osteology of fish and an introductory course in Latin and Greek as used in scientific nomenclature. In 1992 he received his BA Honors degree in Latin from the University of the Free State, Bloemfontein, while working on a comparative osteological study on the evolution of the black wildebeest (Connochaetes gnou), for a future PhD study.

Meanwhile in 1994, James, together with Rainer Grün from the University of Canberra in Australia, launched an extensive radiometric dating project to determine the age of the Florisbad deposits. In the process, a groundbreaking technique for non-destructive dating through ESR was developed to date a single tooth of the famous Florisbad human skull. This work, published in Nature in 1996, provided James with the palaeontological time frame to continue with what would become an influential study on the evolution of the endemic black wildebeest as a model for the effects of changing environments on mammal evolution during the Quaternary. For this he earned a DPhil degree from the University of Stellenbosch in 2005. Since then he has worked extensively on the evolution of Plio-Pleistocene ecosystems and the processes that drove changes in environments and ungulate communities in the central interior of southern and eastern Africa. These studies would eventually culminate in the first ever description of an extinct caprine from the Cape Fold Mountains, as well as a re-evaluation of age of the faunal assemblages from the Cornelian Land Mammal Age type site.

With over 100 peer-reviewed publications produced during his career, James would also foster local as well as international collaboration with colleagues in the USA, Australia, France, Germany, Kenya, Israel and Sicily.

James found the appeal of functional anatomy and mammal evolution irresistible and he would freely give instruction on some finer points of comparative osteology to anyone, even to a casual passerby. His expertise in bone identification and post-cranial elements in particular was simply outstanding. He was an exceptional teacher who in his unique way introduced many students (including myself) to the practical side of Quaternary palaeontology and archaeozoology. I was fortunate to be one of his earliest students and, like others after me, was captivated by his wisdom, sense of humor and modest nature. He was a philosopher, expert on classical cultures and languages, as well as a connoisseur of good wine. It is hard to imagine a world without James, and to think of Florisbad without his singular presence. None of those who knew him will forget his generosity towards every person he encountered.

James is survived by his wife Marianne, their children, Mari, Willem-Carel, and Lilian.
The ICAZ Publications List is Now Online!

Please remember you can view and download the latest zooarchaeology references in our Zotero library: https://www.zotero.org/groups/353233/icaz. The complete list of publications submitted to recent newsletters is also visible on the ICAZ website: https://alexandriaarchive.org/icaz/publications-zooarch.

Many new publications were submitted by ICAZ members to this issue of the Newsletter. We have chosen to highlight just a few of the great works that zooarchaeologists all over the world have published recently. These publications provide a very brief sample of the important and very diverse research carried out recently in zooarchaeology!

Please remember to submit your new (or old!) publications to Idoia Grau-Sologestoa (icaznewsletterassistant@gmail.com) so that they can be included in the ICAZ database.

Fish Trade in Medieval North Atlantic Societies. An Interdisciplinary Approach to Human Ecodynamics
V. Dufeu
2018 Amsterdam: Amsterdam University Press
ISBN 9789048533145

Val Dufeu here reconstructs settlement patterns of fishing communities in Viking Age Iceland and proposes socio-economic and environmental models relevant to any study of the Vikings or the North Atlantic. She integrates written sources, geoarchaeological data and zooarchaeological data to examine how fishing propelled political change in the North Atlantic. The evolution of survival fishing to internal fish markets to overseas fish trade mirrors wider social changes in the Vikings' world.

Actualistic Taphonomy in South America
Edited by S. Martínez, A. Rojas, F. Cabrera
2020 Basel: Springer Nature Switzerland
ISBN 978-3-030-20624-6, DOI: 10.1007/978-3-030-20625-3

Durante los últimos años, la Tafonomía Actualista ha tenido un gran impulso en América del Sur, especialmente en el Cono Sur, como lo muestran numerosos trabajos, tesis y conferencias. El estado del arte en la región merecía un encuentro específico para intercambiar experiencias y promover el desarrollo de la disciplina, y el mismo se concretó en el Taller “Tafonomía Actualista en América del Sur”, realizado en Montevideo entre el 9 y el 12 de octubre de 2017, y organizado por el Laboratorio de Paleontología de Invertebrados e Icnología de la Facultad de Ciencias de la Universidad de la República. Los objetos de estudio muestran la amplidad de los temas que ocupan a los investigadores sudamericanos: plantas, vertebrados, invertebrados, trazas, artefactos zooarqueológicos y líticos son tratados con diferentes enfoques cualitativos y cuantitativos por investigadores de Argentina, Brasil y Uruguay. En consonancia con el espíritu del taller, también en este libro queda expuesta la diversidad de nuestro continente.

During the last years, actualistic taphonomy had a big boost in South America, especially in the so-called ‘southern cone’ (Argentina, Brazil, Uruguay), as shown by numerous papers, talks and theses. The state of the art in the region deserved a focused meeting in order to exchange experiences and to promote the development of the discipline into the future. This book is a consequence of the workshop ‘Actualistic taphonomy in South America’, that took place in Montevideo (Uruguay) during 9–12 October 2017, organized by the Invertebrate Paleontology & Ichnology Laboratory (Paleontology Department, Facultad de Ciencias, Universidad de la República). The book chapters show the amplitude of the actualistic taphonomic studies in South America. Subjects of study comprise plants, invertebrates, vertebrates, ichnites and human artefacts (zoological and lithic), showing the diverse specializations of authors. Following the nature and spirit of the event and book, the chapters exhibit a range of topics, in which the reader will find revised and original papers, new ideas, qualitative and quantitative approaches. Consequently, this book aims to be as ample and diverse as our continent is.


