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EDITOR

RONIKA K. POWER
Macquarie University

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Contributions for the Review should be sent to the new Editor for 2017, to be announced in due course.

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WELCOME TO THE ANNUAL REVIEW
FOR 2016

Ronika K. Power
Macquarie University

Welcome to the BABAO Annual Review for 2016! As always, this edition is literally overflowing with the news, activities and outputs of our scholarly community. What has particularly struck me while milling through your contributions is the extent to which our Association not only shares our knowledge capital amongst ourselves, but how our passion and enthusiasm for our subject matter spills over into the broader communities that surround us across the UK and the world. I venture to suggest that there would be few other academic disciplines that could claim to be as active within and integrated into local, regional, national and international communities as we are.

Indeed, one could argue that our outreach endeavours have never been more important. At a time of global geopolitical change and uncertainty, we are in a unique position to educate, inspire and remind audiences about the importance of learning from the past. The ‘past’ (however you may define it) exists in popular imagination as an alluring, mysterious, magical place, which has been the subject of countless stories, transferred through folklore, fiction and film. The beauty of studying the past is that it enables researchers to extract components of ‘reality’ from this collective cultural fantasy, through all manner (and combination) of analyses: material culture, language, built and natural environments, and socioeconomic systems (to name only a few!); allowing us move ever closer to a better understanding of what it was like to actually *live* in years, decades, centuries or millennia gone by. For us, however, Biological Anthropology and Osteoarchaeology facilitates as close a connection with the past as possible, by meeting the very people (and animals!) who lived and breathed while great civilisations were flourishing and falling. Let us not underestimate the power of sharing the stories of the individuals and groups we have the extraordinary privilege to study with our

broader communities, as a means to reflect on the resourcefulness, resilience, accomplishments and potential of humankind for great and terrible things – and also, simultaneously, our fragility.

There were few who understood these concepts or celebrated and explored them better, more widely or deeply than the late Professor Donald Reginald Brothwell (1933-2016). A significant portion of this Review is dedicated to honouring and articulating the enormous contribution made to the study of the past by this inimitable scholar. Don’s passing dealt a severe blow to our field, and many among us will still be coming to terms with his loss. We are indebted to Charlotte Roberts for undertaking the immense task of not only scribing a tribute to Don on behalf of BABAO, but also for amassing his publication list, both of which are featured herein. His contribution can only be described as staggering. May his legacies of integrated scientific study of the past and spirited approaches to the academy endure for many years to come. *Vale Don Brothwell.*

Finally, it is with a great deal of sadness that I present this as my last BABAO Annual Review. My three-year term has come to an end, and I will genuinely miss the one-on-one interactions I have enjoyed with so many of you over the past few years. It has been a real joy to assemble the activities of our academic departments, museums and professional organisations, and I never cease to be informed and inspired by our postgraduate students’ projects and members’ publications. I’d like to take this opportunity to extend my personal thanks to the Presidents under which I have served, Piers Mitchell and Charlotte Roberts, for their generous support and collegiality, and, of course, to the entire membership for your kind words and wishes during each of our encounters. I wish you all continued success in your endeavours, and hope for continued life, prosperity, health, peace and freedom for us all, wherever we are in the world.

ASSOCIATION NEWS

President's Column

*Charlotte Roberts
Durham University*

I have now served BABAO as President for a year, and am “getting to grips” with how it runs. It’s certainly a busy time for the committee, and I continue to have fantastic support from all its members, especially Tina, who is a font of all knowledge! We are doing very well financially, and our membership is healthy at 484. I should, in writing, not forget to thank our hardworking outgoing committee members, who were presented with a small token of BABAO’s appreciation for their work at the BABAO conference at Canterbury. They were Simmone Lemmers (student rep), Simon Mays (rep from a Professional Organization), and Becky Redfern (rep from a Museum). New members of the committee were voted in, as follows: Heather Bonney (Museum rep), Emily Carroll (student rep), and Gaille MacKinnon (Professional Organization rep); a special welcome to the committee!

I will repeat from the Review in 2015: ‘every one of the committee members past and present contribute their copious (!) free time to working for the good of BABAO. Without members that are willing to step up and help us run this fantastic organization, we would not have a BABAO!’ Of course, with that in mind, I should mention that there are three posts that are coming up for renewal this year. They are: Commercial rep (currently Sharon Clough), Non-executive member (currently Nick Marquez-Grant), Secretary (currently Tina Jakob), and Annual Review Editor (currently Ronika Power). There are job descriptions posted for each committee member on the website so you can see what each post entails (<http://www.babao.org.uk/committee/>). Please consider standing.

Now to more specific items, in no particular order:

1. Membership

We have developing various membership initiatives for you all, including giving you a vote on them. These are institutional membership and “qualifying country” membership, along with honorary life membership. All these are now implemented on your behalf. I think these are all good moves for the organization and show our commitment to working for different types of membership.

2. The website

The new look BABAO website was launched on January 6th 2017. Dave Errickson, our Publicity Secretary has worked extremely hard on this (there was much to do to bring it up to date with all relevant documents and information posted, which still continues). In the future, if you have comments about the website, feel something needs adding to it, or just want to thank Dave, please contact him directly.

3. The annual conference

Another wonderful Annual Conference in September was much enjoyed by all, very ably organized by the School of Anthropology and Conservation at the University of Kent at Canterbury (Dr Chris Deter, Dr Geraldine Fahy, Dr Sarah Johns, Dr Tracy Kivell, Dr Patrick Mahoney, Dr Nicholas Newton-Fisher, Dr Matt Skinner, Dr Brandon Wheeler and a team of student volunteers (see later for a full report). All aspects of biological anthropology were covered in the extensive and interesting programme that the team put together.

Congratulations to Simon Chapple (1st) and Felicia Fricke (runner up) who won the Jane Moore (podium) Prizes:

1. Simon Chapple (& Patrick Mahoney), University of Kent, *Tooth enamel biorhythm corresponds with modern human adult stature and body mass.*

2. Felicia Fricke, University of Kent, Osteology in the Caribbean: *Ethical, Theoretical, and Practical Considerations*.

And to:

Anna Barrett (1st) and Kayla Crowder (runner up) who won the Bill White (poster) Prizes:

1. Anna Barrett (& Pia Nystrom), University of Sheffield & Durham University, *The British Museum, Why water matters: Investigating the effects of site hydrology on the diagenetic alteration of bone*.

2. Kayla Crowder (& Janet Montgomery, Darren Grocke, & Kori Filipek-Ogden), Durham University, *Lesions and isotopes: an integrated study of childhood metabolic stress and stable isotope life histories in the Kingdom of the Gepids*.

NB: we changed the AGM timing to Friday, rather than Saturday evening for the first time this year. This worked well and we therefore will retain this for 2017.

I personally enjoyed taking my fold up bike on the train there, and the steep hill up to lovely campus, and also running each morning in fields and woodland!

Organizing the annual conference involves a lot of hard and dedicated work, and two equally able teams have volunteered for the next two conferences. The Research Centre in Evolutionary Anthropology and Palaeoecology, Liverpool John Moores University will host the 2017 conference at Liverpool John Moores University (8th-10th September); see the webpage: <https://www.ljmu.ac.uk/conferences/babao>.

Joel Irish, Isabelle de Groote and Constantine Eliopoulos are the Organizing Committee, and we look forward to meeting them there and enjoying Liverpool's sights. The 2018 conference venue will be Oxford University, and the conference will be organized jointly between Oxford University and Cranfield Institute between the 14th and 16th September 2018 – this will be the 30th anniversary of the official founding of

BABAO! It may be also of interest to know that in November Oxford officially “re-launched” Biological Anthropology!

Is anybody willing to host the conference in 2020?

4. Guidance to the standards for data recording

The update on this document is now complete, it has been sent to the BABAO committee members for comments, now done, and authors of each chapter are now revising their chapters according to the comments (by January 16th 2017). This will then be reviewed by external reviewers - it is not too long now before this will be available to members.

5. The grey literature database

This is progressing very well, and late 2017 should see this up and functioning.

6. Happiness with BABAO

You all were given the chance to comment on whether you were happy with the way BABAO was being run, and the services it provides. Overall, of the members who voted, general happiness was expressed, although the commercial sector members were less satisfied compared to the academic sector.

7. The British Festival of Science, and outreach/public engagement

As you know, you have all been given the opportunity to suggest ideas for future BSFs. Please do get involved if you can. I know many of you already do engagement work, but I am sure everyone appreciates that this is very important for our discipline.

8. *Trends in Biological Anthropology*

The next *Trends in Biological Anthropology* will be in May 2017.

9. Commercial archaeology

While there was some comment in our “happiness” survey from the commercial sector members that they would like to see more support and initiatives from BABAO specifically for this group, there have been some developments. In 2016, as a result of the work done on behalf of BABAO by Sharon Clough (commercial archaeology rep), the Chartered Institute for Field Archaeologists now have an “osteology competency matrix”; here is the link: http://www.archaeologists.net/sites/default/files/Osteology%20specialist%20competence%20matrix_final_0.pdf.

10. UK Anthropology Network proposal (previously the Federation of Anthropology)

This idea, bringing all aspects of Anthropology together, has seen some development. A “Pan-Anthropology” conference is being planned for 2018. As your President, I will be attending a briefing meeting on January 20th in Oxford.

11. BABAO Small Grants 2016

Many congratulations to Rachel Schats (Leiden, Netherlands), Stephanie Payne (Cambridge University), and Christianne Fernee (Southampton University), who were all awarded BABAO Small Academic Grants in 2016.

12. Selling human remains

The BABAO committee continues to deal with instances where human remains are being traded. While we are sending letters, as appropriate, we are also working with the American Association of Physical Anthropologists to develop a (probably joint) statement for our websites. Watch this space, but in the meantime please, if you see this sort of activity, please send the information to me in the first instance so we can act accordingly. Thank you – we must stop this happening.

13. The BABAO Annual Review

Finally, again, thank you Ronika, our Annual Review Editor, for gently reminding us to send contributions for this Review, and to all of you who have taken the time to send contributions. It remains a great publication that shows how active and diverse our members are.

We hope you all are happy with the way BABAO is running, and that you are getting value for money from BABAO’s services to you. However, please do contact me, or any of the other committee members, if you have any specific thoughts about the future of BABAO.

On a final note, please do read the guidance on Small Grants carefully if you apply this year; this will help Karina immensely in managing the process, and smooth the reviewing of the applications.

Best wishes for a peaceful 2017, which I hope is productive for you all in your various roles; see you in Liverpool in September.

Report from the Membership Secretary

*Anwen Caffell
Durham University*

BABAO had 496 members at the end of 2016, which is a slight increase from our 484 members at the end of 2015. In contrast to last year, just over half our members were employed (255, 51.4%), while most of the remainder were students (199, 40.1%). The remaining members were unwaged (29, 5.8%), or retired (12, 2.4%), which sees a slight drop in the proportion of unwaged members but a slight increase in the proportion of retired members compared to last year. We now have one institutional member, following the introduction of institutional membership in 2016. Institutional membership allows the institution to receive BABAO publications and Annual Reviews, but does not provide access to the mailing list or members’ area of the website.

Those members who had specified an occupation were grouped into broad

categories (see Table); note that these figures include some unemployed and retired members. Members associated with academia (not including students) formed the largest subsection, and included lecturers, post-doctoral researchers, and other teaching/technical support staff. This category of membership saw a large increase in 2016. Seventy-two members (28.7%) were associated with the commercial sector, assuming that all members who defined themselves as archaeologists or osteologists/oste archaeologists worked in the commercial field. Smaller numbers of members worked as forensic specialists, in museums, or in medicine, and there were a diverse range of other professions represented.

MEMBERSHIP CATEGORIES

Academic	126	50.2%
Osteologist	31	2.4%
Archaeologist	30	12.0%
Osteologist/Archaeologist	11	4.4%
Forensic	16	6.4%
Medical	11	4.4%
Museum	13	5.2%
Other	13	5.2%

We recruited 103 new members during 2016, in comparison to 90 during 2015. The number of overseas members has increased after remaining constant for the last four years: overseas members now number 135 and make up 27.2% of our membership. The majority of our overseas members come from Europe (79, 58.5%), but we also have members from North America (40, 29.6%) and other areas including Australia, New Zealand, Hong Kong, Indonesia, and Malaysia (16, 11.9%). This increase in overseas membership coincides with the re-introduction of PayPal as a method of payment at the beginning of 2016. The membership also voted in favour of allowing members living and working in certain countries to pay the concessionary rate as of the 1st of January 2017. A list of qualifying countries is available on the BABAO webpage.

Please do send me updates on changes in job titles, positions, affiliations, and personal details via the 'change of details' form

available on the membership section of www.babao.org.uk. It is important that you keep your postal address up to date. Also, please do not hesitate to contact me if there are any questions regarding BABAO membership, either at the address inside the front cover of the Annual Review or email me at membership@babao.org.uk.

Report from the Grants Secretary

*Karina Gerdau-Radonić
Bournemouth University*

In 2016, the BABAO Board of Trustees (then committee) awarded 3 academic research grants.

Project Summaries

Christianne Fernee (University of Southampton / Bristol) - £900.00 - *Like Pulling Teeth: Tooth Variation within and between Populations in the South of Britain*.

Teeth are ideal tools for modelling past environmental and cultural interactions. They are a permanent source for identifying features, lacking remodelling, and outlasting other skeletal material. Hidden during life, tooth roots and internal dental structures have largely been ignored in studies. Similarly, studies of tooth variation within the mouth are almost non-existent. Current archaeological investigations of environmental and cultural interactions predominantly employ speculative or destructive methods. This research uses state-of-the-art non-destructive micro-CT to uncover intra-individual variation in tooth form within and between populations, developing models of dietary patterns and social interactions applicable to other groups.

Stephanie Payne (University of Cambridge) - £1,000.00 - *Extremities at the Extremes: How Do Altitude-Associated Stresses Shape Sherpa Hand and Foot Morphology?*

The Sherpas of the Himalayas have a unique suite of adaptations which enable them to

survive in low-oxygen conditions at high altitude. However, Sherpa adaptation to other high altitude-related stresses, such as extreme cold, limited diet, and a physically demanding lifestyle, is poorly understood. This research will investigate whether Sherpa body proportions follow typical patterns of cold adaptation or energetic stress seen in other populations. By measuring Sherpa morphological traits, this research will also be the first to document their hand and foot proportions, which are known to be particularly susceptible to cold and energetic stresses during growth.

Rachel Schats (Leiden University) - £1,000.00 - *Syphilis in The Netherlands. Dating and Provenance of Three Syphilitic Individuals from Kampen.*

The origin of syphilis has been heavily debated in the last years. The hypothesis that Columbus brought this disease back to Europe is supported by many pre-Columbian cases in the New World. The evidence for pre-Columbian cases of syphilis in Europe is much more scarce. Recently, however, skeletal remains in Kampen, The Netherlands have yielded three individuals with lesions pathognomonic for syphilis. This project aims to securely date and perform isotope analysis on these individuals to gain a better understanding of syphilis in The Netherlands and thereby to contribute to ongoing debates on the origin and spread of the disease.

2017 BABAO Research Project Grants

BABAO offers funding grants for research projects which are available annually, by competition. The competition is open to ALL members of the association who have paid their dues by the 31st of January of the application year.

These grants may be used to support research in Biological Anthropology (on all extant and extinct primates) and Osteoarchaeology (human and non-human).

Two types of grants are available. One type is reserved for research in the

contract/commercial sector (up to £2,500: £1000 for research costs and £1500 to buy out time from the employer). The other grant is reserved for the academic sector (£1,000 for research costs only). The higher sum available for the commercial sector is to cover the cost of buying out time from the employer, to allow for sufficient free time to conduct the research. Applications for more than these sums will not be considered. The number of grants awarded each year will depend upon the quality of applications and the state of the association's finances. The Board's decision is final.

The closing date for receipt of applications for the current year is 23:59 (UK time) on the 5th June 2017. Applications should be emailed as a pdf to: kgradonic@bournemouth.ac.uk.

The application forms as well as further guidance and information on eligibility, how to apply, and what can be funded can be found at the following Web address: <http://www.babao.org.uk/about/research-grants/>

Grant applications will be reviewed by the committee. Please note that incomplete applications and those that do not follow the guidelines will be automatically disqualified. Notification will be given directly to the applicants, the BABAO e-mail list, and the BABAO webpage.

Grant winners are expected to present their research at the BABAO conference within the 2 years following the award (so 2017 grant winners are expected to give either a paper or a poster at the 2018 or 2019 conference).

Report from the Student Representative *Emily Carroll* *University of Reading*

2016 was a significant year for the BABAO student cohort. Not only did we see many new members join our community, but our committee as well. Simone Lemmers has

passed on the baton and I can only hope to do half as well as Student Representative.

This year we also saw the launch of the new Student Hub available on the BABAO website. This page includes a variety of resources designed specifically for students to guide them through their studies and help them join the professional world. Templates for conference posters, a list of higher education courses, volunteer and job opportunities, top tips from leaders in the fields of Biological Anthropology and Osteoarchaeology in how to succeed, as well as a forum where students can get to know each other are all available through the Hub: <http://www.babao.org.uk/>.

The BABAO student Facebook page and Forum are more active than ever. On our Facebook page members share events, articles and ideas regularly, so make sure you join if you haven't done so already: <https://www.facebook.com/search/top/?q=babao%20student%20members>. The Student Forum provides members with reading material, research themes and context for those looking for a point of reference. It also acts as a communication platform for members to ask questions and take part in debates in their fields of interest: <http://babao.proboards.com>.

In 2016, our annual conference was held at Kent University and saw many student attendees submitting posters and presenting their research at the podium. Congratulations to our winners of the Jane Moore Podium Prizes, Simon Chapple and Felicia Fricke, as well as the Bill White Poster Prize, Anna Barrett and Kayla Crowder. The conference presented an unmissable opportunity for us as students to show our potential and receive feedback on our research from some of the world's leading experts. If you were unable to attend this year then not to worry, students can apply for bursaries to attend the conference. However, these are limited so don't leave it too late to apply.

I am always excited to hear from our student members, so if you have any question,

concerns, ideas or suggestions then please do get in touch either via our Facebook page, or by my email: e.l.carroll@pgr.reading.ac.uk.

Donald Ortner 1938-2012

Charlotte Roberts

Durham University

As readers will recall, palaeopathology lost a wonderful colleague and friend in Don Ortner in 2012. However, I am sure you will all be interested to know that the Smithsonian Collections' blog now has a piece on Don by Alice Griffin, who was an intern on the Summer Institute in Museum Anthropology (SIMA) program in the summer of 2015:

<http://si-siris.blogspot.co.uk/2016/12/donald-j-ortner-physical-anthropologist.html>

Alice also processed Don's papers and they are now available for research! Check out the new finding aid here:

<http://sova.si.edu/record/NAA.201407?q=donald+j.+ortner&s=0&n=10&i=0>

You might also be interested in reading Mary Powell's chapter about Don in J. Buikstra & C. Roberts. 2012. *The Global History of Paleopathology. Pioneers and Prospects*. Oxford, Oxford University Press: 89-96.

Happy reading!

Don Brothwell 1933-2016: A tribute to a polymath

Charlotte Roberts



Don Brothwell, Professor and then Emeritus Professor of Human Palaeoecology at York, with members of the BioArCh team in the Department of Archaeology, University of York (courtesy of Malin Holst).

As a person and as a scholar, Don Brothwell had an incredible influence on so many people around the world for so many years, and his legacy continues to do so. However, it is a very daunting task to write a short celebration of his life in archaeological science, and particularly in bioarchaeology, because he did so much for us! He himself had just written and published his memoirs (2016), the Archaeopress website describing it as ‘the first memoir by an internationally known archaeological scientist, and one who has been particularly research active for over fifty years in the broad field of bioarchaeology’. Beyond the references I have cited for this piece, I would highly recommend this as a fascinating read for all (see contents list below); just look at what he has done and where he has travelled as a starting point! What a role model for being an academic.

Some of what I will say here is already on York University’s website for Don as a personal tribute to him (<http://www.york.ac.uk/archaeology/staff/academic-staff/in-memoriam-don-brothwell/>), but here I am describing some of his remarkable achievements through what he published. First, though, we should celebrate his contributions, in general, to archaeological science. How did that all start? Well, he did “science” A levels in biology, chemistry and geology and then studied for a BSc in Archaeology and Anthropology from 1952 at the Institute of Archaeology, University College, London. His science degree clearly shaped the rest of his life; he actually considered most of archaeology as science, but emphasised that our discipline needed to incorporate scientific approaches much more, and that archaeology had ‘just about reached middle childhood’ (Ecklund *et al.* 2003; interview). Lots more to do then!

Even by the age of 12 years old Don had become interested in archaeology (and human remains), stimulated by local excavations, but in his 2003 interview when asked what he would have been interested in if he was starting out now, he said that it would have been the human brain and its evolution, more generally the ‘neuro-sciences in relation to archaeology together with social psychology and social pathology’, and animal diseases in the past as seen through their remains – it would not be ‘old human bones’! Very soon after graduating, in 1958 Don was employed by the University of Cambridge as a “demonstrator” in the Faculty of Archaeology and Anthropology. In 1961 he moved to employment in the British Museum (Natural History) as Principal Scientific Officer and Head of Anthropology, went on to teach and research at the Institute of Archaeology, UCL from 1974, and then moved to the University of York in 1993 as Professor in Human Palaeoecology. More specifically with regard to “science”, Don founded and became joint editor of the *Journal of Archaeological Science* between 1974 and 1993, but even at the tender age of 30 years old he had edited with Eric Higgs the huge volume *Science in Archaeology* (1963), which went into a 2nd edition in 1969, and re-emerged in 2001 as *A Handbook of Archaeological Science* (this time co-edited with Mark Pollard).

In 2003, he described his interests to ‘lie mostly in the broad field of archaeological science, but particularly in human palaeoecology.the archaeology of food, the disease ecology of past populations (humans and domestic livestock), the micro-evolution of humans and associated domesticates and the potential application of DNA studies to the resolution of bioarchaeological problems. These research interests range across a very broad temporal span, from Pleistocene to mediaeval times’. At this time he reminded us that his interests were indeed broad and global, covering a long time span, saying that he was currently conducting experimental work on the vitrification of fortification walls in Scotland! Beyond vitrification, he mentioned writing a book on archaeological birds, more on veterinary palaeopathology, and on preserved bodies. Don also had a strong interest in art, and admits that he was an ‘art school dropout’!

Let’s now see more of what he has written about, much of which still influences many scholars around the world. I should add that I doubt that he bothered much about journal impact factors and citations and downloads! He was already writing on leprosy in Britain in 1958 at 25 years of age, and in 1959 on trepanation, metrical and non-metrical data, teeth in earlier human populations and “mongolism” in the Anglo-Saxon period. The following year saw works on Bronze Age people in Yorkshire alongside Upper Pleistocene human remains from Borneo. In the 1960s he also considered cannibalism in Britain, tuberculosis in Egypt, and human remains from Borneo, Israel, Palestine, Dunbar in Scotland, Swanscombe in Kent, the Upper Palaeolithic skull from Whaley rock shelter in Derbyshire, West Overton and Fussell’s Lodge in Wiltshire, England, and County Cavan in Ireland. During the 1960s, he further authored and edited a range of books: *Science in Archaeology* (1st and 2nd editions); *Food in Antiquity*; *Skeletal Biology of Earlier Human Populations*; *Diseases in Antiquity*; *Digging up Bones*; and *Dental Anthropology*. A pretty impressive lineup, and dating to 1963-9!

By the 1970s we were seeing reports on the human biology of Neolithic British populations; craniometric analysis of British populations; and on human remains from Amesbury in Wiltshire, Maiden Castle in Dorset, West Africa, and on the Singa skull from Sudan. He further discussed head growth in late Pleistocene East Asian and Australian populations, and did some writing on Neanderthals. He also gave us his thoughts about trepanation; *osteogenesis imperfecta* present in Egypt; palaeodemography; Scottish vitrified forts; domestic fowl; Amerindian dogs; bone chewing by ungulates; the relevance of small mammals to archaeology; urban health; and the impacts of pollution on well-being. Some papers focused on Orkney at this time showed his interest and love of the Orkney Islands in Scotland – demography and genetics, and souterrains. In the 1970s he also was showing his interest in treponemal disease, with a paper in *Science*, and writings on the disease in Oceania and Mexico, alongside some dating evidence. He continued to edit and author books: a

2nd edition of *Digging up Bones*; *Biosocial Man*; the *Population Biology of Ancient Egypt*; and a book on *Visual Art*. What is impressive about Don's publications is the variety of subjects he wrote about, but also his ability to contribute to fields beyond "archaeological human remains", for example his co-edited contribution on *Research Problems in Zooarchaeology* in 1978.

In the 1980s Don continued with the publication of several books: *Animal Diseases in Archaeology*; *Environmental Aspects of Coasts and Islands*; and *Lindow Man. The Body in the Bog* and *The Bog Man and The Archaeology of People*, showing his increasing interest in preserved bodies; this all went with the appearance of a 3rd edition of *Digging up Bones* in 1981. He was also writing about house mice; guinea pigs; petrology and archaeology; dental wear and ageing; child mortality in the past; taphonomy and the Jewbury burial ground in York; human remains from Alton in Hampshire; and treponemal disease. It was in the latter part of this decade that he published his first works on dental calculus and its potential for understanding, amongst many things, diet in the past (1987, 1988). How right he was!

The 1990s saw Don extend his work on preserved bodies, but also his strong interests in non-human pathology (syntheses, but he also considered perforations in cattle skulls, chicken bones, and animal bones from Colchester). He also again showed his eclectic interests in his publications: *cribra orbitalia*, stress, preserved hair, trepanation, malocclusion, drugs in the past, and ancient conflict and warfare. The important co-edited publication of the analysis of the skeletal remains of Jewish people buried in York came out in 1994, along with his report on the human remains from the chambered tomb of Wayland's Smithy in Oxfordshire.

In the last 15 or so years, Don continued to publish widely, with two books in 2001 (*Handbook of Archaeological Science* – to follow on from *Science in Archaeology* - and a co-edited book on radiology: *Paleoradiology: Imaging Mummies and Fossils*). He widened his publication themes to include tumours in the past (extending from his chapter in his edited book from 1967 *Diseases in Antiquity*); normal variation in human skeletons – the chapter in Cox and Mays (2000) and for the BABAO Guidance to the standards for recording human remains; dental attrition; oral pathology in inland and island populations; calculi; treponemal disease (a recurrent theme!); microbiological ecosystems; iodine in bones and teeth; taphonomy of bog bodies; analysis of hair from the Neolithic Iceman and in a South African fossil hyaena coprolite; the analysis of salt preserved bodies in Iran; endocranial variation; and the causes of skeletal atrophy. His work on non-human remains also continued, including New World dogs again, avian osteopetrosis, and abnormal sheep metatarsals. From 2010, apart from his autobiography, Don has published on differential diagnosis in palaeopathology; another book chapter on tumours; dyschondrosteosis; organic residues in grave soils and soil micromorphology and chemistry (the result of his European grant at the age of 77 – see below); the biology of early British populations; and went back to dental calculus. I am sure that there are many more publications to come as I am certain that he had papers in press/in review and *in prep.*; we have not seen the last of them, thankfully.

I should at this point highlight his many books listed above that have shaped so much in "archaeological science" (beyond the "Handbook" of archaeological science"). While his 1969 book on *Food in Antiquity* appealed to a very broad readership, not many have taken on board the huge potential of studying animal diseases in archaeology that was outlined in his wonderful 1980 book on the subject with vet, John Baker. Hopefully that will change and new research will add to papers Don also wrote on animal disease (e.g. the value of zoonoses in understanding the past 1991 in Ortner and Aufderheide eds. *Human Paleopathology*). The year 1986 saw the first of his work (book) on preserved bodies, and in 2002 a contribution on the subject to *Advances in Forensic Taphonomy* (W & M Sorg eds). As an aside on the word "forensic", in his 2003 interview he had strong feelings about the "forensic" side of biological anthropology. He said: 'I've taken an interest in the development of these courses, but I do feel that in Britain..... we have now reached

saturation point. I think there are probably too many universities offering these courses..... I think there are far too many students attracted to the courses'. Has there been an increase since 2003 one wonders? Don also published on the famous Tyrolean Iceman in 2003 and 2005.

Perhaps one of the most important of his works for me personally at the start of my career was his 1963 *Digging up Bones* (see below), but equally for many was his 1963 *Dental Anthropology* book and his 1968 edited book on the *Skeletal Biology of Earlier Human Populations*. I should also note his 1961 paper on the "Palaeopathology of early British man" in the *Journal of the Royal Archaeological Institute*, which was an important reference point for Margaret Cox and I when we were writing *Health and Disease in Britain* (2003); his was the first synthetic study of the subject. Not long after these influential publications he came up with another milestone contribution, co-edited with Andrew Sandison (*Diseases in Antiquity. A Survey of the Diseases, Injuries, and Surgery of Early Populations*). This book is still of immense value in palaeopathology even though it is nearly 50 years old (and is still selling on Amazon!). Don's most recent book of course is of course his autobiography (2016) but in 2007 he co-edited a book on paleoradiology with a radiologist, the first of its kind.

I consider that one of the more important studies he did with regard to skeletal reporting concerned the monograph he was part of which concerned the human remains from Jewbury in York, a Jewish community and a rarely excavated archaeological context. In that report by Lilley *et al.* in 1994, there was a section on the identification and analysis of dental calculus, something that Don (and Keith Dobney) had published on in the late 1980s. This Jewbury report also raised issues related to ethics and human remains, perhaps the first "ethics occasion" for me in my early years as a bioarchaeologist. In the 1980s and early 1990s ethics was not a subject that was discussed much at all in the UK context. In relation to ethics and archaeological contexts containing human remains, in his 2003 interview Don was adamant that long-term conservation of samples of various kinds (hair, bone) with access for further studies, alongside a 'good database', were essential as more and more human remains are being repatriated and/or reburied. This is something that needs more debate. I also feel that Don and Keith's initial work on inclusions in dental calculus is often forgotten as more papers are published on the subject; this is in an age when calculus is now considered a good preserver of organic materials, such as ancient DNA. However, it was so pleasing to see his co-authorship of a 2012 *Science* paper on 'Neanderthal medics? Evidence for food, cooking, and medicinal plants entrapped in dental calculus'. It was to me also of particular interest to see Don's research on the treponemal diseases develop, again initially as a *Science* paper in 1970. Just over 10 years ago, he again contributed to the "syphilis debate" (2005) where he re-considered the Old World theories and evidence for treponemal disease (Powell & Cook eds. *The Myth of Syphilis, The Natural History of Treponematosi in North America*). However, he did not particularly enter the often bitter "Columbian" debates about the history of this infection, but has continued to "plough his own furrow" using available scientific evidence. Overall, Don's publication record is astounding; there are very few people in archaeological science who have published on such a diverse subject matter in so many outlets over so many years. Taking just bioarchaeology, a lot of the things he initiated interests in via his early publications remain areas for development today.

I first "came across" Don when I was an undergraduate at the University of Leicester. While I had not really thought about any particular "specialism" of archaeology that I might be interested in (fully expecting to return to nursing after my degree), I did a dissertation on human bones from the crypt of Rothwell Church, Northamptonshire. The only book that I found to guide me was an early edition of *Digging up Bones*, a book that I feel must be on the shelves of anybody studying archaeological human bones. I do not recall really having much supervision for my dissertation at Leicester and just "muddled through", although being a nurse helped (as did contacts with Keith Manchester at Bradford). Don's book was therefore my "Bible" as I did my analyses. I even wrote to him about platymeric and platynemic indices, trying to find out more about how these indices

could be interpreted for populations in the past. As was the norm for him, he handwrote a letter back to me with further information (nearly as quickly as email!). As an aside, I admired him for shying away from email – ‘why bother with email when you have letters, fax, and telephone for communications’, he often said – indeed why bother! Don was also my PhD examiner, as he was for some of my PhD students, and I had a thoroughly pleasant time being “grilled” in my viva! Who wouldn’t if it was with Don?

Following my undergraduate days, I intermittently kept in touch with Don over the years I was an academic at the University of Bradford before coming to work at Durham University in 2000. Developing and instigating the MSc in Palaeopathology in 2000, and because Don was relatively close at hand in York, I quickly decided that having him talk to our students about some of his favourite topics would be such a bonus for the students (even though he had officially retired in 1999!). I was not disappointed, and nor were the students. Until a couple of years ago he came up every year and provided them with thought provoking lectures (animal palaeopathology and syphilis – of course!); they really valued this input to their knowledge base. Of course, we had to provide a slide projector for his lectures because we had moved to the “working in the power point presentation mode”. Again, I commend him for “sticking to his guns” on presentation modes! Don was made an Honorary Research Professor in 2006 at Durham University.

Don was an inspiration to us all. A genuinely lovely man, he constantly had new research ideas, gave people time – something we are all short of (and hand wrote personalised letters!), and was open to discussions and debates; established scholars and students alike loved him. He was awarded his last grant at the age of 77 years and has been publishing since the 1950s right up to 2016! It just goes to show that the older academic generation can continue to offer considerable insights and inspiration to the younger generation. They also have a sense of the historical development of their discipline, and know about those dim and distant papers published years ago that may not be accessed by students today. Having that sense of history, older academics that are officially “retired” contribute so much to so many. I last saw Don in Hovingham in the Yorkshire Wolds where he lived last September. I am so glad I did. With my better half (Stewart), I was on a cycling holiday around that area and we stayed at the Worsley Arms in his village overnight. We took him to dinner that night and had a wonderful time; his eyes sparkled as he talked about what research he was currently doing. He told me about the book he was writing on syphilis - I hope it is published because I think he had nearly finished it – I would hazard a guess that it will be the most sensibly written “ode” to the history of syphilis we will have ever seen.

Even though he was such a modest man, his immense intellect constantly shone through; he indeed was a polymath, something that many of us will never be, including me. As Keith Dobney said (2012) ‘Many of us have been lucky to count Don as a generous colleague and friend, one who never sought the academic heights or limelight. He is without doubt, and in the truest sense, both a “gentleman and a scholar”’.

Here’s to Don – he will be terribly missed by us all but he has left a huge legacy to archaeological science.

Charlotte Roberts
Department of Archaeology
Durham University
England

(January 6th 2017)

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My paltry attempt at a “biography” cake to celebrate Don’s life on the 15th December 2016 at the University of York – not easy to fit all that he has done on a cake!

The following are the contents page of Don’s 2016 autobiography; as would be expected, an eclectic mix of things of importance in his life:

Childhood, Family and Education

Widening Horizons in Education, Teaching and Research
The Natural History Museum
The Institute of Archaeology in London
The University of York
Writing and Editing, the Final Education

War, Peace and Prison

The Prison Episode
Suez, Politics and People

On the Science of Art**Controversies with Fossils****Forensic Interludes**

Kosovo

Bog People and Other Friends

Bog Bodies
The Neolithic Iceman
Ancient Yemenis
Salted People
Egyptian Mummies and Dried Bodies

From Rocks to Protons

Grave Soils
Harnessing X-rays, Electrons and Protons
A Hair of the Dog

Bones, Teeth and People

Glue and Data: The Value of Bones
Teeth and Time: Reflections on Dental Archaeology
Population Studies : Beyond the Individual
Of Mice and Mammoths

The Nature and Antiquity of Diseases

In Search of Syphilis
Epidemiology and Our Past
Food and Health in the Past
Animal Health and Husbandry

Peoples and Places

The Viking Experience
The Siege of Avebury
Fromelles, France
Entering the Islamic World
Greenland
Mongolia
The Americas

Character Parts in a History**Theory, Language and Culture**

My Doubtful Place in Human Culture
Language

Aspects of the Emotions

Evolving Beyond Religions
Love, the Ultimate Chimera
The Identification of Humour

Traversing the Mindfield Which is Life

Imprinting, the Ultimate Deterrent to Independent Thought
Crowd Behaviour
Mind and Malfunction
Evolution, Mind and Reality
Psychological Archaeology Emerges
Pondering Mind and Reality
Socio-economic Changes and Mental Stability
Mind and Conflict
Psychopathology and Archaeology

Conclusions on a Life

On the Possible Scenario for my Descendents Long in the Future

PEOPLE

Sharon Clough now works full time as the Human Osteologist for Cotswold Archaeology, covering all aspects of human remains work across the four offices. As such, she is no longer freelancing as Archaeological Burials Company.

In 2016 Cranfield Forensic Institute (CFI) welcomed a new member of staff, forensic entomologist Dr Hannah Moore. Four other new lecturers with expertise in a number of forensic science disciplines joined CFI at the beginning of 2017. Professorships were awarded to Andrew Shortland and Peter Zioupos. Professor Keith Rogers retired from the post of Head of Group, after managing CFI for over ten years, and Professor Andrew Shortland has taken on this role.

In 2016 the School of History, Classics and Archaeology saw a number of new appointments which will enhance bioarchaeology teaching at Edinburgh. We are very pleased to welcome Robin Bendrey, who joins us from Reading University. Robin is a zooarchaeologist whose research interests focus on the origins, development and impact of animal husbandry and use in prehistoric Eurasia, the evolution of human-animal-environment relationships, and how perspectives from the past can have modern-world relevance and resonance. Xavier Rubio-Campillo, who was previously at the University of Barcelona, will bring his computational archaeology and statistics expertise to the School. Joanne Rowland, previously at the Freie Universität Berlin, is an Egyptologist who has been working in the Nile Delta since 1998. One of her main research foci is the origins of complex societies within Egypt with a special interest in the analysis of mortuary practices.

In July 2016, Ronika Power departed her four-year home in the Department of Archaeology and Anthropology (McDonald Institute for Archaeological Research and the

Leverhulme Centre for Human Evolutionary Studies) at the University of Cambridge, to return to Australia to take up a foundational Lectureship in Bioarchaeology at Macquarie University, Sydney, Australia.

In January MOLA was pleased to invite Chris Chinnock from the MOLA Northampton along with Catherine Godsiffe and Catherine Gibbs to undertake training in the MOLA human osteology recording methods.

This year some changes have occurred in the University of Sheffield team. The following remain the same: primatology/human osteology (Pia Nystrom), palaeoanthropology (Kevin Kuykendall), human osteology (Lizzy Craig-Atkins) and zooarchaeology (Umberto Albarella, Paul Halstead). Petra Verlinden has now taken up the position of Demonstrator and Technician in Human Osteology and collections manager, previously held by Diana Swales. While we were all sad to see Diana go, we are now happy to report that she will be moving on to the position of lecturer at the centre for anatomy and human identification at the University of Dundee.

Post-doctoral student Efthymia Nikita has joined us as a Marie Curie intra-European fellow this year. She has also taken up some of the teaching responsibilities for Lizzy Craig-Atkins while she was on sabbatical leave during the autumn semester. Next year, Katie Hemer will be joining the department on a permanent basis as Lecturer in Bioarchaeology.

We were also joined by several new PhD students, including Emma Hook, Sarah Poniros, Charlotte Waller-Cotterhill, and Ian McAfee.

Bioarchaeology and Osteoarchaeology at University of Southampton (*Bos*) said goodbye to some colleagues who have moved on to pastures new... Ellie Williams was appointed to a lectureship in Archaeology by Canterbury Christ Church University. She

Prof Tim Thompson has recently been appointed Associate Dean (Learning & Teaching) in the School of Science & Engineering, Teesside University.

construction to allow comparisons between sites and across periods, and will ensure a holistic approach. We also intend to provide legal and ethical advice regarding skeletal remains for archaeologists and others.

BOAPAS aims to get a legal recognition in order to be able to host national/international and disciplinary/interdisciplinary conferences, and to foster the publication of papers.

For more information, or if you would like to join us (membership is still free!), please contact us by email:

boapas.2016@gmail.com, or visit our website: www.boapas.be. You can also follow us on Facebook “Belgian OsteoArchaeology & Physical Anthropology Society – Boapas” and Twitter @Boapas2016.

Petriplatz: The First Berliners

*Natasha Powers
Allen Archaeology Ltd*

Excavations carried out by Landesdenkmalamt Berlin at St Petri-Kirche, Petriplatz, Berlin between 2007 and 2015, recovered the remains of more than 4,000 individuals who died between the 13th and early 18th centuries. A multidisciplinary collaborative project was launched involving partners from Landesdenkmalamt Berlin, Allen Archaeology, MOLA, Charité-Universitätsmedizin Berlin, Humboldt-Universität zu Berlin, Freie Universität Berlin and the University of West Florida. The project focusses on the study of the medieval population of Berlin’s former twin town Cölln, within which St Petri-Kirche sat, and aims to identify the date and geographic origins of the earliest population and to track demographic and palaeopathological patterns through time, by the innovative use of combined stratigraphic and spatial data, osteological, genetic and isotope analysis, and artefact studies. This is coupled with investigation of the unusually detailed historic records: in 1741, Johann Peter Süßmilch a priest at St Petri-Kirche who was the first German to describe the development of a population by recording the birth and death

rates in his parish, published demographic data for the people of Berlin and Cölln starting in the year 1550.

After completion of a successful pilot project which examined 223 individuals, the osteological assessment of the complete assemblage was undertaken by a team of osteologists in 2015, using methods directly compatible with those used to examine St Mary Spital. This has revealed a wide variety of pathological conditions including putative cases of pre-Columbian syphilis and individuals with weapon trauma, in particular a highly unusual grave containing the remains of three men. It has also enabled the creation of broad patterns of baseline data for common conditions, which can now be compared to other assemblages and to the historic records. The results of the assessment will form the basis for a monograph, currently in preparation, which will not only detail the discoveries at the site, but will also be the first paleopathology book of its kind to be published in Germany.

Preparation of final documentation and provision of permanent and safe storage of osteological material from earlier anthropological research in Sirmium

*Nataša Miladinović-Radmilović
Institute of Archaeology, Belgrade*

Since 2003, Nataša Miladinović-Radmilović has conducted anthropological analysis on approximately 1300 skeletons in Sremska Mitrovica (ancient Sirmium). The results have been published in scientific texts at home and abroad, presented at numerous conferences and published in the monograph *Sirmium – Necropolis* (human osteological material from the excavations from 1957–2007). Nataša is currently working on a monograph *Sirmium - Necropolis II* (human osteological material from the excavations from 2008–2018).

This year, Nataša and her associates won funding for the project ‘Preparation of final documentation and the provision of permanent and safe storage of osteological

material from earlier anthropological research in Sirmium' in the competition organised by the Ministry of Culture and Information of the Republic of Serbia (for museum heritage). As a result, we have successfully sorted and repackaged, and if necessary, repaired and washed the skeletal remains from the Roman period (1st–5th Century). There were 334 individuals. The material was moved from inadequate, "temporary," containers to new, adequate, properly marked ones. The funds helped us obtain metal shelves and all consumables. Also, since there are still no standardised grave and anthropological records in museums in Serbia, we have designed new anthropological records for the Museum of Srem in Sremska Mitrovica. It is important to emphasize that such well-organized material is a good prerequisite for the creation of a first anthropological collection in our museums, making the material readily available for all future anthropological research, as well as allowing for each individual skeleton located as quickly as possible, which has not been the case up until now.

The project is intended to last for a total of three years. Next year, we are also going to apply for the necessary funding and make an effort to document medieval human osteological material (5th–12th Century) and place it in permanent, adequate, properly marked containers. In 2018, the project is planned to deal with late medieval human osteological material (13th–16th Century).

MUSEUMS AND OTHER INSTITUTIONS REPORTS

Centre for Human Bioarchaeology Museum of London

Jelena Bekvalac

Although the Centre has unfortunately not been able to have the pleasure of welcoming students through its doors as normal it has still been a very busy year and one that has seen the Centre involved in a variety of activities and programmes, as well as a theatre production at The Tell entitled 'To The

Bone', a theatre work inspired by ageing written and directed by Penny Cliff. An interesting and novel experience.