RECENT JOURNAL ISSUES
Journals with recent special issues on topics related to zooarchaeology include the following.

Environmental Archaeology
https://www.tandfonline.com/toc/yenv20/24/4?nav=tocList

Quaternary International
https://www.sciencedirect.com/journal/quaternary-international/vol/517

Journal of Archaeological Science: Reports
https://www.sciencedirect.com/journal/journal-of-archaeological-science-reports/special-issue/10TT1MPXSK7

Quaternary International
https://www.sciencedirect.com/journal/quaternary-international/vol/499/part/PA
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<td>Email: <a href="mailto:aefisher@mail.smu.edu">aefisher@mail.smu.edu</a>, <a href="mailto:bmistretta@ufl.edu">bmistretta@ufl.edu</a>, <a href="mailto:reddyri@umich.edu">reddyri@umich.edu</a></td>
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<td></td>
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<td>Internet: <a href="https://www.saa.org/annual-meeting">https://www.saa.org/annual-meeting</a></td>
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<tr>
<td>24-28 APRIL</td>
<td>AZOOSA</td>
<td>Archaeozoological workshop in the Southern African Development Community (SADC) region</td>
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<td>Bloemfontein, South Africa</td>
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<td>Email: <a href="mailto:info@azoosa.co.za">info@azoosa.co.za</a></td>
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<tr>
<td>10-13 MAY</td>
<td>Historical perspectives on marine ecosystems, fisheries, and futures</td>
<td>Oceans Past Initiative (OPI) conference</td>
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<td>Ostend, Belgium</td>
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<td>Email: <a href="mailto:info@oceanspast.org">info@oceanspast.org</a></td>
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<td>Internet: <a href="https://oceanspast.org/opviii.php">https://oceanspast.org/opviii.php</a></td>
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<tr>
<td>31 MAY-3 JULY</td>
<td>Curacao environmental archaeology field school</td>
<td>Willemstad, Curacao</td>
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<td>Email: <a href="mailto:cmgiovas@UW.EDU">cmgiovas@UW.EDU</a></td>
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<td>Internet: <a href="https://www.sfu.ca/students/studyabroad/fieldschools/destinations.html">https://www.sfu.ca/students/studyabroad/fieldschools/destinations.html</a></td>
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<tr>
<td>24-28 JUNE</td>
<td>EZI 2020</td>
<td>2nd Iberian Zooarchaeology Meeting</td>
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<td>Madrid, Spain</td>
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<td>Email: <a href="mailto:ezi2020madrid@gmail.com">ezi2020madrid@gmail.com</a></td>
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<tr>
<td>26-30 AUGUST</td>
<td>26th European Association of Archaeologists (EAA) annual meeting</td>
<td>Various sessions</td>
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<td>Budapest, Hungary</td>
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<td>Internet: <a href="https://www.e-a-a.org/EAA2020">https://www.e-a-a.org/EAA2020</a></td>
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<tr>
<td>30 AUGUST-6 SEPTEMBER</td>
<td>6th meeting of the ICAZ Taphonomy Working Group (TWG)</td>
<td>Madrid, Spain</td>
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<td>Email: <a href="mailto:taphostwg2020@gmail.com">taphostwg2020@gmail.com</a></td>
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<tr>
<td>1-4 SEPTEMBER</td>
<td>3rd meeting of the ICAZ Microvertebrate Working Group (MVWG)</td>
<td>Tarragona, Spain</td>
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<td>Internet: <a href="https://mvwgicaz.wixsite.com/mvwg">https://mvwgicaz.wixsite.com/mvwg</a></td>
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<tr>
<td>11-13 SEPTEMBER</td>
<td>Molluscs and ancient human societies</td>
<td>ICAZ Archaeomalacology Working Group (AMWG) and Indian Society for Prehistoric and Quaternary Studies (ISPQS) international conference</td>
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<td>Pune, India</td>
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<td>Email: <a href="mailto:amwg2020@gmail.com">amwg2020@gmail.com</a></td>
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<tr>
<td>30 SEPTEMBER-1 OCTOBER</td>
<td>4th meeting of the ICAZ Neotropical Zooarchaeology Working Group (NZWG)</td>
<td>Recife, Pernambuco, Brazil,</td>
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<td></td>
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<td>Email: <a href="mailto:nzwg.icaz@gmail.com">nzwg.icaz@gmail.com</a></td>
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</table>
The study of archaeozoological remains is not inherently dangerous, but there are legal and health implications to handling animal remains. These may vary according to your location, the provenance of the samples and whether you are dealing with archaeological samples, bone and/or animal tissues. The best way to prepare for potential problems is to obtain proper documentation. The ICAZ webpage provides a partial list of some commonly encountered risks and suggested sources. Members are strongly encouraged to acquaint themselves with ICAZ's Professional Protocols.

https://www.alexandriaarchive.org/icaz/about-policies-health-safety

ICAZ needs your help to expand the number of links provided. If you have links to country/regional sources that complement the information provided here, please fill out the short Google form via the webpage. If you cannot access the Google form, please send the links with the heading (microorganism/transportation/zoonotic/work&safety) and, if the link does not make it obvious, the relevant country, to: icazhealth.safety@gmail.com.

Thank you!