The work on the CHB web pages has for the most part been completed in transferring the information from the old CHB website to the website embedded in the Museum of London new website. There were some teething problems and we are aware that there are still potentially some glitches but we are working with the web team to resolve them. Should any problems be apparent when using the website then do please contact us to let us know and we will address them with the web team to rectify. We have tried to keep all of the information in place as previously and for the data to all be accessible as before. In the New Year we hope to be able to update information for some of the cemetery sites and to add in other recorded sites.

The Centre ran again a number of higher education study days for groups of Masters' students and students visiting from the USA covering a range of topics using the teaching collection and research collection. We continued to participate again in the 'Public Health Through Time' study days for GSCE students studying History of Medicine and ran sessions for the After School Club for the City of London School for Girls. A Young Osteology Group was developed with a small number of girls from the City of London School for Girls as they had a keenness and desire to learn more about the skeletons. This also was beneficial as it fitted in with preparing for the group of girls for a 'Take Over' day in April at Guildhall to engage with the visitors about excavations from within the Guildhall area and the skeletal material revealed. It was a super day and the girls were brilliant in conveying what they had learnt about the skeleton and the site, as well as all of the other activities that were on offer for the day.

We again ran sessions as part of the Youth Programme at Wellcome Collection to participate in the Wellcome 'Bodies of Knowledge' study days programme and ran the osteological themed session for secondary

school pupils. The students all responded very positively with feedback to the day and the osteology session, all finding it interesting and intriguing as to how much can be learned from the skeleton. The CHB also participated in a number of 'Behind the Scenes' events with tours of the rotunda store to share its wonders with small groups and demonstrate the vast scale of the collection of skeletal remains. As part of the Open House weekend we also did a series of 'Behind the Scenes' tours talking about the skeletal collections as well as showing the architectural delights of the rotunda.

A number of researchers were able to collect data for their studies at St Bride's crypt and in the summer we welcomed Dr Jamie Ullinger from Quinnipiac University and her students to carry out data collection. A number of PhD students have also been able to include the individuals in their studies and one student from UCL was able to record all of the coffin plates as part of her research question. Another biomedical student from St George's teaching hospital collected data on femora as a continuation of the studies in collaboration with an orthopaedic surgeon and the surgical processes of joint replacements. The collection is very important and continues to assist researchers in their academic endeavours.

Once again throughout the year Rebecca and Jelena were out and about spreading the word of the CHB and the varied research on the collections, talking at local history and archaeological societies, conferences and teaching courses. Rebecca was an invited speaker at a number of conferences on Romans and violence and was a return visitor to Rome for presentations at two conferences. Rebecca also spoke again in Cambridge at the Centre for Research in the Arts, Social Sciences and Humanities (CRASSH) conference about research into treponemal disease. Jelena participated in the 'Post Medieval Cemeteries and Best Practice in Excavation and Research' seminar at Oxford University and spoke about Curation and Research Trends relating to the long term curation of skeletal remains and research

trends focusing on the Post Medieval period. Jelena also had the pleasure in June of speaking at the Royal Society of Medicine as part of the event 'A Close Look at our Ancestors' for the History of Medicine and met again some of the people who had come as a group to visit the Centre in April to see some of the teaching collection and the skeletal remains.

There was an opportunity for showing again the small exhibition we had previously hosted ('A Bite of the Past' in 2008) at the British Dental Association, that would coincide with the Anglo American dental conference in October 2016. Jelena was invited to speak at this conference to provide insight to the valuable information from the teeth of the archaeologically derived human skeletal remains. In giving the talk it was great for the members to then be able to see some of the examples from the collections showing dental health and interventions. Jelena was invited again to speak at Brompton Cemetery as part of the 'London Month of the Dead' at one of a series of events organised by Salon and was delighted to share the platform with Dr Rachel Ives talking about crypt collections. Jelena spoke about St Bride's and Dr Ives spoke about Christ Church Spitalfields. Throughout the year as part of the museum events team programme the Centre has also participated in several forensic-based evening events called 'Close to the Bone', where the public can learn about the collections curated at the museum and also for them to become forensic investigators.

Work has continued with with Gaynor Western on the 'Impact of Industrialisation on London Health' project, funded by the City of London Archaeology Trust (CoLAT). The radiographic data collection has been continuing on the London collections and those held in other institutions, to whom we are most grateful for access and support of the project. So far we have carried out radiography on over 1,000 individuals from the Medieval and Post Medieval Periods. Radiography will continue until next March and has benefited greatly from the use of a digital portable radiographic kit, operated by

radiographers from Reveal Imaging Ltd. Gaynor has begun the analysis of the radiographs of sites already done and created a database for capturing the analyses. We are very fortunate also to have the assistance of David Allan, a retired radiologist, who will also be going through the radiographs to aid in their interpretation and analysis.

We have been involved with media outputs, including filming about ongoing important research on the Roman skeletal collections and interviews with journalists about the *Impact of Industrialisation on London Health* project. In September we both were pleased to be able to attend the annual BABAO conference in Kent and enjoyed the variety of presentations and talking with friends and colleagues. Rebecca was able to present the podium presentation 'Going south of the river: a multidisciplinary analysis of ancestry, mobility and diet in a population from Roman Southwark based on the collaborative analysis and research of individuals from the cemetery at Lant Street'. Jelena presented a poster 'Manufactured Bodies: The Impact of Industrialisation on London Health', providing an overview of the City of London Archaeology Trust (CoLAT) funded project with Gaynor Western investigating the impact of industrialisation on health and the use of digital radiography as an important tool in collating and interpreting information from the skeletal material.

The Museum continued to work with Wellcome and three regional museums to open in August the first of three regional exhibitions, 'Skeletons: Our Buried Bones' in Glasgow at the Hunterian Art Gallery at Glasgow University. The first exhibition opened comprising of eight skeletons with four coming from the London collections ranging from the Roman to Post Medieval Periods and four from different parts of Scotland with three being prehistoric in date and one a rare Neolithic inhumation. It was a great experience to work with and meet colleagues at the Hunterian and for us at the Centre to work again with the team from Wellcome. The lead-up to the exhibition was exciting with the installation having its share

of challenges for lay-out and conservation of some of the elements, but all came together in the end for a very successful opening evening and an exhibition that has proved to be very popular. Rebecca is currently working on the next one that will be installed at the M Shed in Bristol for April 2017.

The CHB volunteers have again been splendid in their endeavors and hard work for the Centre with them winning a recommendation for the Museum Volunteers Award ceremony and David Allan being voted the 'Volunteer of the Year' for the Marsh Awards in October. We were thrilled that he won and appreciate enormously all that the volunteers do to help the Centre and the museum as a whole.

We have missed having researchers coming to the Centre to carry out their studies but hope that access to the osteological data and site information will be able to help in part for research projects. Please do contact the CHB email address for any information that may be needed to assist with research projects. We are happy to support research with the data from the database and can share this data if it is not currently a site available to download on the website, as well as other archive data from the cemetery sites. The work on the strategic move for the new museum continues apace and next year we are informed will be an important year for the strategic steps towards the enormous work of the project. It is an exciting time but one of considerable change for the Museum and the Centre looks forward to when it can welcome back researchers.

Museums of the Royal College of Surgeons of England

*Hayley Kruger
Carina Phillips*

2016 has been a busy year for the museums at the RCS. It was announced that the college will be redeveloping its current buildings in Lincoln's Inn Fields, London from August 2017. Consequently we started work preparing for our collections to be decanted

into off-site storage for three years while the redevelopment takes place. We have therefore been working hard to ensure that the 70,000 museum specimens and objects, and thousands of microscope slides have appropriate documentation, and are suitably packed for the move.

RCS collections continued to support researchers. Human specimens from the pathology and odontological collections for example, have been used in research on congenital syphilis and First World War trauma. Various researchers have also used our extensive non-human primate collection. The microscope slide collection has also been heavily used in research, notably the May Mellanby collection on human dental development has formed the basis of post-doctoral research by Dr Emmy Bocaegé and bone sections from the slide collection of John Thomas Quekett have been used in research work at the Royal Veterinary College on bone development. The Quekett Microscopical Club have continued to fund a part-time collections assistant who has focused on rehousing and documenting the Quekett microscope slide collection. This has helped to make this particular collection more accessible for research and public engagement. From October our collections were closed for research access to enable packing to take place for the move. Access to the collections is hoped to reopen in Autumn 2017.

The **Wellcome Museum of Anatomy and Pathology** supported 5000 scientific and medical visitors. The museum displays specimens of human tissue dissected to demonstrate anatomical and pathological structures. A majority of the collections are of modern date and therefore covered by the Human Tissue Act (HTA). The skeletal and dental collections continued to be used in the teaching of UCL's Bioarchaeology and Forensic Archaeology MSc on a bi-weekly basis. The skeletal and tissue collections are also used regularly in surgical training.

The **Hunterian Museum** welcomed over 90,000 visitors. Our major exhibition was

'Vaccination: Medicine for the Masses' which was a collaborative exhibition working with the 'Constructing Scientific Communities' project and supported by the Arts and Humanities Research Council. It focused on the history of vaccination and the relationship between the medical profession and the public over this controversial topic. A symposium 'People Powered Medicine' brought together historical and contemporary perspectives and attracted an audience of medical historians and practitioners as well as the interested public.

The museum continued to support UK schools with free-guided tours, Medicine Through Time sessions for the history GCSE module and 'Cutting Edge Careers' Surgical Skills sessions for students planning to study medicine. We continued to work with the Royal College of Pathologists to deliver family sessions on microscopy, ethics workshops for schools on the concept of medical consent and in the new year as part of a series of events supporting an exhibition on transplant, will add another session on the ethics of organ donation and issues of consent.

Information on visiting both museums can be found at www.rcseng.ac.uk/museums. Please be aware that the museums will be closing during 2017 for three years for redevelopment. The RCS museum collections can be searched via SurgiCat: <http://surgicat.rcseng.ac.uk>. HTA licenced specimens are not displayed on this, so please email museums@rcseng.ac.uk for information on these or for any other enquires.

Victorian Institute of Forensic Medicine

Soren Blau

In March 2016, Soren was invited to join the International Advisory Council, Humanitarian and Human Rights Resource Center, American Academy of Forensic Sciences (<https://www.aafs.org/resources/humanitarian-human-rights-resource-center>).

In May 2016, Soren wrote and delivered a new course 'Elements of Forensic Anthropology' which is part of the Masters of Forensic Medicine, Monash University, Australia.

In July 2016, Soren Blau and Jon Sterenberg commenced a research project entitled 'Detecting and Understanding Mass Graves: A Southern Hemisphere Perspective'. The aim of this research is to document in detail single and mass graves over a period of three years in order to enhance our understanding of the effects of decomposition on the detection of clandestine graves. This multidisciplinary research is being conducted at the Australian Facility for Taphonomic Experimental Research (AFTER) located in Western Sydney, and involves a series of experimental mass graves using human cadavers from body donation programs. This new research will augment the results from similar work being undertaken in the northern hemisphere and in doing so, contribute to the more efficient and timely detection of mass graves whilst expanding the current techniques available for detection of these valuable sources of forensic evidence. The preliminary phases of this research were presented at the Australian and New Zealand Forensic Sciences Society 23rd International Symposium on the Forensic Sciences. 19th-22nd September, Auckland, New Zealand.

Finally, Soren was featured in Bradely, R. 2016. *A Matter of Life and Death*. pp: 128-130. London: Jessica Kingsley.

EXCAVATION AND ANALYSIS OF HUMAN REMAINS IN 2016

Allen Archaeology Ltd
Natasha Powers

*International Bomber Command Memorial,
Canwick Hill, Lincoln, CABC 14*

Following on from excavations undertaken in 2014 on the site of the Chadwick Centre on Canwick Hill, which revealed a small group of Romano-British burials, a watching brief was undertaken in August 2016. Two graves,

each containing the articulated remains of one individual, were found. One was oriented northwest to southeast and was found directly below the topsoil in a poor state of preservation, the other was in considerably better condition, oriented east to west and found with iron nails around the head and feet. A robbed-out corn dryer (first identified during the 2014 excavation); two large, possible limestone quarrying pits and a north to south aligned ditch were also seen, alongside evidence of Roman limestone quarrying.

*St Georges' Church, Brentford, London
Borough of Hounslow, HHS14*

Following an archaeological evaluation, carried out in October 2014, Allen Archaeology Ltd was commissioned to undertake excavation and archaeological recording, in advance of the proposed conversion of St. George's Church to residential units. St. George's, a 19th century parish church, was built to replace the late 18th century St. George's Chapel and its associated cemetery. The first phase of excavation took place between November 2014 and March 2015: 458 contexts of articulated and disarticulated bone were recorded. Four burials were found to contain adipose tissue and were not examined. Once stratigraphic association of partial remains was complete, the sample consisted of 432 contexts of articulated skeletal remains and a quantity of disarticulated bone from the foundations of the later church. All burials were aligned northeast-southwest with the head to the southwest. A brick vault containing burials and another which had been cleared, then backfilled with disarticulated human bone and fragments of grave markers were recorded. The remains of an additional five brick vaults, damaged by the construction of the church and containing no skeletal material were also found. The majority of the burials were in wooden coffins, with one lead coffin from the general burial area and one from the intact southern vault. Twenty-four burials were at least partially identifiable from their coffin plates. Evidence of floral tributes, burial clothing and personal items were also found and a small

number of burials were accompanied by crockery. Analysis of the initial sample is ongoing.

Subsequent excavation of the area for a ground source heat pump and an ongoing, intermittent watching brief on landscaping and drainage works which commenced in January 2016, have recovered a further 182 burials to date.

Sarah Swift Building, University of Lincoln, LIBE 15

During monitoring works for the construction of the Sarah Swift Building at the University of Lincoln, a previously unknown Roman cemetery was discovered. The site lies close to the River Witham, south of the Roman city, and some 500 metres away from the junction of two of the most important roads in Roman Britain – Ermine Street which ran from London to York along the route of the current A15, and the Fosse Way which ran from Lincoln to Exeter.

The assemblage comprised the remains of a middle aged adult, probably male, and who was lying in a prone position. Nine contexts of neonatal remains, an older infant and an older juvenile were also recovered, one of whom had been carefully buried beneath a roof tile (*tegula*). Nearby the cremated remains of a further adult were found within an urn. Analysis is ongoing.

Lincoln Cathedral Connected, Lincoln, LICC 16

Lincoln Cathedral was included on Historic England's Register of Heritage at Risk in 2010 in recognition that there are a number of pressing needs related to its on-going protection. One of the ways the Cathedral has addressed this is by developing in the 'Lincoln Cathedral Connected' project which will reinstate the distinct historic character of the Close and include the development of new visitor facilities and landscaping of the grounds. Evaluation work revealed the burial of two, probably medieval, adults; a male and a female, who were left *in situ* and reburied.

Greestone Centre, Lincoln, LING 14

Twelve inhumations and a large collection of disarticulated human bone was recovered during excavations at the Greestone Centre, Lincoln in 2014 and have now been subject to preliminary assessment. Initial indications are that all of the bone derives from Roman burials. It is apparent that there is a quantity of bone which originates from features which are currently dated to the 1st and 2nd Century and this suggests that the cemetery was in use for longer, and from an earlier date, than at first supposed. It also indicates that quarrying and burial activity were likely to have been taking place in parallel, or close succession. Although this group is relatively small, it is of considerable local significance due to both the relative dearth of information about the population of Roman Lincoln and the location of the find within an area of terracing immediately to the south of the colonia. This excavation may have revealed a hitherto un-investigated cemetery of significant size.

Kents Hill, Milton Keynes, MKTD 16

A small collection of disarticulated bone was recovered from within a pit, consisting of the proximal portions of a pair of femora and a partial left arm and hand from an adult of undetermined sex (mid and distal humerus, proximal and mid shaft fragments of the ulna and metacarpal shaft fragments). The bone was moderately well-preserved but highly fragmentary, with some of the breaks having been made in antiquity, though post-mortem. Although measurement was not possible due to their condition, the femora were platymeric in appearance (flattened from front to back). The remains appear to originate from a single, disturbed burial of prehistoric or early Roman date.

Whisby Quarry, Whisby, Lincolnshire, WHIQ 16

Two probable Romano-British subadult burials were found within a pit. They had been placed on top of each other, the uppermost individual truncated by later activity. No previous burials are known from the immediate landscape although several hectares of land has been stripped for aggregate extraction with an ongoing

watching brief since 2013. Previous archaeological discoveries have been limited to linear field boundaries and discrete pits of Roman date, overlain by medieval ridge and furrow.

AAL grey literature is uploaded to the ADS and can be found at www.archaeologydataservice.ac.uk/archives/view/greylit/browse.cfm?unit=AllenArchaeologyLtd. You can keep up to date with our projects, vacancies and other news by following us on twitter @allenarchaeo and via our website at www.allenarchaeology.co.uk

Cotswold Archaeology

Sharon Clough

For most of 2016 Sharon Clough has been occupied with the 332 burials from the Anglo-Saxon cemetery at Hinkley Point C, Somerset. These are radiocarbon dated to 6-7th Century and 7-8th Century. The entire cemetery was excavated in advance of the new power station. A case study from Hinkley Point was presented as a poster at the BABAO 2016 conference - "Healed amputation of the right hand and left foot of an Anglo-Saxon male – is this evidence of a punishment for crime or a surgical procedure?" The project has its own website - <https://archaeologyathinkleypoint.wordpress.com/archaeology-in-action/cannington-cemetery/>

A publication including Bronze Age, Iron Age, Roman and Saxon cremation and inhumation burials reported on by Jonny Geber and Sharon Clough appeared this year – A. Mudd, E.R. McSloy, M. Brett & J. Hart. 2016. *Living Near the Edge: Archaeological Investigations in the Western Cotswolds along the route of the Wormington to Sapperton Gas Pipeline, 2006-2010*. Cotswold Archaeology Monographs Volume 9.

For access to human remains reports- Cotswold Archaeology deposits all their grey literature with Archaeology Data Service and in their own online library: <http://reports.cotswoldarchaeology.co.uk/>

The following were completed in 2016:

Fire Service College, Moreton-in-Marsh, Gloucestershire

Single deposit of cremated human bone, assumed to be Bronze Age.

Aston Road, Bampton, Oxfordshire

Partial inhumation undated assumed to be Roman from Evaluation trenches. Cremation burials un-excavated left *in situ*.

Cannington Flood Alleviation, Somerset

Three inhumations of Roman date.

Fullwell Lane Faulkland, Somerset

Two inhumations radiocarbon dated to the Roman period. One cremation burial from within a ceramic urn radiocarbon date 121-253 cal. AD.

Heatherstone Grange, Bransgore, Hampshire

Eighteen Bronze Age cremated human bone deposits from three groups, some contained within ceramic urns. Two groups associated with barrow.

Hendra Road, Stithians, Cornwall

Single Bronze Age cremation burial.

Hinkley Point, Somerset, Sites 6 & 7

Four inhumation burials dated to the Roman period and a single cremation burial from within a ceramic urn dated to the Early Bronze Age.

Kennel Farm, Basingstoke, Hampshire

Assessment of a single inhumation and eight cremation burials, some from ceramic urns.

Moreton Morell, Warwickshire

Parish Church of the Holy Cross. Ninety individuals dating from the Medieval to Post-Medieval period.

Pin Brook Lane, Redhayes, Exeter, Devon

Probable Medieval (13-14th Century) inhumation cemetery of 93 graves, but due to high soil acidity bone was extremely poor, 12 graves only extant.

Roman Way, Bourton-on-the-Water, Gloucestershire

Two inhumations both radiocarbon dated Middle Bronze Age. Ten cremation burials radiocarbon dated to the Middle Bronze Age.

Rowborough Farm, South Marston, Wiltshire
Evaluation - single deposit of cremated human bone, undated.

Exeter Road, Topsham, Devon
Two cremation burials probably Bronze Age.

Westham Road, Barford, Warwickshire
Two inhumations radiocarbon dated 1st-2nd Century AD and 3rd-4th Century AD. Deposit of cremated bone from a ditch, undated.

Woodrow Road, Melksham, Wiltshire
Cremation burial, Roman, recovered with iron nails.

Archaeological Burials Company
As trading of Archaeological Burials Company has ceased, included here all the reports written from 2014 and 2015. The following were all prepared for Cotswold Archaeology:

Daventry International Rail Freight Terminal, Kilsby, Northamptonshire. DIRFT 6 incorporating DIRFT 10.
Eight Bronze Age cremated bone burials. March 2014.

St Clears to Red Roses Road Scheme, Carmarthenshire, Wales. SCR12.
Assessment of 62 Bronze Age cremation burials. April 2014.

Tregunnel Hill, Newquay, Cornwall. TH14.
Assessment of six Bronze Age cremation burials and six inhumations, five probably Bronze Age and one C14 dated to early Iron Age. June 2014.

Wormington to Sapperton Pipeline WSP07
Four inhumations and two cremation burials and incorporating WSP10 (report by Jonny Geber) Publication report. June 2014.

Moat Lane, Towcester, TOW13,
Three Roman inhumations and three burnt bone deposits. June 2014.

Sellar's Farm, Hardwicke, Gloucestershire. SFH 12.

Assessment of one inhumation burial undated. July 2014.

Lovedean, Substation, Hampshire, SUB14.
Analysis of two ceramic urned Bronze Age cremation burials. August 2014.

Peter's Road, Lock's Heath, Fareham, Hampshire, PLR14.
Analysis of seven middle Bronze Age cremation burials. October 2014.

Caldecote Solar Farm, Cambridgeshire. CSP14.
Analysis of one Roman urned cremation burial. October 2014.

Barnwood Road, Gloucester. BARP13.
Analysis of one Roman cremation burial from a lead vessel /urn. December 2014.

Cornhall, Cirencester. CHC07.
Analysis of disarticulated human bone from four post-Roman deposits. November 2014.

Rowden Park, Chippenham. ROW14.
Analysis of two unurned cremation burials, undated but possibly Bronze Age. December 2014.

Darren farm, Cowbridge, Vale of Glamorgan. DAF14.
Analysis of one late prehistoric cremation burial. February 2015.

Former Milber Down Abattoir site, Newton Abbot, Devon. MBDD14.
One urned cremation, mid-late 1st Century AD. March 2015.

St Clears to Red Roses Road Scheme, Carmarthenshire. SCR12. Analysis of 37 Early Bronze Age cremation burials. September 2015.

Greystones Farm, Bourton-on-the-Water. GYF14. Analysis of 2 skeletons from a middle Iron Age pit and one cranium. June 2015.

Somerdale Keynsham, Bristol. Analysis of probable Roman casket cremation burial. June 2015.

Russel Close, Powick LRRC14.
Analysis of pyre feature from ditch terminus. June 2015.

Cannington Bypass, Somerset. CTW14.
Analysis of four Roman neonates. July 2015.

East Brinsham, Chipping Sodbury Quarry. EBQ14.
Analysis of one Roman non-adult. July 2015.

Tump Farm, Sedbury, Chepstow. TUM15.
Analysis of one cremation burial, probably prehistoric. July 2015.

Top Farm, Kemble. TOP15.
Analysis of one Roman cremation burial. December 2015.

The following reports were prepared for John Moore Heritage Services:

Coventry Cathedral. SM15.
Analysis of 2 skeletons from just north of the nave, 12-13th Century. November 2015.

Minchery Farm, Grenoble Road, Littlemore, Oxford. OXGR14.
Analysis of 91 inhumation burials from the cemetery and church associated with Littlemore Nunnery (Benedictine), founded 1134-54, dissolved 1525. February 2015.

Drayton Road, Abingdon. ABDR14.
Analysis of one early Iron Age crouched skeleton and a cranial fragment. March 2015.

Cotswold Archaeology Twitter: @cotswoldarch
Email: enquiries@cotswoldarchaeology.co.uk
Web: <http://www.cotswoldarchaeology.co.uk>

MOLA
(Museum of London Archaeology)
Michael Henderson

Department Reports

Details of MOLA's osteology work can be found on its website and social media pages: <http://www.mola.org.uk/services/osteoarchoeology>
<https://www.facebook.com/MOLArchaeology>
<https://twitter.com/MOLArchaeology>

Retired diagnostic radiographer David Allan continued to volunteer his expertise, reviewing the MOLA digital radiograph collection and offering useful pathological diagnoses.

Outreach/Impact

Don Walker gave a talk on plague burials from London as part of the National Maritime Museum's programme of events for *Samuel Pepyes: Plague, Fire, Revolution*. Don also contributed to the OUDCE course 'Post-medieval cemeteries: best practice in excavation and research' with a talk on burials from London's New Churchyard. Mike Henderson spoke at the 53rd Annual LAMAS Conference of London Archaeologists about the Crossrail discoveries: 'Bedlam burials: Bridging the gap in our osteological knowledge'.

Excavation and Contract Work

The MOLA osteology team in London has predominantly spent 2016 completing the analysis and publication for the excavations at Liverpool Street Station as part of the Crossrail Broadgate Ticket Hall development (XSM10). Work on the 16th–17th Century New Churchyard revealed evidence of a relatively young burial population with a high proportion of adolescents and young adults, likely representing migrants from towns and rural areas moving to London. Analysis of DNA from burials associated with a mass burial pit confirmed the presence of the plague pathogen (*Yersinia pestis*). It is hoped that this discovery will provide important information about the evolution of this disease. Evidence of Roman activity comprised seven inhumations and a single

urned cremation burial excavated from a cemetery just to the south of a minor road and to the east of the Walbrook river. Three individuals had been decapitated around the time of death and at least two of these had the head placed in the grave, in one case located between the knees. The nearby roadside ditch contained 21 crania as well as a small quantity of post cranial bone.

Analysis continued of the post-medieval burials from Marshall Street, Westminster (MSR08). Several phases of burials were associated with two of St James', Piccadilly's extramural burial grounds and the Poland Street workhouse spanning the 17th–18th Centuries. Excavations at Princess House, Piccadilly (PXY15), revealed evidence of burials associated with the intramural burial ground of St James' Church.

Further post-medieval work included the analysis of 238 individuals buried at the Baptist burial ground at Mare Street, Hackney (MRH14); this included 80 individuals with biographic information obtainable from associated coffin plates. Analysis also began of over 450 18th–19th Century burials excavated by Allen Archaeology Ltd from St George's Church, formerly George chapel, Brentford; (HHS14) with burials possibly continuing up to 1868. Excavations revealed *ca.* 800 contexts of human bone from Fielden House, Southwark (LDG14). Burials are believed to date to the 17th Century and form part of the cemetery associated with St Thomas's Hospital.

A large deposit of disarticulated human bone was discovered during excavations on land once belonging to St Bartholomew's Hospital at Kings Square, Islington (KSQ16). The bone probably represents disturbed burials as a result of earlier construction works. A minimum number of 159 individuals were represented, this included evidence of blunt and sharp-force cranial injuries.

Following on from previous phases of archaeological investigations at Principal Place, Hackney (PPL11), excavations revealed further evidence of Roman

inhumation and burial activity forming part of the northern extramural cemetery of London. Nineteen Roman inhumation burials and a quantity of disarticulated bone were excavated at St Bartholomew's Hospital Phase III (SBQ14) and a further 21 2nd–3rd Century Roman inhumations and one unurned at The Fruit and Wool Exchange, Tower Hamlets (BRU15).

As part of the assessment of two subadult Roman skeletons excavated at Coulsdon, Surrey (LGR15), Niamh Carty undertook a research trip to analyse 11 burials and a small quantity of disarticulated bone curated at the Natural History Museum, excavated in 1912/13 from the same site. A single skull from the earlier excavation was also located at the Horniman Museum, London. These remains are believed to belong to a 6th–7th Century Saxon burial ground.

A small quantity of burnt human bone was recovered from the fill of a small Middle Bronze Age ring ditch, containing chiefly burnt animal bone at Sipson Farm Hillingdon (SIF10).

**Oxford Archaeology
Heritage Burial Services**
Louise Loe

Team

Oxford Archaeology South

Louise Loe (Head of Burials)

Lauren McIntyre (Osteoarchaeologist)

Mark Gibson (Osteoarchaeologist)

Helen Webb (Osteoarchaeologist)

Oxford Archaeology East

Natasha Dodwell (Osteoarchaeologist and Head of Finds and Environmental)

Zoe Ui Choileain (Osteoarchaeologist and Finds Assistant)

Fieldwork

Quarry Site, Oxfordshire

One hundred and thirty eight skeletons were excavated from this Anglo-Saxon cemetery site over the Summer. Evidence of both pagan and early Christian burial practice has been

found, including the discovery of two rare examples of bed burials. Although the skeletons are poorly preserved the assemblage is exceptional because it is one of the largest of its kind from the region. The site featured on *Digging for Britain* in December 2016.

Bridge Farm, Sutton Courtney

Following on from last year a further 36 inhumations were excavated at Bridge Farm (Phase 4b). Forming two distinct groups, the majority appear to be late Romano-British extended, north-south aligned burials. At least two are east-west aligned. Most are adults and there is one infant and juveniles. Some include evidence for coffins and some have grave goods (pots). In keeping with Roman burial tradition, at least two individuals had been decapitated. A further two burials were crouched and this may suggest that they are of Bronze Age date.

Holy Trinity Church, Hull

Oxford Archaeology North provided staff to assist Humber Field Archaeology (HFA) in the excavation of some 400 industrial-period/post-medieval burials at Holy Trinity Church, Hull. This work was in advance of renovations to Trinity Square, which will be used as an events area when Hull becomes UK City of Culture 2017. The skeletons include examples of craniotomies, rickets and syphilis. They are currently being examined by HFA's osteologist.

Hatherdene Close, Cherry Hinton, Cambridgeshire

Over 130 skeletons were excavated, the majority dating to the Anglo-Saxon period but a small number being Romano-British in date. There are a variety of burial types including multiple and stacked burials and graves surrounded by small enclosures which were probably once covered by mounds.

As well as these larger assemblages, individual or small numbers of burials were found at the following sites:

Oxford Archaeology East

- Chelmsford Channels in Essex

- Alconbury Weald Residential Area KP1 in Cambridgeshire
- Cranford Business Park, Kettering, Northamptonshire
- Spencer's Park in Hemel Hempstead, Hertfordshire
- Land at Jacques Road, Burton Latimer, Cambridgeshire
- Honingham Thorpe Farms, Norfolk
- Fields End, Witchford, Cambridgeshire
- Bratton Seymour Roman Villa, Somerset (OAE/OAS)

Oxford Archaeology North

- Newark Future Phase 1-3, Nottinghamshire
- Oxford Archaeology South
- The Hub, Swindon, Wiltshire
- Dallington, Northamptonshire
- Graven Hill, Bicester MOD, Oxfordshire
- Shinfield West, Berkshire
- Dorchester Allotments, Dorchester-on-Thames, Dorset
- Park Prewett, Basingstoke, Hampshire
- St. Helen's Avenue, Benson, Oxfordshire
- New Barn Farm, Cholsey, Oxfordshire
- Laywood, Devizes, Wiltshire
- Aller Court Solar Farm, Aller, Somerset
- Stony Stratford Community Church, Buckinghamshire

Post-Excavation Analysis/Reports

Radcliffe Infirmary, Oxford

Full analysis of ca. 400 post-medieval skeletons from the old Radcliffe Infirmary burial ground, Oxford. Analysis is ongoing, but substantial pathology has been observed, as well as evidence for surgery, autopsy and dissection.

Worthy Down, Winchester

The assemblage comprises 18 late Roman articulated skeletons, plus the disarticulated remains of one further individual. Preliminary observations indicate that one of the individuals had been decapitated.

Peugeot Garage and Rhodaus Town, Canterbury

Assessment of ca.200 skeletons from a burial ground at Peugeot Garage and full analysis of

20 individuals from an adjacent burial site called Rhodaus Town were undertaken for Canterbury Archaeological Trust. Both assemblages are Roman in date, with burials spanning the first to early fifth centuries. We are currently awaiting the results of isotope and aDNA analysis of the Rhodaus Town skeletons and will complete the report in the new year.

Furness Abbey, Lancashire

An assemblage of *ca.* 40 skeletons from Furness Abbey was osteologically examined. These intra- and extra-mural burials comprise males and females and include a high ranking church man who had been buried with his crozier and ring. The skeleton exhibits evidence of DISH, and unusual patterns of dental attrition. Write up of this assemblage is ongoing.

Trench Arch Drains in Churchyards

This desk based research project was undertaken for Historic England and investigated the potential impact of trench arch drainage systems on archaeological burials and other remains in rural churchyards. The work was undertaken in consultation with the Department of Archaeological Sciences, University of Bradford, a diocesan archaeological adviser and a specialist in the construction and design of trench arch systems. The main conclusion of the study is that the impact of trench arch systems on buried archaeological remains seems to be under-appreciated. The report is available here :

<https://historicengland.org.uk/images-books/publications/assessing-impact-of-trench-arch-drainage-systems-on-archaeological-remains-in-churchyards/>

Teaching/Outreach

University of Oxford, Department for Continuing Education

‘Post-medieval Cemeteries: Best Practice in Excavation and Research’: Two day course organised by Heritage Burial Services and delivered by experts working in commercial, public and academic sectors.

‘Excavating Burials’: One-day course aimed at field archaeologists, delivered by Heritage Burial Services

Oxford Brookes University sabbatical cover

During the Autumn semester, Heritage Burial Services delivered an undergraduate module on ‘Human Osteology and Palaeopathology’.

Endeavour Fellowship, Australian Government

A member of the Unrecovered War Casualties Unit, Australian Army, which undertakes the recovery and identification of historic war casualties, was sponsored by the Australian Government to join Heritage Burials for a six-month placement. The placement involved training in archaeological field techniques, osteological analysis and research.

Grey literature reports can be accessed via the following link:

<https://library.thehumanjourney.net/>

Further information on our projects can be found at:

<https://www.facebook.com/oxfordarchaeology/>

<http://oxfordarchaeology.com/>

@oatweet

Wessex Archaeology

Kirsten Egging Dinwiddy

Burial Archaeology Team

Jacqueline I McKinley (JMcK): Principle Osteoarchaeologist

Kirsten Egging Dinwiddy (KED): Senior Osteoarchaeologist

Angela Boyle: Consultant/Associate Osteoarchaeologist (Freelance)

It has been an incredibly busy year for the Burial Archaeology team at Wessex Archaeology, with excavations of a sizeable assortment of mortuary-related features from sites across the country, dating from Neolithic through to Victorian – though with the excavation of an Early Saxon cremation cemetery, two closely-situated Mid Saxon inhumation cemeteries, and the Late Saxon

origins of a still-functioning churchyard cemetery, 2016 will probably be remembered as the year of the Saxons.

Both Jacqueline and Kirsten spent several months in the field, running excavations, taking the opportunity to provide field staff with training, trialling new technology, and undertaking osteological analysis where the material had to remain on site. Back in the laboratory there has been a flurry of micro-excavation of urned cremation burials, and a good amount of assessment, analyses and reporting – again involving a wide variety of assemblages from a broad temporal and geographical range. Though it was not a prolific year for publication (for reasons described above), the team are working towards the publication of some of their longer-term projects. They are also involved in non-Burial Archaeology tasks.

The following summary excludes projects still subject to client confidentiality.

Excavations

Bulford South SFA Phase III, Wiltshire (107945) (JMcK/KED)

<http://www.wessexarch.co.uk/projects/bulford/anglo-saxon>

As part of the Army Basing Project, which aims to accommodate 4000 additional service personnel and their families, several sites on and around the Salisbury Plain Training Area have been subject to a programme of archaeological investigations. Jacqueline directed the excavation of a complete Mid Saxon cemetery in Bulford. Kirsten helped with the staff training and the excavation of around 150 graves, found adjacent to a large double henge-type feature of probable Neolithic origin. The predominantly west–east aligned graves were arranged in dense north–south rows, though there were also outliers including a number orientated approximately north–south. There was evidence to suggest grave re-use and probable family plots. The assemblage includes immature individuals, males and females. Though the material is yet to be assessed, we know that there are examples of the usual degenerative changes, as well as a number of

fractures. A substantial number of burials included grave goods such as knives, spears, buckles and combs, as well as jewellery items such as amber beads, bronze earrings and a brooch. One woman was buried with, amongst other items, one of the two cowrie shells found in the cemetery, and a decorated bronze work-box. The size, date, quality of the assemblage, and the location of the cemetery makes it of considerable importance. The research potential is further augmented by the near simultaneous excavation of a contemporaneous cemetery at Tidworth – only a few miles to the north-east (see below). There were also two potential cremation-related deposits associated with the Bulford henge.

Work continues on this very substantial site, though it is anticipated that some osteological assessment will commence in 2017.

East Chisenbury, Figheldean, Wiltshire (70241) (KED)

In collaboration with Operation Nightingale and Breaking Ground Heritage (archaeological Community Interest Groups aiming to assist recuperating service personnel), Wessex Archaeology undertook excavations on the extensive Late Bronze Age to Early Iron Age feasting mound at East Chisenbury, situated within the Salisbury Plain Training Area. A few fragments of human skull were found amongst the large assemblages of pottery, flint and animal bone. Human skeletal material has previously been recovered from this site. The bone is yet to be assessed.

Holy Trinity Church, Bradford on Avon, Wiltshire (105032) (KED)

Wessex Archaeology staff undertook archaeological investigations and tomb clearance in advance of/during renovation works at the Holy Trinity Church and graveyard – the purported location of an important Saxon Minster in Bradford on Avon. The operation included clearance of two 18th/19th-century tombs, excavation of the footprints of two small extensions to the church building, and monitoring of the installation of a drainage system around much

of the church. Only remains that were, or were to be, directly disturbed by the groundworks were lifted and analysed. Those that were exposed but not otherwise at risk were recorded and left *in situ*.

To the north-west of the church were found the remains of 24 early graves, arranged in two different general alignments, some of which were cut by the 12th-century nave foundations. Preliminary radiocarbon dating indicates that the burials represent a Late Saxon cemetery – a particularly significant discovery that bolsters the theory regarding the location of the Saxon Minster. In general, the Saxon individuals (mostly men, some women and children) were robust and had been healthy for much of their lives. Nearly all of the adults were taller than average for the period, most being substantially so. One man would have been extraordinarily tall at 1.90 m (just under 6'3"). A short distance to the south, the pipetrench exposed two further possible Saxon burials; these remain *in situ*.

The remains of around 50 medieval/post-medieval burials were excavated along the line of the drainage channel, predominantly to the south of the church; several more were left *in situ*. Much of the 28 large sacks of disarticulated bone (around 2.3 cubic metres) recovered from the site, derived from this trench. The assemblage represented a demographically mixed population and evidence suggest that individuals were generally far less healthy than the Saxons buried nearby. There were a few examples of chronic infection, some metabolic deficiencies, and a peri-mortem sharp blade trauma. However, one middle-aged man was sufficiently nourished and healthy to achieve the remarkable height of around 1.92 m (6'3½").

The first 18th/19th Century tomb held several decorated, sealed lead coffins which, once recorded, were sleeved and reburied within the churchyard. The second tomb held the coffined remains of at least seven adults, overlain by a considerable jumble of (originally coffined) disarticulated remains, purportedly derived from inside the church.

Coffin plates and some demographic details were recovered from both tombs, though the poor preservation of the wooden coffins and the disturbance and mixing caused by the addition of the charnel deposit has made direct association between recorded skeletons and nameplates virtually impossible. Records were made of the wall-memorials known to be related to the contents of the tombs.

The project had a strong community involvement; a processing area was set up within the church and largely manned by local volunteers, without whom the analysis (undertaken on site by Kirsten) would not have been possible. Some of the disarticulated material was sorted by two Wessex Archaeology field-staff members, as part of an ongoing training programme (see below).

All of the burial assemblage, including the coffin furniture and any grave goods (eg, coins), were reburied within the churchyard. A number of teeth from the Saxon assemblage have been retained, should the opportunity to undertake isotopic analysis arise.

Historic England are carrying out a programme of radiocarbon dating, whilst various calculations and interpretation of the osteological results will be undertaken in 2017. The results will be published in due course.

King's Gate, Amesbury Down, Boscombe, Wiltshire (85685) (JMcK)

Further excavations have taken place on the western edge of the Amesbury Down housing development, close to the Boscombe Down air base. A continuation of the prehistoric landscape (which featured the 'Amesbury Archer' and 'Boscombe Bowmen' burial remains) includes a small cemetery group comprising the remains of three inhumation burials and a Bronze Age urned cremation burial (laboratory excavated). An assessment is due in 2017, with analysis to follow.

Land adjacent to Dean's Close, Tidworth, Wiltshire (111520) (KED)

<http://www.wessexarch.co.uk/projects/tidworth/anglo-saxon-cemetery>

Much of a second Mid-Saxon cemetery, excavated as part of the Army Basing Project (see above), was discovered just to the south of Tidworth, Wiltshire. The layout of this cemetery was rather different to that seen at Bulford, with around 55 graves occupying a distinct plot immediately to the west of a prehistoric ring-ditch. The western limit of the cemetery was clearly defined by a ditch, whilst graves convincingly peter out towards the south/south-west. The ground and features up-slope (north-east) were particularly truncated and a number of graves may well have been lost. Graves along the northern edge were still fairly dense, and it seems that the cemetery continues/once continued into what is now a modern graveyard. One grave lay in the centre of a small ring-ditch, around which a number of graves were focused. Most, however, are loosely organised into north-south to north-east-south-west strings. Immature individuals and adults of both sexes are all represented. Knives were fairly common and there were a small number of bone combs. One large male was buried with a spear and shield, whilst there were some relatively rich female burials. One woman, as at Bulford, was buried with a small, decorated bronze work-box, which in this case contained a beautifully preserved skein of thread. A small silver Roman coin had been converted into a pendant. Kirsten Egging Dinwiddy was on hand to assist and provide training on site. Assessment will take place in 2017, analysis will be undertaken in due course.

Land south of Rattle Road, Stone Cross, East Sussex (113031) (JMCK et al.)

Excavations undertaken in advance of a new housing development in Stone Cross revealed the remains of around 50 urned cremation burials, two of which are Bronze Age and the rest Early Saxon. The urns were block-lifted and transported to the Salisbury offices, where they were excavated in the laboratory. This offered another training opportunity, where Jacqueline ensured that two willing participants became proficient in the excavation and recording of urned cremation burials, and in particular the identification and interpretation of formation processes –

valuable skills which will serve them well on site. Work is still ongoing, though it is possible that osteological assessment will commence in 2017.

Larkhill East and West SFA, Wiltshire (113931) (JMCK)

Also part of the Army Basing Project, large-scale excavations at Larkhill East revealed an abundance of archaeological features dating from the Neolithic to World War Two periods. Alongside the network of military practice trenches, part of a previously unknown Neolithic causewayed enclosure was discovered. Meticulous excavation led to the recovery of a fragment of human bone from one of the monument's ditch segments. The excavations are ongoing.

Sherford New Community, Plymouth, Devon (107560) (JMCK)

Long-running excavations ahead of the development of the Sherford New Community, near Plymouth, have revealed two Bronze Age round barrows, a prehistoric cremation cemetery and a Romano-British settlement. Cremated human remains were recovered from the central graves of the two round barrows, and from at least 15 inverted urns from the immediate vicinity. The preservation of one of the barrows and its central mortuary feature was exceptional, whilst the adjacent cemetery is a rare find for the region. Other remains include a prehistoric inhumation burial and a few pieces of redeposited bone from Romano-British contexts. The project is still active in the field, though there have been some interim assessments.

Assessments and Analysis

Bicester Park and Ride, Oxfordshire (103851) (JMCK)

Cremated bone from a minimum of four unurned burials (two with possible organic covers) with redeposited pyre debris, and some redeposited unburnt bone were assessed. The site was located a short distance from a small late Romano-British inhumation cemetery, and whilst similar cremation-related deposits of that date have been found in the vicinity and wider region, a secure date

for these burials and associated deposits has not been established.

A minimum of four cremated individuals (three adults and a subadult/adult) were identified, and the heavily eroded unburnt bone is from a fifth individual. No pathological lesions were identified at this stage. A burnt bone pin, probably a pyre good, was recovered from one of the graves. Animal bone found in two pits may also have been placed on the pyre alongside the corpse, though low levels of oxidation suggests it may be more related to funeral feasting or some other ritual. It has been recommended that various samples be submitted for radiocarbon dating. Analysis and reporting will follow.

Crowdhill Green, Hampshire (87713) (JMcK)
The remains of three Middle/Late Bronze Age urned cremation burials, found buried in very close proximity, were block-lifted and transported to the laboratory for micro-excavation. Though the urns had suffered some damage, the burial remains within them were undisturbed. The burial environment, however, was detrimental to bone preservation. The insubstantial quantity of bone from one of the urns suggests that it represent the remains of a cenotaph rather than an entire burial *per se*. The assemblage includes a minimum of two (probably three) individuals. No pathology, pyre goods or indications thereof were identified. It appears that, in one burial and the cenotaph, the bone had been contained within an organic bag; the urn of the latter also contained a greater quantity of pyre debris. Late Bronze Age cremation burials are still relatively uncommon, despite a significant increase in the numbers of cremation-related deposits being dated via radiocarbon analysis in recent years. Radiocarbon dates have been requested; analysis is likely to be undertaken in 2017.

Eriswell RAF Lakenheath, Suffolk (ERL 104) (Suffolk County Council Archaeological Service) (70980) (JMcK)
Cremated human bone from an Early Saxon mixed-rite cemetery was subject to analysis.

The remains derive from two (possibly three) urned, and five unurned burials, as well as redeposited pyre debris. Large quantities of animal bone were recovered from most of these deposits. Small quantities of cremated human and animal bone, and fragments of pyre goods, were found redeposited in the fill of a number of (otherwise bone-free) inhumation graves.

A minimum of nine, mainly adult, cremated individuals have been identified, a small proportion of the cemetery population compared to the *ca.* 440 inhumed individuals (analysed by S. Anderson). *Cribra orbitalia* was patent in the orbit of a juvenile, and an example of likely accidental ante mortem tooth loss was seen in the remains of an adult. The results will be published in due course.

Fromefield Long Barrow, Frome, Somerset (221/1990/1) (Frome Archaeological Society) (104061.1) (JMcK)

The largely destroyed long barrow was excavated in 1965, and the remains have since been curated by the Somerset Heritage Centre, Taunton. Jacqueline was invited to assess the remains, which had been examined in the 1970s. The assessment found that there were a number of discrepancies and bagging problems, and that the estimated MNI and demographic ranges did not correlate. The re-assessment determined that there were six immature and ten adults represented in the assemblage, including both males and females – i.e., representative of a ‘normal domestic’ population.

The assessment determined that a number of mortuary rites were being practiced, including cremation and manipulation of defleshed bone (exposure and charring; though there are no cut marks or animal gnawing). The condition of the bone shows that various elements have been subjected to different burial environments. Historic records also describe inhumation burials made within individual chambers. The nature of the disturbance and recovery circumstances suggest that what remains today represents only a part of the original contents of the monument.

Pathological lesions include ante mortem tooth loss, slight degenerative joint disease, healed infection and possible trauma. The most noteworthy observation was an abnormally short fifth metacarpal.

Haverfordwest Priory, Pembrokeshire (HP85; HP93) (Cadw) (104062.1) (KED)

The site of this 13th Century Priory was excavated by Cadw in the late 1980s and early 1990s, when it came under their guardianship. The work was undertaken as part of a programme to protect the site and make it accessible to the public. Whilst a large number of graves have been identified, only those already disturbed, or at risk of damage were excavated and the burial remains removed.

The assemblage comprises the remains of 14 burials (12 medieval, two post-medieval), and a quantity of disarticulated material from across the site (all assumed medieval; MNI 27). A range of age groups from infant to elderly adult are represented, the latter of which predominate; there are twice as many males than females. There is no obvious pattern regarding burial location, age and sex, though there are signs of familial clustering. Particularly notable observations include a diminutive elderly female (1.44m, around 4'8¾"), evidence for heavy labouring in at least two young males, and a post-medieval older male whose cranial characteristics suggest some possible African heritage. The latter had long-survived a serious sharp-blade injury to the skull. The results will be published by CADW in due course.

Hinton's Fields, Kings Worthy, Hampshire (106870-1) (KED)

Excavations led to the recovery of an unaccompanied crouched inhumation burial of an infant around 3–4 years of age, and a few fragments of redeposited bone of a neonate/infant (approximately birth–1 yr.) from the backfill. The eldest appears to have suffered a chronic condition in the final months of its life. Radiocarbon dating has been requested.

Knutsford to Bowden bypass, Cheshire (85630-2) (JMCK)

Cremated bone from a ring-ditch and three small groups of features/deposits were subject to assessment, along with some unburnt bone from one other context. From the area circumscribed by the ring-ditch, the remains represent a redeposited, possibly urned burial, and four urned burials; a deposit from the evaluation stage is yet to be assessed. To the south-west were the remains of an urned and two urned burials. From the east, were the remains of eight urned burials, whilst one other urned burial was represented in a feature to the north. The nature of other deposits is less clear, some being obviously redeposited, whereas others were possibly the remains of burials. The unburnt fragments were found redeposited in the overburden, close to the eastern mortuary group, though some was recovered from a number of inhumation graves, from which no unburnt bone survived. Samples taken from the material found to the south-west and in the eastern groups returned a later Early Bronze Age date.

One burial was block-lifted and micro-excavated in the laboratory and it was possible to determine that the bone was once held in a bag within the vessel, which was subsequently filled with pyre debris.

A minimum of 15 (more likely 21) individuals are represented, including three immature, and adult males and females. The few pathological lesions include ante mortem tooth loss, and there is some staining suggestive of copper alloy pyre goods. Further radiocarbon dates have been recommended. Analysis is due to be carried out in 2017.

Mabe Cists, Falmouth, Cornwall (PM 13) (South West Archaeology) (104060.4) (JMCK)

Cremated bone from three adjacent cists was subject to analysis. Two of the cists contained the remains of urned cremation burials, and the third is a placed cremation-related deposit, possibly a *memento mori*. A few bits of redeposited material were recovered from a posthole and a natural feature some distance

from the cists. Samples from two of the burials returned a radiocarbon date consistent with the Early Bronze Age. A minimum of three, probably four, individuals are represented in the material from the cist burials, including two adults, one of whom was cremated along with a juvenile. The *memento mori* deposit included fragments from an adult, which may or may not have been the same individual as one of the other adults from the assemblage. No pathological lesions were identified. The results will be incorporated into the publication.

Melksham to Thingley, Wiltshire (107350) (KED)

The remains of four inhumation burials and redeposited bone from a Romano-British site near Melksham, Wiltshire, were subject to analysis. The assemblage comprises the remains of a minimum of five individuals, an elderly female and four neonates. The burial sites follow the typical rural pattern for the period, with the neonates found within domestic settings, and the adult buried close to a field boundary, away from the settlement. There are general signs of metabolic stress, and an intriguing, distinct peri-mortem amputation of the tip of one of the neonates' left fifth toe. Possible explanations include accident, assurances of death, or perhaps *memento mori* or *os resectum*, though the latter was usually practised prior to cremation. Analysis and reporting are complete; publication will follow.

Mytton Oak, Shropshire (P4576) (104061.2) (Worcester County Council) (JMcK)

An Early Bronze Age inverted urned cremation burial, intact up to the point of discovery, was excavated under laboratory conditions. The bone, weighing nearly 1800g, is probably in close to the same condition it was in at the time of deposition. The remains are those of an adult female, seemingly used to strenuous walking and lifting. Very mild degenerative joint changes were observed, and a fairly unusual cleft in a mandibular condyle was noted. Staining suggests the possible inclusion of copper alloy objects on the pyre. The bone may have been contained within an organic container, and possibly a

cover over the mouth of the vessel. The report will be included in a site publication in due course.

Netheravon Barrow Rescue Project, Figcheldean, Wiltshire (111270) (JMcK)

Round barrow Figcheldean G2 (HER No. 1010192) was excavated in late 2015, in a joint project undertaken by the Defence Infrastructure Organisation (DIO) and Wessex Archaeology. Though no records exist, the barrow had clearly been investigated by antiquarians, and there was much damage by animal burrowing activity. Whilst it had been possible to evict badgers from surrounding barrows, the methods were impossible to implement at Figcheldean G2 without causing more damage. As a consequence, in 2013/14 extensive burrowing by the animals unearthed a remarkable collection of Early Bronze Age remains, including much of a Collared Urn and a large quantity of very well-preserved cremated human bone. Historic England permitted a targeted excavation in order to understand the context of the artefacts, and also investigate the construction and chronology of the barrow prior to further damage. The work also enabled the installation of anti-burrowing measures, and led to the site's removal from the Historic England 'Heritage at Risk' list.

The human bone derives from at least two disturbed burials made within the barrow structure – an urned cremation burial, and abraded and fragmented redeposited bone from at least one inhumation burial. The cremated remains, disturbed by a badger run, comprise nearly a kilogram of bone from a young adult, probably male. Pyre goods are indicated by copper alloy stains on the cremated bone, and fragments of burnt bird bone. The unburnt bone, disturbed by the antiquarian investigation, derives from at least one large mature adult male, though the condition of one fragment indicates that some may have been disarticulated (perhaps curated) prior to burial within the barrow. Notably, the visceral surface of an unburnt fragment of rib features a rare example of an Early Bronze Age sharp weapon wound.

The excavation was deemed a suitable project for the involvement of Operation Nightingale, a community group with links to the DIO, enabling injured service personnel to participate in archaeology. The DIO, on behalf of the Ministry of Defence, awarded the project the annual Heritage Award, one of its prestigious Sanctuary Awards. Publication of the results is being prepared.

New Covent Garden Market – Nine Elms Garden Site, Nine Elms Lane, London Borough of Wandsworth (107903) (KED)

Human remains from the former cemetery of the 19th-century Chapel of St George – comprising the remains of 93 coffined burials and a quantity of disarticulated bone – was assessed with a view to analysis. The cemetery was in use during the transition of the area from one of marshland and market gardens, to a heavily industrialised zone dominated by major utility works and the railway. Most of the cemetery had been cleared in the 1960s (1800 burials), and as such, this assemblage represents only a sample of the cemetery population. The method of clearance left a peripheral band of graves, though in many cases it was clear that where coffins and burials were evident in section; projecting bones were pulled out, but little attempt was made to remove the remainder.

However, this exceptionally well-preserved assemblage includes around 100 individuals from a demographically and socially fascinating area of London. The immediately surrounding area is recorded on the London Poverty Maps (1898, a little later than the use-period) as housing the poor, mixed poor/comfortable and fairly comfortable to middle class, though a short distance to the north-east, between the gasworks and railway depot, is a large concentration of the lowest class ('vicious, semi-criminal') and very poor. Observations lead to the conclusion that there was indeed some inter-personal violence. Health varied but there are a number of clear cases of metabolic deficiencies, chronic infections and venereal disease (syphilis). Dental health was generally atrocious. There were also three examples of

autopsy/dissection. It was only possible to attribute a name to one individual, an infant. Together with historical documentary research, analysis of the assemblage will provide an intimate insight into the lives of this fascinating group of 19th-century Londoners, enhancing the growing corpus of information regarding the social and economic history of the Capital. It is hoped that analysis will be undertaken late in 2017, with publication thereafter.

'Operation Beowulf' Barrow Clump, Figheldean, Wiltshire (85370–3) (JMcK and KED)

This outreach project for the DIO and Operation Nightingale (see above) involved the excavation of a heavily badger-disturbed Beaker monument and overlying Early Bronze Age barrow, focused around which was an Early Saxon cemetery.

The unburnt prehistoric assemblage comprises the remains of an *in situ* inhumation burial and redeposited bone – originally recorded as *in situ* burials by antiquarian Hawley – which relate to the early/primary use of the Beaker period monument. A minimum of five individuals (three adults – both sexes; an infant and a neonate) are represented. Notable observations include changes consistent with scurvy (infant) and brucellosis (adult).

Most of the cremated bone derives from three similarly dated, undisturbed Early Bronze Age burials, two urned (adjacent graves, cut through the Beaker period mound) and one unurned (grave cut into the Bronze Age mound). A minimum of five individuals are represented in this assemblage – four adults (three female, one male) and a subadult. Pathological lesions include degenerative joint disease, and a healed femoral fracture. Two individuals had metopic sutures. There is evidence for both pyre and grave goods.

The Saxon assemblage comprises the remains of 81 individuals, including 68 inhumation burials and a large quantity of disarticulated bone. Immature and adults of various ages, and equal numbers of both sexes, are

represented. Distribution patterns clearly indicate favoured locations for family groups. Dental disease is typically rife, and there is a possible example of dental treatment, or at least ‘worrying’ of a troublesome tooth. Indicators of childhood stresses are also relatively common, and there is an example of rickets. Other interesting observations include a potential example of polio and possible evidence of the use of a crutch in another individual. Systemic infections were in evidence, and it appears that there may have been particular problems with the common *staphylococcus aureus* bacteria. Traumatic injuries were fairly common, though most were accidental in nature. There was evidence, however, for interpersonal violence (a fractured mandible, a severe comminuted facial fracture, and two cases of parry fracture). The nature of the peri-mortem sharp blade wound to the skull posterior/base of an older juvenile’s skull is less clear in intention. A probable example of bilateral Patellar Subluxation Syndrome was also recorded.

Grave goods include weapons, various personal items, and a very rare example of a Visigothic brooch.

A very small quantity of redeposited probable Anglo-Saxon cremated bone represents at least one subadult/adult and a juvenile. A metallic possible pyre good was also recovered.

Overall impressions are one of a fairly typical, moderately stressed community (though less so than those from nearby Collingbourne Ducis) – which was seemingly disproportionately harsh on (?) young males, physically. Analysis and reporting are complete. Publication is due in 2017.

Parmiter Drive, Wimbourne, Dorset (108072) (JMcK)

The remains of an undisturbed unurned cremation burial, found in the upper levels of a gravel ditch fill, was assessed. It appears that the burial had been made within an organic container and placed within the upper levels of a ditch terminal. The remains are those of an adult; Schmorl's nodes were

identified in at least one lumbar vertebra. The Late Neolithic (pre-Beaker) date renders this deposit relatively rare, though this may be due to the paucity of artefacts recovered from such deposits and the relatively recent practice of the routine sampling of cremated bone for radiocarbon dating. Analysis will be undertaken in 2017.

Shepherd's Spring, Hampshire (103101) (KED)

Analysis was undertaken on well-preserved human bone recovered from one Middle Iron Age and three Late Iron Age–Early Romano-British pits, and an enclosure ditch infilled during the latter phase. The remains comprise those of an *in situ* (though slumped) inhumation burial made in one of the later pits, and disarticulated bone. Most was found within dumped deposits rich in occupation material, including quantities of animal bone.

The remains represent a minimum of five individuals, a foetus (*ca.* 26 weeks), three neonates and an adult probable male. The adult was found within the early pit and the ditch, counted as one individual due to the possibility of residuality. The pit containing the neonate burial also held a few bones from one other neonate and the foetus. Slight dental disease was observed in the adult dentition, whilst one of the neonates may have suffered peri-natal nutritional/health stress, or birth trauma. The publication report is currently being prepared.

Square Chapel, Cornerstone, Halifax, West Yorkshire (100240) (AB)

Following the excavation of the remains of over a hundred 19th century non-Conformist burials by Wessex Archaeology in late 2015, Angela Boyle was commissioned to undertake the osteological analysis. Preliminary results have established that the remains include men, women and children; notable observations include a case of autopsy or dissection, and generalised poor dental health. Work towards a publication is ongoing.

Stripwood to New Zealand, Wiltshire (110220) (KED)

Well-preserved, though fragmented, disarticulated bone from at least one juvenile was recovered from a pit containing Early Neolithic pottery, burnt and struck flint, and some animal bone. Assessment found that the remains bear signs of nutritional or health stresses, occurring in the months and years prior to death. Slight dental disease was also observed. The potential early date is of particular significance, so a recommendation for more secure dating via radiocarbon analysis has been made. Analysis will be undertaken and a report published in due course.

The Roaches, Staffordshire (Peak District) (JMcK)

The analysed cremated bone from the remains of an unurned cremation burial, found close to The Roaches rocky outcrop, was subject to analysis. The burial was made in the base of a flat grave, partially overlain by a Collared Urn, and backfilled with material containing pyre debris. An unburnt bronze awl found amongst the bone represents either a grave good or unburnt pyre good. Part of the grave and burial remains were disturbed when the burial was accidentally revealed during footpath maintenance works.

The remains represent a minimum of one adult female. Degenerative disc disease and mild joint degeneration was evident; enthesophytes indicate a relatively physically demanding lifestyle. Asymmetric heating of the skull suggests the presence of some form of insulation of the head during cremation, such as a head-covering or pillow. Fragments of a burnt bone toggle were also retrieved, and a pig was evidently also placed on the pyre. The heaped nature of the burial deposit suggests it may have been deposited within a bag or similar container. The report forms part of a forthcoming article.

Whitemoor Haye, Staffordshire (Worcester County Council) (JMcK)

Cremated bone from a large number of contexts, including urned and unurned burials, various cremation-related deposits and pyre

debris, was recorded. The contexts were associated with a number of features across the site including a pond barrow. Analysis is ongoing.

Technology

Wessex Archaeology has been experimenting with different technology to record burials, including photogrammetry and 3D scanning. Both produced excellent and very accurate results, though photogrammetry has the time and cost-effective edge, requiring no additional equipment on site, and can be undertaken by anyone with a little training.

Outreach

Community and education are one of the key Wessex Archaeology objectives, to which the Burial Archaeology team regularly contribute. Visitors to the office, whether clients, local dignitaries, staff and their families, or work experience students, are welcome to view and discuss what we have laid-out in the laboratory.

In early 2016, Kirsten taught an 'Introduction to Osteoarchaeology' day-course at the Salisbury offices, for Council for British Archaeology (CBA) Wessex. The combination of presentation and practical sessions were well-attended and well-received.

The excavations at Bradford on Avon provided the chance for local enthusiasts to join in with the archaeology and meet the Wessex Archaeology team. Over several months the volunteers processed an enormous quantity of Saxon to post-medieval material. In February, Kirsten talked to locals at the Dorchester Museum about the discoveries at Poundbury Farm, Dorset, in recent years – which included a number of Romano-British inhumation burials and some Bronze Age cremation deposits. A report on the most recent findings (see previous reviews) is currently being prepared. Jacqueline has spoken at a number of events organised to publicise the discoveries made during the Army Basing Project, most particularly the Mid Saxon cemeteries at Bulford and Tidworth, Wiltshire. In November Jacqueline

talked at the CBA Wessex Annual Conference, themed 'Women in Wessex', where she discussed interesting patterns regarding prehistoric examples of female burials.

Jacqueline provided expert and practical advice for an episode of ITV's 'Cold Case', televised in the summer, where a team from Wessex Archaeology investigated and sampled an area in a back garden, where a convicted murderer claimed to have burned his wife's body. No evidence was found. Jacqueline also participated in a pyre experiment aimed at replicating the Late Neolithic version of the rite, for a programme about Stonehenge (yet to be televised).

Website: <http://www.wessexarch.co.uk>

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Instagram: wessexarch

York Osteoarchaeology

*Malin Holst
Anwen Caffell
Katie Keefe
Sophie Newman
Tessi Löffelmann*

Analysis of single individuals is not listed below. We have also undertaken archaeological watching briefs in seven churchyards, two of which produced human remains.

CFA Archaeology, Hazel Grove, Manchester, SN & MH

Thirty-nine skeletons from a Wesleyan Chapel dated from the 18th/early 19th Century. Most adults were mature, and half of the population were non-adults. There was at least one African/mixed ancestry individual. DEH, *cribra orbitalia*, rickets, scurvy, sinusitis and periosteal reactions were common. One mature adult female with osteoporosis had an exceptional number of fractures. Dental health was poor.

CFA Archaeology, Methodist Church, Boston Spa, West Yorkshire, SN & MH

Three skeletons from a mid to late-19th Century Methodist Chapel. Included two older male adults and an older juvenile. Congenital anomalies, periosteal reactions, poor dental health and evidence for childhood stress were common. One skeleton had evidence for multiple trauma.

MAP Archaeological Practice, Low Street, Sherburn In Elmet, North Yorkshire, SN & MH

Sixteen Romano-British skeletons. Included twelve adults of all ages (primarily males) and four non-adults. DEH and trauma (including peri-mortem) were prevalent. Dental health was moderate.

Network Archaeology, Immingham, Lincolnshire MH

Two Romano-British mature adults, a female and a male, had degenerative joint changes and poor oral health. The male had three peri-mortem projectile injuries to the skull, and peri-mortem trauma on the mandible, the scapulae and ribs.

Archaeology Warwickshire, St John's Almshouses, Lichfield, Staffordshire, TL & MH

Forty-six 12th-14th Century skeletons from the hospital at St John the Baptist's. Included 17 non-adults and 29 adults. Males and females were equally represented. Four individuals were of African/mixed ancestry. The prevalence of *cribra orbitalia*, DEH, sinusitis, periosteal reactions, degenerative changes and calculus was high.

University of Hull, near Elloughton, East Yorkshire, TL & MH

Eight skeletons from the Iron Age to Anglo-Saxon period. Included two infants and six adults (two males, two females, two unsexed). Joint degeneration, calculus and DEH were prevalent.

University of Leicester Archaeological Services (ULAS), Western Road, Leicester, AC & MH

Eighty-three skeletons dated to the 3rd-4th century AD. Non-adults made up a quarter of the population. Males and females of all ages were present, although males predominated. Four males and one child may have had African/Mixed ancestry. *Cribra orbitalia*, DEH and periosteal reactions, degenerative joint disease and trauma were frequent, including peri-mortem injuries, healed fractures, soft-tissue injuries, dislocations and fractured teeth. Rickets, possible scurvy and tuberculosis were observed. A mature adult female possibly had rheumatoid arthritis. Dental health worsened with age.

ULAS, St Morrell's Chapel, Hallaton, Leicestershire, KK & MH

Twelve Medieval/early Post-Medieval skeletons. Ranged in age from young to mature adulthood, males predominated and two individuals were older juveniles. Spinal developmental anomalies, childhood stress, Schmorl's nodes, degenerative joint disease and poor oral health were prevalent. Trauma, including peri-mortem trauma, was common in males, especially to the cranium.

ULAS, Castle Yard, Leicester, SN & MH

Two medieval skeletons. Included an old middle adult male with degenerative joint disease, fractures and poor dental health and an older juvenile.

ULAS, Pineham, Northamptonshire, MH

Eight adult skeletons of unknown date. Included three males and five individuals of undetermined sex. Periosteal reactions and degenerative disease were prevalent, while dental health was moderate.

University of York, SICTRANSIT, Castronovo di Sicilia, Sicily, Italy, MH

Two early medieval cist burials of young juveniles from the church of San Pietro. One of these probably had scurvy (<http://sicilyintransition.org>)

Archaeological Services WYAS, Square Chapel, Halifax, KK & MH

A total of 203 19th Century skeletons from a congregationalist chapel comprised of a slightly higher proportion of females than

males. The majority of the adults reached mature adulthood and a third of the population consisted of non-adults, with a high proportion of infants and young juveniles. Sinusitis, inflammatory lesions, fractures, *cribra orbitalia*, joint degeneration, caries and ante-mortem tooth loss were common. A number of infants/young juveniles suffered from scurvy and rickets.

York Archaeological Trust (YAT), Former Female Prison, Castle Yard, York, KK & MH
Analysis of three skeletons excavated in 1998. Included one mature adult male and two young adult females. Trauma, Schmorl's nodes, *cribra orbitalia*, DEH, caries and calculus were very common. One of the females had possible evidence of autopsy, including craniotomy.

YAT, Dixon's Lane, York, KK & MH

Four medieval skeletons from St Stephen's church included two mature adults (a male and a female), an adolescent and an older juvenile. The female and adolescent were probably of African or mixed ancestry. Schmorl's nodes, trauma, inflammatory lesions, sinusitis, and *cribra orbitalia* were prevalent and dental health was poor.

YAT, Queen's Hotel, York, KK & MH

Five early medieval skeletons excavated in 1989. Included two males and three females of all ages. DEH was seen in the males; degenerative joint changes, osteoarthritis and trauma were common in the older individuals; and dental health was poor.

DEPARTMENTAL REPORTS

**Biological Anthropology Research Centre
School of Archaeological Sciences
University of Bradford
Jo Buckberry**

During 2016 the BARC has settled into our new labs. The Faculty's Integrated Life Sciences Learning Centre, of which the BARC is part, was formally opened by Prof. Susan Standring, editor-in-chief of *Gray's Anatomy*, last June. The event was attended

by many external visitors, including the Lord Mayor and Lady Mayoress of Bradford, giving us the opportunity to showcase our wonderful new facilities. So far students and visiting researchers alike have complimented us on the new lab space.

In terms of research, Julia Beaumont is continuing her research into the nutrition of Bradford children, as recorded in the carbon and nitrogen isotope ratios of dentine formed *in-utero* and infancy (Rank Nutrition Prize). Karina Croucher's AHRC-funded project "Continuing Bonds: Exploring the meaning and legacy of death through past and contemporary practice" goes from strength to strength, with workshops being held in Bradford and Leicester exploring the use of archaeology for healthcare professionals dealing with death and dying (<https://continuingbonds.live/>). Hannah Koon has been finishing up and presenting work on the faunal-baseline and human dietary isotope data from sites in Slovenia as part of the HERA-funded 'Encounters and Transformations in Iron Age Europe (ENTRANS)' project that just come to an end. Jo, Allison Cullingford (Special Collections) and Sarah George (JB Priestley Library) have been awarded a Wellcome Trust Research Resources Award for the cataloguing and digitisation of the Calvin Wells Archive, which currently split between the BARC and Special Collections within the library. The project, entitled 'Putting Flesh on the Bones', will start in June, and will employ an archivist, conservator, librarian and osteologist. Jo Buckberry has been awarded further funding from Historic Environment Scotland to continue research on the human remains from Stirling Castle, working with Hannah, Julia, Cathy Batt, Janet Montgomery (Durham) and Turi King (Leicester). Keith Manchester, Rebecca Storm and Alan Ogden have published a nomenclature for palaeopathology on the Paleopathology Association website (<https://paleopathology-association.wildapricot.org/Nomenclature-in-Paleopathology>), this will be a valuable resource for students and professionals alike, and should hopefully lead to more consistent palaeopathological description. Keith and

Alan are also busy reporting on the Johs Anderson radiograph collection, describing the leprosy changes evident on each. Finally, MSc student Tamara Leskovar was awarded the Society for the Study of Human Biology 2016 Research Grant.

Ongoing PhD Research

Bohling, S.: Physical impairment and disability in Anglo-Saxon England: An investigation into the possibility of differential mortuary treatment and disability-related care.

Castells Navarro, L.: DISH everywhere: Diagnosing DISH before vertebral ankylosis and analysis of the prevalence of DISH in England and Catalonia from the Roman to the Post-Medieval.

Franicevic, B.: Effect of dismemberment on decomposition in contrasting grave soils.

Holland, A.: Examining the taphonomic challenges to the digital refitting of fragmented bone.

Nicholls, R.: More than bones: an investigation of life, death and diet in later prehistoric Slovenia and northern Croatia.

Rainsford, C.: Animals, Identity & Cosmology: Animals in mortuary practice in early medieval cemeteries in Eastern England.

Robson, M.: Modelling the long term resilience of a marginal social-ecological system: the historical ecology of Orkney and Shetland.

Williams-Ward, M.: Buried identities: an osteological and archaeological analysis of burial variation and identity in Anglo-Saxon Norfolk.

Dissertations Submitted for the MSc Human Osteology and Palaeopathology, 2015/6

Farrar, D.: Putting flesh on fragmentary bones: Diet and health in medieval Orkney.

Georgakis, C.: Palaeopathological analysis of the human osteological remains from Klitos, Kozani (Greece).

Hall, C.: Stable isotope study of two individuals from Udal site, North Uist.

Kaulen, G.: For better or for worse? Transitions in health in medieval and industrial populations.

Kilmartin, J.: Sex assessment of the sacrum – a morphological approach.

Leskovar, T.: Insight into the diagenesis of fresh and archaeological sheep bone in three controlled burial environments.

Lisić, N.: 17th century mass plague pit from the Bedlam Burial Ground – an isotopic study of diet.

Papadopoulou, S.-A.: The relationship between metabolic conditions and leprosy.

Ross, P.: Sub-adult sex assessment: a comparative morphological and metric investigation.

Taylor, R.: Raman spectroscopy in rickets: shining new light on an old problem

**Department of Archaeology, Anthropology
and Forensic Science
Bournemouth University**
Nivien Speith

The past year brought some highlights among the steady and seamless continuation of activities as carried out by the members of the Department of Archaeology, Anthropology and Forensic Science (AAFS) at Bournemouth University. We were proud to see a number of our students presenting their research at this year's BABAO Meeting in Canterbury, after they had worked hard all year to develop their skills both inside the lab and in the field at exercises such as our annual Mass Grave excavation in May. Congratulations to all of them on the successful completion of their course!

Our 'Big Dig', BU's annual summer training excavation exploring the Durotriges and Dorset's past, brought a number of new skeletons to light which are currently being analysed by Department anthropologists, with the aim to publish on the Big Dig skeletal material next year. We welcomed one new PhD student, Nina Maraanen, to the team, who is working under the supervision of Holger Schutkowski on 'The Hyksos Enigma' project.

The European Research Council Advanced Grant 'The Hyksos Enigma' (<http://thehyksosenigma.oeaw.ac.at>), a multi-disciplinary and multi-national project jointly hosted by the Institute of Oriental and European Archaeology at the Austrian Academy of Sciences (Manfred Bietak) and Bournemouth University (Holger Schutkowski), has officially started and work on the origins, impact, and legacy of the little understood Hyksos rule during the second millennium BCE in Egypt is underway. Studies on diachronic trends of diet and subsistence in the ancient Near and Middle East with Arkadiusz Sołtysiak, Warsaw, are on-going. Several of Holger's Master's students had the opportunity to undertake research abroad for their dissertations, for example at the Universities of Pretoria, Johannesburg, and Odense.

During August 2016 Martin Smith commenced a second season of excavation at the Sisters Long Barrow, near Cirencester - the first Cotswold Severn long barrow to be discovered this century(!). Excellent progress was made in defining the layout and construction of the mound with exciting finds of human remains in a terminal entrance passage. The remainder of the structure remains undisturbed with plans to return over several seasons during the coming years and 'proceed carefully...'. Meanwhile Martin is currently bringing various projects to publication and was pleased to finally press 'send' on the manuscript of his forthcoming book on skeletal trauma aimed at a general (non-anthropological) readership.

Karina Gerda-Radonić continues her on work on Peruvian funerary archaeology as well as on commingled human remains, having seen through a number of successful small research projects towards the estimation of MNI. Several of Karina's students also had the opportunity to undertake placements abroad in Croatia, Belgium and Peru.

Our skeletal collections see a continuously high demand both by students and external visitors, and two of our skeletons will be travelling to Bristol next year to form part of the display for the touring exhibition 'Skeletons: Our Buried Bones', a collaboration between the Museum of London and the Wellcome Collection. Nivien Speith is hence busy finding creative ways to expand the after-lifespan (for want of a more appropriate term) of the skeletal teaching collections to maintain their value for education and research. In her spare time, she continues her research on enthesal changes and social bioarchaeology, and is currently working on developing a signature pedagogy for bioarchaeology and human functional anatomy in the framework of higher education in anthropology.

Visit us here:
<https://www1.bournemouth.ac.uk/discover/faculties/faculty-science-technology/our-departments/departments-department-archaeology-anthropology-forensic-science>

<https://research.bournemouth.ac.uk/centre/archaeology-and-anthropology-group/>

Facebook: <https://www.facebook.com/BU-Archaeology-Anthropology-and-Forensic-Science-725785290780980/?fref=ts>

Twitter: @Durotrigesdig

**Department of Archaeology and
Anthropology**
University of Cambridge
Jenna Dittmar

In 2016, researchers within the Department of Archaeology and Anthropology at the

University of Cambridge worked on a number of projects. Among new projects being undertaken within the department, the leading news is a grant from the Wellcome Trust was awarded to Professor John Robb (together with coinvestigators Craig Cessford, Susanne Hackenbeck, Toomas Kivisild, Piers Mitchell, Tamsin O'Connell and Jay Stock) providing funding to undertake exciting interdisciplinary research on a project titled, 'After the Plague: Health in Medieval Cambridge'. This project, which commenced on 1 October, aims to further our understanding about the biological consequences of the bubonic plague epidemic from 1348-1350, known as the Black Death, by examining the health, life and death of the medieval population of Cambridge. This project employs three postdoctoral researchers that will undertake research on osteology and activity related changes (Sarah Inskip), palaeopathology (Jenna Dittmar) and aDNA (Christina Scheib) as well as two PhD researchers, Alice Rose, who is researching aspects of diet, and Bram Mulder who is exploring the different factors (genetics, pathology, diet, activity) that contribute to bone mechanical properties.

Jay Stock's research group, Phenotypic Adaptability, Variation and Evolutions (PAVE: www.pave.bioanth.cam.ac.uk, @PaveCambridge) explores research topics within the broad themes of bioarchaeology, hominin paleobiology and human physiology at the PhD, Master's and undergraduate level. Jay and colleagues have continued their work on the ERC-funded ADaPT project (www.adaptproject.eu, @ADaPt_Project). Pere Ibáñez-Gimeno, Laura Buck and Robert Beyer continued their work on 'Hunter-gatherer skeletal variation: phylogenetics, climate and human adaptation', while Danny Longman and Alison Macintosh made progress on understanding our adaptive capabilities as a phenotypically plastic species in their project entitled, 'Testing models of human adaptation during dispersal: skeletal variation, mobility and energetics'.

Palaeopathological research in the department is led by Piers Mitchell. He is currently

president of the Paleopathology Association. His Ancient Parasites Research Group has ongoing investigations at PhD, masters and undergraduate level. In January the project 'Human Parasites in the Roman World' was covered by journalists in newspaper articles and radio interviews across the world (e.g. <http://www.thetimes.co.uk/tto/science/article4659670.ece>). In July the project 'Infectious Diseases Along the Silk Road' attracted similar media interest (e.g. <http://www.thetimes.co.uk/article/silk-roads-dirty-secret-it-spread-disease-jh70w5fw>).

Further parasite research reaching publication this year include sites from Neolithic Taiwan, Roman period Ephesus, medieval Jerusalem, and a long view of parasite infection throughout China's history.

The project 'Anatomical Dissection in Britain in the 1700s and 1800s' is led by Jenna Dittmar and Piers Mitchell. Publications this year have focused on grave robbing, the role of children in dissection, and how anatomists chose to stock their museum collections for teaching (see <https://www.theguardian.com/science/2016/jul/01/anatomy-specimens-reveal-story-of-infanticide-stillbirth-and-poverty>).

Toomas Kivisild's genetics research group continued to work on several major research projects including an ERC-funded project titled: 'An inter-disciplinary approach for identifying evolutionary active regions in the human genome'. This project investigates evidence for recent adaptation to lifestyle, environment and diet among human populations across four focal regions: the Andes, Siberia, Southeast Asia and Madagascar. Numerous publications detail the findings of this and other research projects undertaken over the past year including a paper recently published in *Nature* which reveals that 'a single wave of migration from Africa peopled the globe' (<https://goo.gl/0cyNrh>). This paper, entitled 'Genomic analyses inform on migration events during the peopling of Eurasia' was listed as one of the top ten scientific breakthroughs of 2016 by *Science Magazine*.

Robert Foley and Marta Mirazon Lahr head the Leverhulme Centre for Human Evolutionary Studies (<http://www.human-evol.cam.ac.uk>). LCHES remains one of the foremost centres for evolutionary studies and has a vibrant community of researchers exploring a variety of topics. Through the weekly seminar series and special lectures LCHES hosted several prominent speakers, including Richard Leakey, over the course of the year. Robert continued his Leverhulme funded research on human evolution and technology and Marta and members of the ERC funded IN-AFRICA Project (@InAfricaproject) continued to investigate the role of East Africa in the evolution of human diversity. Over the course of the year, project members carried out excavations in the Turkana Basin and Central Rift Valley of Kenya, and in the Western Rift Valley of Uganda. Marta and colleagues published the findings from the site of Nataruk in *Nature* (21 January 2016). This paper described skeletal evidence of inter-group conflict found in South West Turkana, Kenya dated to 10,000 years ago.

In the coming year, the members of the department look forward to the launch of a new Tripos (undergraduate degree) in Archaeology. Students will be able to receive instruction on topics ranging from archaeology to ancient Mesopotamian and Egyptian languages, biological anthropology and genetics.

For more information about the department please visit our recently improved websites (<http://www.bioanth.cam.ac.uk>, www.arch.cam.ac.uk) or follow us on twitter (@CamBioanth) for research updates.

Cranfield Forensic Institute
Cranfield Defence and Security
Cranfield University
Sophie Beckett

Cranfield Forensic Institute (CFI) has had a successful, eventful year. Our MSc courses have continued to attract full-time and part-time students from many different countries

and are accredited by the Chartered Society of Forensic Sciences. At graduation in July, Emma Saunders was presented with the Vice Chancellor's MSc prize, awarded to the best taught-course student across the university. Emma was also awarded the Inforce prize for best overall academic performance on the MSc in Forensic Archaeology and Anthropology course. In 2016, she has continued with her studies, as a PhD student within CFI.

CFI staff continued to carry out forensic casework in 2016, including being involved in the UK police operation MAPLE (recovery and identification of three casualties from the Didcot Power Station collapse) and operation BEN (search of Kos for Ben Needham). Dr Nicholas Márquez-Grant also participated in the excavation of Spanish civil war graves with team Aranzadi in the island of Mallorca which resulted in the recovery of 52 individuals who had been executed in 1936.

Prof Ziopous, Prof Rogers, Dr Charlene Greenwood and Dr Sophie Beckett continue their research in bone biomechanics, bone imaging, bone chemistry and bone pathology. Dr Sophie Beckett was assessed and accepted as a member of the International Centre for Diffraction Data (ICDD). Dr Charlene Greenwood was an invited guest at the ICDD annual meeting in February. Dr Nicholas Márquez-Grant was a keynote speaker at the Latin Association of Forensic Anthropology conference in October 2016 and an invited speaker at the Forensic Archaeology Workshop in Bern, Switzerland, organised by the Institute of Forensic Medicine. Staff and students have presented at numerous conferences over 2016 including those organised by BABAO, the American Academy of Forensic Sciences, the Chartered Institute for Archaeologists, the Spanish Association of Forensic Anthropology and Odontology, the 4th Postgraduate Conference in Conflict Archaeology at the University of Oxford, and a number of lectures and courses delivered to the police. In February CFI hosted the Art and Conflict conference in conjunction with Oxford Brookes University.

For several years, CFI have provided archaeological and anthropological services with respect to WWI and WWII human remains with a number of British and international organisations. In 2016, the Cranfield Recovery & Identification of Conflict Casualty (CRICC) Team was created to support this work. The team consists of CFI staff and PhD students but also draws upon an invited membership of CFI MSc and PhD alumni. CRICC deployments have already included fieldwork in Belgium, France, Germany, Italy and the Republic of Kiribati.

Our PhD students are undertaking some exciting work primarily in the fields of taphonomy, (palaeo)pathology, methods in biological profile, biomechanics and trauma. Our most recent PhD student is Hannah McGivern, with a project on bone biomechanics. CFI have also partnered with Exeter University Archaeology department to launch a joint PhD programme. This collaboration will enable the joint students to benefit from expertise and facilities that both groups have to offer. The first intake of students will start in early 2017. In addition, several PhD students are STEM ambassadors for the local area and have assisted with various events throughout the year.

In addition to its active engagement with its alumni community, Cranfield Forensic Institute has an active online presence through its facebook page and twitter account: @CranfieldForSci.

**Department of Archaeology
Bioarchaeology Research Group
Durham University**
Tina Jakob

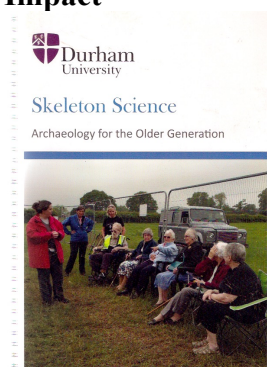
In 2016 the newly-established ancient DNA and stable isotope laboratories were fully operational and the first large-scale research projects are now being carried out. All members of the Bioarchaeology Research Group had a busy and successful year.

Charlotte Roberts was an invited member of the Scientific Committee and an invited

keynote speaker at the 21st European Meeting of the Paleopathology Association, Moscow, Russia. She was also an invited keynote speaker at the Australasian Society for Human Biology, University of Otago, Dunedin, New Zealand, and at a Symposium showcasing the research of an Otago Research Theme called the 'Asia-Pacific Biocultural Health: Past and Present'.

As an invited seminar speaker at the Department of Anthropology, University of Tennessee Visiting Lecture Series in their seminar series on: 'Disease: Variation and Multidisciplinary Perspectives', she talked about her research on leprosy and tuberculosis to graduates and Faculty, and on the value of palaeopathology to undergraduate students. Finally, she was invited to be part of a panel for 'Biological Anthropology: Possible Futures: A discussion from across the field' at Oxford University in their re-launch of Biological Anthropology at the university. In addition, Charlotte gave a seminar talk at the Department of Archaeological Sciences, University of Bradford on 'The palaeopathology of leprosy and tuberculosis: recent developments in bioarchaeological research' as well as a public lecture to the Wensleydale Society: "'Skeletons in closets": what have our ancestors told us about living in northern England in the past?'

Impact



Archaeology for the older generation

Charlotte Roberts, with Kirsty McCarrison (Learning Officer, Culture Durham at Durham University), completed a very successful and fulfilling two month pilot study with Durham University funding entitled 'Archaeology for the older generation'. This was a development

of the Skeleton Science Exhibitions (<http://skeletonscience.weebly.com>), and introduced residents in a care home to archaeology in general and also what skeletons can tell us about morbidity and mortality. The work involved short talks, hands on sessions introducing residents to animal bones, plant remains and pottery, including giving them a chance to wash pottery and animal bones from Binchester Roman Fort site, one of the Department's annual excavations. Casts of human bones were then used to explain what kinds of information it is possible to derive from studies of human skeletons. The residents also visited two local museums and the ongoing excavations at Binchester. There is now a Resource booklet that will shortly be available for download from the Skeleton Science website, plus a video summarizing our activities with the care home residents. We hope that other BABAO members will make use of the resource in other care homes across the UK.

Skeleton Science

Our Skeleton Science Exhibition also travelled to its fourth venue for a weekend in June 2016 (Bedale Museum, North Yorkshire) and was again well received.

Becky Gowland has been working on a Heritage Lottery Funded project with Anwen Caffell, Malin Holst and volunteers from the Washburn Heritage Centre, entitled: 'Life and death in the Washburn Valley: The Fewston Assemblage'. Becky is on the advisory board for the British Academy funded project 'The Art of Identification' and presented at their workshop at Urbana-Champaign, Illinois. She also presented at the 'Archaeology of Health – Anthropology of Care' conference in Paris, as well as at a number of national conferences and seminars. Together with Ellen Kendall, Becky co-organised this year's international Society for the Study of Childhood in the Past conference entitled 'The Family in past Perspective' in Durham in September 2016.

Becky is a co-investigator on the Leverhulme funded project 'People and Place: the making of the Kingdom of Northumbria AD 300-

800'. The project is progressing well and we are excited to soon be appointing a human bioarchaeologist.

The short course 'Body Location and Recovery in Forensic Contexts', delivered jointly with Professor Tim Thompson, had its most successful year yet, with delegates attending from as far afield as Kosovo. We are delighted that the course now includes talks and demonstrations from Durham police force's victim recovery dog handlers.

The joint Otago-Durham project 'Transitions in prehistory: Subsistence and health change in northern Chile' funded by the New Zealand Marsden Fund continued. Dr Charlotte King visited Durham for further laboratory work. The project PI Dr Sian Halcrow also visited in September-December under the EU-funded Durham International Fellowships for Research and Enterprise (DIFeREns) scheme to work with Andrew Millard and Becky Gowland.

Anwen Caffell is currently a Teaching Fellow at Durham University, assisting with laboratory teaching on the MSc in Palaeopathology course. She has carried out contract work for York Osteoarchaeology (see York Osteoarchaeology) and Archaeological Services, Durham University. Along with York Osteoarchaeology and Becky Gowland she has continued to work with the Washburn Valley Heritage Centre and local community on the Heritage Lottery Funded project 'Life and Death in the Washburn Valley'.

Andrew Millard and Anwen Caffell have also continued to work with the Scottish Soldiers project, which is progressing with collaborative research, including incremental isotopic analysis to investigate childhood diet and migration, proteomics and microbial DNA from dental calculus, and investigation of the broader historical context. They were part of the team that travelled to Boston, Massachusetts, in autumn 2016 in order to discover more about those who survived imprisonment at Durham Cathedral, engage with their descendants, and deliver various public and academic presentations.

In addition to her postgraduate and undergraduate teaching commitments, Tina Jakob continued her research on the human remains from the multiphase cemetery of al Khiday 2 in Central Sudan (directed by Drs Donatella Usai and Sandro Salvatori, Centro Studi Sudanesi e Sub-Sahariani, Trevio, Italy). Other research, together with Joe Walser III, involved the analysis of inhumation burial from the medieval site of Perperikon in Bulgaria. Tina was an invited keynote speaker and member of the Scientific Committee of the European Meeting of the Paleopathology Association, Moscow. She was also co-organising (together with Steinunn J. Kristíánsdóttir and Joe W. Walser III, University of Iceland) a session on 'The archaeology of medicine, hospitals and healing in northern Europe during the Medieval period (5th-15th century)' at the 22nd Annual Meeting of the European Association of Archaeologists in Vilnius, Lithuania.

In January the 'Little Lives' conference was held at the Department of Archaeology, Durham University, sponsored by the Society for the Study of Childhood in the Past (SSCIP). The conference was organised by our PhD students Claire Hodson, Sophie Newman and Lauren Walther. This one-day meeting aimed to showcase current research into child health in the past, and facilitate discussion relating to how we can use such approaches to gain a life course perspective within bioarchaeological study. In total, 60 delegates attended the Little Lives conference from a wide range of institutions based within Europe and North America. The event was highly successful, and revealed new avenues for consideration within this field of research. It is now hoped that such meetings will continue, perhaps to be held every two years within different host institutions. For consideration for future meetings, a popular suggestion from attendees was the development of conference proceedings.

Grant Success

In September 2016, we were delighted to welcome back PDRA Dr Kurt Gron who started working on the three year Leverhulme

funded project (PI Rowley-Conwy, CI Montgomery) 'Maximizing milk yield in early Neolithic cattle farming: Stable isotopic analyses and the origins and spread of breeding cycle manipulation across Europe'.

Student Successes

We are delighted to report that Sophie Newman, Veronica Tamorri and Jo Matias successfully defended their PhD theses in 2016. Congratulations to all of them!

MSc Palaeopathology dissertations 2015-2016

Bereza, M.: An investigation into the possible correlation between maxillary sinusitis and the nasal index in five British populations dating to the medieval and post medieval periods.

Capirci, A.: Maternal health, perinate pathology, and viability: Skeletal and isotopic evidence. Can clinical and epidemiological data help to diagnose osteomalacia more accurately in past populations?

Colling, H.: Shedding light on vitamin D deficiency: An investigation into prevalence rates in clinical and bioarchaeological studies, and suggestions to changes in practice in identifying osteomalacia and vitamin D deficiency in past populations.

Cooper, N.: Putting your heart into it: A study into the prevalence rates of pulp stones in two British archaeological populations, and their possible relevance to cardiovascular disease.

Crane, A.: Osteoarthritis and impairment: A life course approach to joint disease in the St Brides church documented skeletal collection (AD 1740-1852).

Cuthbertson, J.: Examination of non-adult growth disruption within the medieval skeletal collection of Fishergate, York, via the use of vertebral dimensions.

Giroto, C.: "Love thy neighbour ..." Fracture distribution patterns and marginalisation of social outcasts in medieval England.

Haraldson, H.: Home is where I lay my head: An isotopic analysis of specific battle-scarred skeletons from Sedgeford to determine their origins.

Karlsen, T.: A pathological analysis of an Arctic Norwegian Iron Age population and Early Medieval population: A comparative study with other arctic and non-arctic populations.

Oliverson, M.: Correlation between cuspal enamel hypoplasia and diseases which may have influenced its aetiology.

Rayfield, K.: Maternal and child oral health: A comparison between a late medieval and post-medieval population.

Smith, E.: An archaeothanatological approach towards the interpretation of 'deviant' burials in the archaeological record.

Veach, L.: 'Battered pets' in archaeology: A review of the literature and methodology for determining possible animal abuse and neglect in the past.

Ventovuori, A.: Identifying the relevance of modern clinical evidence for the social gradient for palaeopathological studies.

White, J.: Their Biological Fate was Sealed: Investigating DOHaD for developing tuberculosis and periodontal disease among a modern Portuguese skeletal collection

New PhD Students

In 2016 six new PhD students joined our large group of postgraduate research students in the Department.

Hughes, S.: Human Remains in a Museum Context: Storage, Study or Reburial?

Kerr, O.: Neolithic palaeopathology.

Li, M.: Diachronic Changes in Health in Agricultural Population from Early Agriculture to Imperial China.

Loeffelman, T.: Investigating the potential of Sr and Pb isotopes in early Medieval cremated human remains at sites including the Viking cemetery at Ingleby.

Morrison, S.: An investigation of carbon and nitrogen isotope integrity in cremated bone.

Quade, L.: When in Gaul, do as the ‘Romans’ do? Shifting health in Gaul during late antiquity and the early medieval period.

PhD Students (ongoing)

Aylard, S.: Does Parasitic Infection Correlate With Stress During Childhood? Exploring the Impact of Poor Living Environments on the Development of Skeletal Indicators of “Stress” and Parasitic Infection in the Bioarchaeological Record.

Barrett, A.: The impact of sociocultural and environmental change on air quality and respiratory health in the 4th Cataract, Sudan: a bioarchaeological perspective.

Crowder, K.: Diet and mobility at the Jucu de Sus Necropolis, 4th – 12th Century, Transylvania, Romania.

Filipek-Ogden, K.: Illness, Isolation, and Isotopes: Assessing leprosy stigma in late Medieval England (12th-16th centuries AD) and its impact on health and contemporary society.

Hodson, C.: Stressed at birth: metric variation in infants to determine whether stress affects skeletal dimensions.

Kendall, E.: Breastfeeding as an Adaptive Strategy to Environmental Pressures in Early Anglo-Saxon England.

Moore, J.: Environmental lead pollution in the Roman Empire: characterising its effects on juvenile exposure, health and geographic mobility.

Mui, S.: Positioning the corpse: Death, posture and representation in early medieval England.

Neil, S.: Patterns of social mobility during the Early Neolithic and the development of the Neolithic in the British Isles.

Pacheco, A.: Tuberculosis in Andean communities from the Tarapacá area (North of Chile) between 900 BC to AD 1450.

Peacock, J.: Disability and traumatic brain injury (TBI) in Britain: AD 1066-AD 1800.

Penny-Mason, B.: Morbidity, Medicine & Maturation: A History of Paediatric Medicine & Childhood Disease in England AD 1450-1650.

Petersone-Gordina, E.: Living outside the city gate: a palaeopathological, isotopic and comparative analysis of the post-medieval St Gertrude Church cemetery population in Riga, Latvia.

Quinn, K.: A bioarchaeological study of the impact of mobility on transmission of tuberculosis.

Schulz, A.: Long bone morphology and its relationship to osteoarthritic patterning among archaeological populations.

Tipper, S.: A Bioarchaeological approach to the analysis of vertebral fractures amongst the Ancient Nubians from 5000 BC to 1500 AD.

Walther, L.: All out of proportion? Stature and Body Proportions in Roman and Anglo-Saxon England.

Walser III, J.W.: (joint with University of Iceland) In between breaths: respiratory disease, skeletal pathology, volcanism and environmental health in historical Iceland.

**School of History, Classics and
Archaeology**
University of Edinburgh
Linda Fibiger

Through 2016, Kath McSweeney continued her collaboration with a team from the National Institute of Archaeology and

Museum, Sofia, Bulgarian Academy of Sciences, in the on-going excavations at Provadia-Solnitsata, Bulgaria, a Neolithic and Chalcolithic salt-production site. Osteoarchaeological analysis of human remains from the Late Chalcolithic cemetery associated with the site continued in summer 2016. A monograph on archaeological and osteological aspects of the necropolis is planned for 2017. Also continuing is Kath's collaborative project with the National Institute of Archaeology and Museum, Sofia, which includes the analysis of human remains from the Neolithic sites of Mursalevo and Nova Nadezhda, Bulgaria.

Linda Fibiger, together with John Harris from Social Anthropology at Edinburgh and Joan Smith from the Edinburgh College of Art, continues her research into contentious heritage and skull collections. This is part of the EU-funded TRACES project (<http://www.traces.polimi.it/>), which will result in an art installation to be displayed in Edinburgh in the summer of 2018. Linda also carried out experimental work to identify the range of cranial injuries caused by slings through experimental slinging using ballistics testing materials. The experiments were combined with a very successful Innovative Learning Week event at the University, which involved University staff and Students trying out slinging for themselves. Preliminary results were presented at the 9th biennial Fields of Conflict Conference in Dublin in September.

Doctoral student Meaghan Dyer received a £4000 Innovation Initiative Grant from Edinburgh University to carry out experimental research and create postgraduate workshops on violence-related trauma identification and analysis. Under the supervision of Linda Fibiger, Meaghan is investigating violence-related head injuries in prehistoric Europe, many of which have not been attributed to particular weapons. Meaghan intends to match fractures experimentally produced with cases of head trauma identified in the archaeological record and use the results of her experimental research to set up a virtual blunt force library.

Another field school season took place at the World Heritage site of Nessebar on the Black Sea coast of Bulgaria. Kath McSweeney supervised a number of PhD and MSc students who analysed skeletal remains from a multi-period necropolis dating from the Classical Greek to the Byzantine period. In addition, the remains associated with three Early Byzantine churches from the Old Town of Nessebar were also analysed. The field school runs with collaboration of the Museum of Ancient Nessebar and will run again in May 2017.

Edinburgh Unit for Forensic Anthropology (EUFA)

Members of the Edinburgh Unit for Forensic Anthropology (EUFA) delivered a number of workshops and invited lectures. Elena Kranioti presented at the Symposium on Ballistics organised by FORMED (Scuola Specialistica di Ballistica Forense e scena del Crimine) and the University Suor Orsola Benicasain Naples, and a week seminar entitled 'Forensic Anthropology, Virtual tools and Skeletal Trauma' at the Department of Cultural Heritage of the University of Bologna, Ravenna, Italy. Elena was also invited to give lectures on forensic anthropology, postmortem computed tomography and craniocerebral injuries as part of a course on Forensic Pathology at the School of Medicine of the University of Crete in Greece. During this time she also taught two practical sessions on anthropological techniques for biological profiling to medical students. Elena Kranioti and Siobhan McLaughlin, founding members of the Edinburgh Forensic Radiology and Anthropology Centre (EFRAIC) were invited speakers at the first Virtopsy Conference in Italy that took place in Naples in October 2016. Antoine Ruchonnet participated in the organisation and the teaching of the 'Voices of the Ancestors Workshop I', an introduction to reading of oracle bone inscriptions from the collection of the National Museum of Scotland that took place in Edinburgh. Student members of EUFA presented at the 22nd Congress of the European Society of Biomechanics, Lyon, France, and the Scottish

Student Forensic Research Symposium held in Glasgow.

EUFA was represented at the Larkhall Challenge in March where Caroline Lill led a public engagement event for all S2 students from Larkhall School which involved an interactive discussion on current methodology in and the practical value of forensic anthropology. EUFA members also participated for the third year in the Kickstart summer school for S6 children in June by providing an interactive workshop on forensic anthropology. The evaluation of the course was excellent (18/21), good (3/21) and ranked amongst the first in a total of 44 academic workshops.

Elena also directed the Crete Field School, which was established in 2015 with the objective to offer students with interest in physical anthropology the opportunity to put skills learned into practice, and to collect original data for their dissertations. In 2016 ten students participated in the field school which took place in Bali, Rethymnon in May. Finally, EUFA member Helen Langstaff, recently graduated from Edinburgh, was appointed as Lecturer in Forensic Anthropology at CAHID, University of Dundee.

Ongoing PhD Research

Agurauja, U.: Reconstruction of Bronze Age diet in the Romanian Sub-Carpathians.

Barlow, A.: What Price the Industrial Revolution? Investigating inequality in the 18-19th Century population of Blackburn, Lancashire, UK, through stable isotope analysis

Boyle, A.: An osteoarchaeological study of peri-mortem trauma in Medieval Britain.

Dyer, M.: Assessment of blunt force trauma in the British and European Neolithic utilising a skin-skull-brain model.

Espinosa Rosero, S.: Forensic Anthropology techniques of positive identification through anomalies in the human bone registry.

Evatt, A.: A bioarchaeological investigation of European Mesolithic burial practices and Taphonomy.

Girdwood, L.-K.: A comparison of medieval dental health in Scotland and Spain.

Garcia-Donas, J. G.: Age estimation using thin sections of ribs from a modern Greek autopsy sample.

Hukelova, Z.: Changes in lifestyle from the Neolithic to the Bronze Age in Central Europe.

Karell, M.: Identifying the Disappeared: Testing a Novel Method for the Sorting of Commingled Human Remains.

Kazzazi, M.: Dental metric standards for sex estimation in archaeological populations from Iran.

Lill, C.: Decreased bone mineral density related to chronic alcohol abuse and its effect on histological ageing methods.

McMath, P.: An osteoarchaeological investigation into Byzantine human health on the Black Sea Coast of Bulgaria.

Reeve, I.: Morbidity and mortality in relation to the environment: a comparison of British urban and rural skeletal populations.

Shupe, C.: Juvenile health in skeletal remains from Islamic Andalucia.

Waters, E.: Zoological Analysis of the Unicorn.

Dissertations Submitted for the MSc Human Osteoarchaeology, 2015/16

Ballew, L.: Biological continuity and the Greek identity through time at Nessebar, Bulgaria.

Barlow, A.: An isotopic investigation into dietary changes through childhood at the Chalcolithic site of Çamlıbel Tarlası, central Anatolia, using incremental dentine analysis.

Cusimano, N.: The force behind the blows: reconstructing blunt force trauma cranial injuries of the Early Neolithic.

De Simone, G.: A diachronic study of diet using stable isotope analysis at Messembria.

Garlow, J.: Hides, hair, and heads: a comparative analysis of blunt force trauma in the Neolithic.

Ricker, T.: Headaches and bone breaks: Examining the effects of antler tool damage on synthetic bone spheres.

Schalburg-Clayton, J.: A $\delta^{13}\text{C}$, $\delta^{15}\text{N}$, and $\delta^{34}\text{S}$ stable isotope dietary reconstruction study of Balearic Late Roman and Early Byzantine populations.

Snider, E.: Treatment of the dead. An analysis of changes in mortuary practices from ca. 400BC to 1400AD at Messembria necropolis.

Tomasekova, P.: Osteological analysis of Early Bronze Age burials from Lukáčovce (Slovakia).

Welch, N.: The bony labyrinth: A method of sex determination of Scottish Bronze age cremations.

Young, E.: Work: Wearing joints and tearing bones? An analysis of ancient Messembria's degenerative joint disease and trauma patterns, and an examination as to whether they could be occupationally-facilitated.

Dissertations Submitted for the MSc Forensic Anthropology, 2015/16

Brewer-Gillham, A.: Hats off: An experimental model for the human head and cranial blunt-force trauma.

Ce-Ougna, S.: Craniofacial superimposition of skulls and 3D reconstructed faces.

Franklin, K.: Bilateral asymmetry of femora in a modern Cretan population and their use for pair-matching commingled human skeletal remains.

Mascolo, A.: A synthetic model for recreating cranial trauma associated with Khmer Rouge victims.

Norman, A.: Pair-matching of commingled remains using three-dimensional models of adult and juvenile parietal bones.

Oliveira, I.: Anatomy in 3D: Sex estimation using metric analysis of the First and Second cervical vertebrae on a Cretan population.

Taylor, S.: An experimental study of Synbone ballistic spheres as a proxy to human crania, using six different handgun calibers.

Dissertations Submitted for the MSc Osteoarchaeology, 2015/16

Aadli, T.: Animals and their role in the economy of a small Scottish Royal Burgh: Combined faunal and butchery analysis of the zooarchaeological material from Cromarty.

School of Applied Sciences
University of Huddersfield
Anna Williams

MSc Courses

Forensic Anthropology at Huddersfield has expanded since last year. The 2016-17 intake is the second year for the MSc Forensic Anthropology, and the cohort has doubled since 2015-16. There are more students than ever on the whole suite of Forensic Masters, which includes the MSc Forensic Analytical Science, Forensic Toxicology, Forensic Biology, and Europe's only MSc in Forensic Entomology.

Research

Lorna Irish successfully defended her thesis and was awarded her PhD in 'Comparison of Volatile Organic Compounds Identified from Cadaver Decomposition and Olfactory Performance of Trained Victim Recovery Dogs' under the supervision of Dr Anna Williams and Dr Gareth Parkes. Danyelle Thickett continues her part-time PhD in 'The Relationship of Developmental Instability, as measured by Fluctuating Asymmetry, to Ill-health experienced by Past Populations' under

the supervision of Dr Anna Williams. The Forensic Anthropology Research Group (FARGo) will be welcoming a new MRes student in the New Year. This will bring the total number of FARGo researchers to 17.

In September, Dr Anna Williams and Lorna Irish helped to deliver a British Council Newton Fund-funded workshop in Forensic Taphonomy and Acarology in Queretaro, Mexico, which was very well received and hopefully will be repeated in future.

Throughout the year, Dr Anna Williams presented results of research in 'The Scent of Death' at the Science Museum, the National Media Museum, St Barts Pathology Museum the Royal Society, and the Royal Institution, and will be presenting at the 'Skeletons, Stories and Social Bodies' conference in March at the University of Southampton. She will also be presenting at the American Academy of Forensic Sciences conference in New Orleans in February 2017.

Facilities

A brand new Forensic Anthropology Laboratory will be opening at Huddersfield in March 2017, for undertaking human and faunal osteological analyses for police, universities or archaeological units.

Animal-based taphonomy experiments continue at the HuddersFIELD outdoor facility, including in collaboration with the Burial Research Consortium, the Aquatic Forensics Group, and the University of Manchester.

Online Activities

Under the supervision of Dr Anna Williams, Sam Elsworth (full time year placement student) has launched the *Dental Arcade Game*, an online citizen science project aimed at obtaining modern dental eruption reference data for forensic age estimation.

For more information, or to use the HuddersFIELD facility, please contact Dr Anna Williams on a.williams@hud.ac.uk

School of Anthropology and Conservation University of Kent *Rosie Pitfield*

In 2016 the School of Anthropology and Conservation (SAC) was delighted to host the 18th Annual BABAO Conference. The organising committee consisted of Chris Deter, Geraldine Fahy, Sarah Johns, Alastair Key, Tracy Kivell, Patrick Mahoney, Nicholas Newton-Fisher, Matthew Skinner, and Brandon Wheeler. They were supported by a team of student volunteers including Lucy Atha, Megan Beardmore-Herd, Simon Chapple, Ana Curto, Christopher Dunmore, Felicia Fricke, Annabelle Lockey, Victoria Lockwood, Alice Moden, Sarah Myers, Johanna Neufuss, Rosie Pitfield, Alexander Saleh, and Jessica Small. Congratulations go to Simon Chapple for winning the Jane Moore Podium Prize, and Felicia Fricke for being awarded the runner up Jane Moore Podium Prize.

News

At the start of the year we saw the launch of the Skeletal Biology Research Centre. The research centre was set up to investigate biological hard tissues (bones and teeth), with the ultimate aim to better understand humans and our evolutionary history. Alongside this the Human Osteology Lab has been expanded to provide a dedicated storage facility for human skeletal collections. We will also be starting an MSc in Forensic Osteology and Field Recovery Methods with its first intake in September 2017.

Research

During 2016 research continued in all of our sub-fields, human osteology and forensics, hominin evolution and behaviour, and primatology. Chris Deter, Geraldine Fahy, and Patrick Mahoney have been researching bone biology through isotope ratios and bone turnover rates, and Chris Deter and Patrick Mahoney have continued their work on biorhythms and enamel formation. Tracy Kivell, and Matthew Skinner have continued their research on the evolution and functional morphology of the postcranial skeleton, and Matthew Skinner has been investigating the

evolution of tooth morphology. Sarah Johns has continued her work on the timing of life-history events and evolved sexual behaviour. As members of the *Living Primates Research Group* Geraldine Fahy, Tracy Kivell, Nicholas Newton-Fisher, and Brandon Wheeler continued their research into the behaviour and ecology of living non-human primates. Staff and students from all areas of the department have presented research at national and international conferences throughout the year.

Outreach

We have put together several outreach activities this year. Geraldine Fahy coordinates a team of academic ambassadors who provide workshops to local schools. They aim to promote Biological Anthropology and the wider university experience to school children, and have been extremely popular. Matthew Skinner coordinated an outreach activity with the Natural History Museum as part of one of their Late events. Assisted by James Kloda, Chris Dunmore, and Annabelle Lockey, they 3D-scanned the faces of members of the public and transformed them into a fossil hominin species. In November, the annual public Stirling Lecture was given by Lee Berger who spoke about the discovery and excavation of *Australopithecus sediba* and *Homo naledi*.

Visit us here:

<https://www.kent.ac.uk/sac/index.html>

Facebook:

<https://www.facebook.com/SAC.Marlowe>

Twitter: @KentSAC

Ongoing Post Doctoral Research

Arias-Martorell, J.: Mosaic. Evolution of the ape forelimb: Evidence from internal bone structure.

Key, A.: In the palm of your hand: A biomechanical study of stone tool design, use, and ergonomics throughout early human evolution.

Le Luyer, M.: Enamel biorhythms and childhood growth trajectories: establishing

microtomographic and histological links for the understanding of late human evolution.

Lu, S.: Validation of musculoskeletal finger model and finite element analysis: Biomechanical tests on bonobo and human cadaveric specimens.

Ongoing PhD Research

Aris, C.: Variation in human societies and the impact on the enamel development.

Curto, A.: The impact of diet and health on bone stable isotope ratios: A comparative study.

Dunmore, C.: Skeletal form and function of the primate hand.

Georgiu, L.: Functional morphology of the hip and knee joints in apes and humans.

Howlett, C.: Expression of the 2D:4D digit ratio across the Primate Order.

Lowe, A.: Maternal strategies in wild chimpanzees.

Neufuss, J.: Forelimb kinematics and hand use during locomotion and non-locomotor behaviours in wild African apes.

Pitfield, R.: Microscopic markers of biorhythms in human juvenile hard tissue.

Submitted PhD Research

Myers, S.: Maternal investment and postnatal depression - an evolutionary approach.

Ongoing MSc by Research Projects

Davies, T.: Enamel-dentine junction morphology in hominin mandibular premolars including *H. naledi*.

Komza, K.: A comparative analysis in first metatarsal trabecular bone structure in humans and hominoids.

Lockwood, V.: Biomechanics of the human hand during arboreal locomotion: Kinematic and pressure analysis.

Plumber, W.: The enamo-dentine junction (EDJ) of upper premolar teeth in *Homo naledi* compared with other fossil and extant hominins.

Seal, H.: A histological investigation into Retzius periodicity and biorhythms between males and females in a modern human population.

Submitted MSc by Research Projects

Chapple, S.: Tooth enamel biorhythm corresponds with modern human adult stature and body mass.

Moden, A.: Enamel growth and thickness in modern-day African pastoralists and farmers.

**Research Centre in Evolutionary
Anthropology and Palaeoecology
School of Natural Sciences and Psychology
Liverpool John Moores University
*Laura Bishop and Isabelle De Groote***

We are looking forward to welcoming the BABAO community to the annual conference in Liverpool 8-10 September. Get ready for some great events and wonderful venues.

2016 was another great year for Biological Anthropology and Osteoarchaeology at LJMU. We welcomed four new members of staff – Alison Brough, Linus Girdland Flink, Richard Jennings and Emma Pomeroy. Along with our postgraduate research students, post-docs and researchers we have a thriving (and growing!) community of scholars here and look forward to hosting BABAO. Our new Bioarchaeology MSc is up and running with its first cohort and our Forensic Anthropology MSc is in its second year. The BSc (Hons) in Forensic Anthropology keeps us busy, too.

We continue to research and curate skeletal collections from the medieval chapel graveyard in Poulton, Cheshire in association with the Poulton Project <http://www.poultonresearchproject.co.uk/>.

We welcome visitors however permission should be sought from the trustees; details can be found on their website. We also hold

collections from the Gloucester Museum on loan.

We've been involved with several international exchanges. Two research visitors from 'La Sapienza' University of Rome visited our laboratories, and we are currently hosting Ashley May, a South African research student who is working on an MPhil in ancient DNA with Linus and Kyoko as part of the AESOP Erasmus Mundus partnership between European and South African universities. We've jointly hosted South African visitors from this programme with Prof Caroline Wilkinson and her team at LJMU's Face Lab <https://www.ljmu.ac.uk/research/centres-andinstitutes/face-lab>. We are also collaborating with Caroline and colleagues in the School of Art on the delivery of a new MA in Art and Science.

PhD student Ian Towle won the Dental Anthropology Association's poster prize at the 2016 AAPA meeting for contribution comparing the dental attrition and chipping in *Homo naledi* with other South African hominins.'

A big part of our mission as a research centre is field research, and we are happy that undergraduates and postgraduates were able to join field expeditions to Scladina Cave, Belgium (with Erasmus funding; Isabelle De Groote), Cyprus (with Costa Eliopoulos), and to Gorham's and Vanguard Caves, Gibraltar (with Richard Jennings). Other researchers conducted field work in Egypt (Joel Irish and Matteo Borrini), Spain (David Jordan), Iraq (Emma Pomeroy) and Kenya (Laura Bishop). Isabelle, with colleagues from our LJMU's Engineering Faculty has been working on a Horizon 2020 grant with colleagues from France, Greece, Switzerland, and Belgium. The DigiArt project is working to create virtual museum and cultural heritage sites. In the past year they used drones to make 3-D models of Scladina cave, the Greek Palace of the Aigai, and other archaeological sites. See www.digiart-project.eu to learn more about this project.

We've had a lot of research highlights within our group in 2016. Perhaps the one with greatest reach was the work on Piltdown Man, anthropology's most famous fraud, by Linus, Isabelle and colleagues, and published in *Royal Society Open Science* earlier this year. Carlo's collaborative work using whole body scans of tetrapods to show the influence of diet on the size of body cavities in *Journal of Anatomy* also received a lot of notice.

We look forward to seeing you all in Liverpool in September.

Department of Archaeology
University of Sheffield
Petra Verlinden

There were some changes to the composition of our team in 2016; we have been sad to see our previous demonstrator in osteology leave us, but we have also been lucky to have been joined by some new colleagues. Our research and teaching will be enhanced in the future by our new LED light scanning equipment, acquired by Kevin Kuykendall, and we have some exciting projects to look forward to in 2017.

This year saw the launch of the Sheffield Centre for the Archaeology of Childhood. This centre is the only research cluster focused on the archaeology of childhood in the UK, and reflects the significant concentration of archaeologists in our department with an interest in the study of infancy and childhood. We were very happy to welcome Sian Halcrow on the day of the launch. Sian gave an opening talk and also delivered a practical demonstration of the challenges and pitfalls in the identification and study of immature remains. More information about the centre, its members and activities are on our website (<https://www.sheffield.ac.uk/archaeology/research/centres/childhood>).

Congratulations are due to Vanessa Campanacho and Jennifer Crangle, who completed their PhDs in 2016. This year, we had the pleasure of teaching an exceptional

cohort in our MSc in Human Osteology and Funerary Archaeology. Lucy Adams, Christopher Aris, Avery Check, Tamara Eichelberger, Emma Hook, Heather Tamminen, Marte Tollefsen and Nicole Waite all received firsts. In our MSc in Palaeoanthropology, Tegid Watkin also received a first. Many congratulations to all of them.

Ongoing Doctoral Research Projects

Aniceti, V.: Animal husbandry in Sicily during the Islamic-Christian transition, 8th–12th C AD.

Atkin, A.: Identifying the 'lost' Black Death burial grounds in Britain: a palaeodemographic approach.

Baiges-Sotos, L.: Degenerative joint disease in non-human primates and its relationship to locomotor adaptation and substrate use.

Browaeys, E.: Birds of prey in the Bronze Age Near East: their role and identification.

McAfee, I.: Osteoarthritis in past populations: risk factors and comparative analysis of clinical diagnoses and treatments.

Ford, J.: Hyenas and Neanderthals in the British Middle Palaeolithic.

Fraser, T.: Livestock and landscape: changing husbandry, livestock improvement and landscape enclosure in late and post-medieval England.

Green, E.: What are we missing? – The importance of archaeoethnology for revealing funerary practices.

Hook, E.: An archaeological and osteological investigation of the medieval hospital cemetery in England and Wales.

Haywood, R.: The perennial or occasional 'Nutcracker Man'? Does dietary adaptation explain the derived craniofacial morphology of *Paranthropus*?

Lawrence, L.: Diet and management of ancient cattle: the potential of dental microwear.

Lisowski, M.: The identification of Jewish patterns of food preparation and consumption: a zooarchaeological approach to the Medieval and Early Modern evidence from Central-Eastern Europe.

Maccarinelli, A.: The social and economic role of freshwater fish in medieval England: a zooarchaeological approach.

Massey, S.: Investigating the lifestyle and activity of the communities discovered at Fishergate Bar, York (The Barbican).

Mogg, J.: Refining locomotory style in the fossil record through the use of muscle attachment sites.

Oleman-Grace, K.: *Homo erectus* life history: revisiting regressions in the light of recently recovered smaller-brained individuals.

Poland, G.: The identification of duck and goose remains from archaeological sites in order to discuss the role of wild and domestic taxa in Roman Britain.

Rizzetto, M.: Developments in the exploitation of animal resources between the late Roman period and the early Middle Ages: a comparative study of the evidence from Britain and the lower Rhine region.

Strati, V.: The effects of industrialization on the state of health and disease of a Victorian urban population: a case study from St. Hilda's Church, South Shield (Newcastle).

Poniro, S.: Roman migration patterns based on skeletal, archaeological, and written evidence.

Tecce, S.: The origins and evolution of pig domestication in Italy: a regional and diachronic study of husbandry practices.

Triozi, B.: A biocultural study of the Vestini population of Loreto Aprutino: diet, health,

status, and identity in the 6th- 4th Centuries BC in Central-Southern Italy.

Van Cant, M.: Analysis of human skeletal remains from medieval rural sites in northwest Europe.

Waller-Cotterhill, C.: One foot in the grave: an experimental examination of the effectiveness and development of the Anglesey Leg and an analysis of prostheses during the long Nineteenth Century.

Updates

The Rothwell Charnel Chapel Project (headed by Lizzy Craig-Atkins, Jenny Crangle and Dawn Hadley) continues to develop, with funding secured this year for radiocarbon dating of five skeletons and development of a 3D model of the ossuary. The Rothwell Charnel Chapel Project also benefited this year from the contributions of our intern Greer Dewdney, who was instrumental in organising outreach events, especially for the launch of the new website. Read all about Greer's experiences on her blog (<http://www.rothwellintern.wordpress.com/>).

Lizzy Craig-Atkins continues to direct our MSc Human Osteology and Funerary Archaeology and has recently been promoted to senior lecturer. Lizzy also continues to work on the infant weaning histories project, with a publication in collaboration with Julia Beaumont (Bradford) and Jacqueline Towers imminent (http://www.sheffield.ac.uk/archaeology/research/infant_identities). Lizzy has also recently begun a collaborative British Academy funded project with historians of the body to integrate archaeological and historical approaches to the material body in the post-medieval period and project on the dietary impact of the Norman Conquest in Oxford with Ben Jervis and Richard Madgwick, (both Cardiff) (<http://www.cardiff.ac.uk/news/view/483854-food-culture-after-1066> <https://theconversation.com/pepper-pig-and-fewer-bodily-emissions-how-the-norman-conquest-changed-englands-eating-habits-67000>).

In May 2016, a third season of excavation was carried out at St Patrick's Chapel in Whitesands Bay, Pembrokeshire, as part of a collaborative project between Dr Katie Hemer (University of Sheffield) and Dyfed Archaeological Trust. The excavation of the early medieval cemetery has revealed over 50 well-preserved burials. Bioarchaeological analyses, including stable isotope analysis, of the remains is ongoing at the University of Sheffield (<https://www.sheffield.ac.uk/archaeology/research/st-patricks>). Katie has been on maternity leave since February 2016, and will be taking up her role as Lecturer in Bioarchaeology this coming February.

Our new postdoctoral research fellow, Efthymia Nikita, is working on a project entitled '“Humanizing” Antiquity: Biocultural Approaches to Identity Formation in Ancient Boeotia, central Greece'. This project is looking into the biological dimensions of the socio-politically constructed notions of kinship, citizenship and ethnicity in Archaic to Roman-era Boeotia (central Greece) by integrating mortuary data, historical information and osteoarchaeological analysis.

One of our recent PhD graduates, Vanessa Campanacho, is currently with us as a visiting researcher. Since September, she has been learning how to use the new LED light Artec scanners as well as the MicroScriber G2 3D Digitizer. She has written a protocol for the Artec Scanners and created three-dimensional models of human bones for teaching purposes. Additionally, she is going to compare the performance of the 3D Artec Scanners and MicroScribe G2 in localizing landmarks in the post-cranial skeleton.

Pia Nystrom continues with her primate degenerative joint disease research with Laura Baiges-Sotos and is working on the second edition of her book *The Life of Primates* (co-authored with Pamela Ashmore).

This year, a team of post-graduate researchers from archaeozoology and human osteology successfully cooperated to run a two-day

intensive course which provided participants with a unique comparative perspective on human and other animal remains. For more details on the work of Umberto Albarella and his post-graduate research team please visit our bioarchaeology research page (<http://www.sheffield.ac.uk/archaeology/research/bioarchaeology>).

Outreach and Impact

This year, our postgraduate community again helped us promote our discipline to the public, with our PhD's Val Strati and Stacey Massey holding workshops for schools, while some of our master's students helped to promote our work at the faculty showcase of the Festival of Arts and Humanities in Spring 2016

(<https://www.sheffield.ac.uk/festivalah/2016/faculty-showcase>). The Rothwell Charnel Chapel open day focused on the results of radiocarbon dating and was covered in a two-day piece on BBC Northampton News and on Radio Northamptonshire. The project also featured on the cover of December's Current Archaeology magazine (<http://www.rothwellcharnelchapel.group.shef.ac.uk/>). Next year, Lizzy will be chairing a session at the SAA in Vancouver, on the Thursday, 30th of March, with the title "Manipulated Bodies: Investigating Post-Mortem Interactions with Human Remains".

Online Activities

Aside from personal and project pages on our departmental website, Sheffield has an active group of bloggers and tweeters. Staff and project websites/blogs include:

<http://www.thorntonabbeyproject.com/>;

<https://southafricanpalaeocaves.wordpress.com/>;

www.historymatters.group.shef.ac.uk/;

Personal blogs by alumni and current students: Greer Dewdney (current MSc HOFA):

<http://www.rothwellintern.wordpress.com/>;

Alison Atkin (current PhD):

<https://deathsplaining.wordpress.com/>;

David Mennear (MSc HOFA 2012)

<https://thesebonesofmine.wordpress.com/>;

Alexandra Ion (MSc HOFA 2011):

<https://bodiesandacademia.wordpress.com/>;

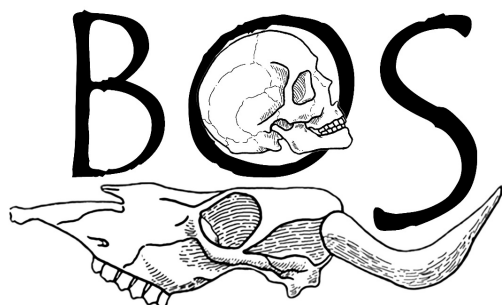
James Kendrick (MSc Palaeoanth. 2013):

<https://jkendrickensis.wordpress.com/author/jamiekendrick/>. Elizabeth Craig-Atkins is on Twitter as @ecraigatkins. Our visiting researcher Vanessa is on Twitter as @VCampanacho. Alison Atkin, Katie Hemer and the Thornton Abbey project all tweet. Also find our department on both Facebook and YouTube!

**Department of Archaeology
University of Southampton**
Sonia Zakrzewski

2016 has been another busy and successful year for both staff and students at Southampton – which finished off with the TAG conference (Theoretical Archaeology Group) in December. We show off here the new logo for *Bos* – designed by Ziyi (Asan) Li, one of our past Masters students <http://pathbrite.com/BOS/profile>.

**Bioarchaeology & Osteoarchaeology at
University of Southampton (*Bos*)**



Most of the *Bos* staff are based in Archaeology. Joanna Sofaer is one of the associate editors of the new *Bioarchaeology International* journal – with its first issue coming out early in 2017. This promises to be a very exciting development for publishing in bioarchaeology. This links to one of the key messages that came out of a paper given by Sarah Stark, Mike Burgess and Sonia Zakrzewski at TAG2016 which showed little synthesis between funerary archaeology and traditional osteoarchaeology within journal article publication. Together with Medicine and Anthropology, Jo Sofaer also has continued teaching a collaborative “Body and

Society” module. Similarly, Sonia Zakrzewski’s collaborations with Engineering are continuing with Alex Dickinson, Chris Woods and Prof Martin Browne, studying stress and structural integrity in teeth and bone through microCT (μ CT). This research has developed thanks to interest in developing better dental implants, amputation morphology and joint replacements. Sonia Zakrzewski is also continuing as Vice-President of the Paleopathology Association and so is now responsible for organising the American meetings of that group - with the next one being in New Orleans in April. Professor Alistair Pike has been continuing lots of isotopic research, mostly with a focus on dating of early hominin sites and rock art – and indeed his paper with Chris Standish, Bruno Dhuime and Chris Hawkesworth won the 2016 *R.M. Baguley Prize* from the Prehistoric Society.

Andrew O'Malley is the Deputy Director of the Centre for Learning Anatomical Sciences, which also includes Scott Border, Jenny Skidmore, Stuart Morton and Tomasz Cecot. One of his new roles includes the development of new programmes and hence he is working with Joanna Sofaer to develop greater synthesis in Masters course provision (so watch this space!) Beyond anatomy, the research interests of particular relevance to BABAO, include Andrew’s focus on forensic human identification and Scott’s focus on neuroanatomy. Lizzie O’Sullivan (dissector) and Sarah Schwarz (PhD student in Archaeology) are the co-chairs organising the “Skeletons, Stories and Social Bodies Conference” 24-26 March 2017 (<http://www.ssbconference.co.uk/>).

Other postdocs in the department have kept very busy. Alex Pryor (Leverhulme Trust) has continued his sampling of mammoth teeth for isotopic analysis, such as from the Upper Palaeolithic site of Kostenki in Russia. And the two research centres that launched last year (Medicine in History and Society; Centre for Anthropology) have gone from strength to strength.

As in previous years, over the summer, Ellie Williams and PhD student Sarah Stark organised and ran a very successful osteoarchaeology internship programme for interested and keen undergraduate students. As with many of our other PhD students, Sarah Stark was also busy in other ways, being heavily involved in the organisation of sessions at TAG2016. Sarah Stark, Christianne Fernee and Sonia Zakrzewski organised a session entitled 'Visualising the Body'. Most the papers presented focussed on different ways of obtaining or viewing data – the abstracts can be found at <http://www.southampton.ac.uk/tag2016/sessionabstracts/session30.page>. 'Skeletons, Stories and Social Bodies' was organised by Sarah Schwarz, Lizzie O'Sullivan and Stephanie Evelyn-Wright – with all the paper abstracts available at <http://www.southampton.ac.uk/tag2016/sessionabstracts/session21.page>. Across the whole meeting, papers were presented by a wide range of staff and students, both past and present (including Mike Burgess, Tanya Freke, Jess Thompson).

Teaching and research collaborations have continued to develop across the university, most notably with the Faculties of Social & Human Sciences, Medicine and Engineering. The Archaeology department has started teaching a new Archaeology & Anthropology undergraduate degree programme, and, as appeared during the interview process last year, it is the Biological Anthropology that has captured the imagination of the first year undergraduates. As noted earlier, Jo Sofaer has been redeveloping the masters taught course provision within Archaeology – and we will start a new MSc focussing on Bioarchaeology. We hope that this course will continue to develop the links with anatomy and bioengineering described earlier, and so students should have great access to facilities including the dissection labs and microCT facilities.

Current Research Students

Richard Chuang and Brittany Hill successfully completed and defended their

PhD theses, with the former looking at the acquisition of domestic equids in Roman Britain and the latter at differences in cremations and burials with animals in Roman Britain.

In association with Holger Schutkowski (University of Bournemouth), Sonia Zakrzewski has also started to supervise Nina Maaranen. Nina is using skeletal analysis to understand what happened to the Hyksos from the Egyptian Delta region.

Continuing PhD Students

Armstrong, C.: Osteobiographical and isotopic histories of Barton-on-Humber.

Evelyn-Wright, S.: Attitudes to and recognition of disability in Roman bodies and their representation and burials in cemeteries.

Felton, C.: Markers of occupational stress in the spine.

Fernee, C: Intra-individual variation and patterning of dental (especially root) morphology using μ CT.

Field, S.: Improving methods of analysis of dental wear for age estimation.

Schwarz, S.: Variation in Neanderthal mortuary practices and structured responses to death in the Middle Palaeolithic.

Stark, S.: Patterns of childhood growth and long bone development using 3D geometric methods (such as structured light scanning).

Dissertations Approved for the MA in Osteoarchaeology 2015-2016

Li, Z.: An Osteoarchaeological Analysis of Disease and Social Status Correlations in the Anglo Saxon Cemetery at Great Chesterford.

Monterrosa Preziosi, S.: Stable Carbon and Nitrogen Isotope Analysis in Human Remains from the Early Anglo-Saxon Cemetery of Great Chesterford, Essex.

Stephens, A.: 'Sleeping with the Fishes': An in-depth Osteological Analysis of a Combined

Human and Faunal Assemblage from an Early-Imperial Roman Fishpond in Southern France.

Wallender, M.: Comparing the Growth and Development of Juveniles from Ancaster to Great Chesterford.

Other dissertations linked to Bioarchaeology & Osteoarchaeology approved for Masters degrees in 2015-16

Arnold, J.: A study on the different approaches that museums from a maritime context have taken in their approach to the display of human remains.

Stewart-Phillips, G.: The Maritime Transport of Cattle during the Mesolithic/ Neolithic Transition from Europe to Britain and Ireland: A re-evaluation.

**School of Science & Engineering
Teesside University,
Applied Biological Anthropology Group
Tim Thompson**

2016 may have been a challenging year from a global perspective, but the Applied Biological Anthropology team here at Teesside have come through the other side having had another enjoyable and successful year.

Our key good news this year has been the graduation of two of our outstanding PhD candidates, Dr David Errickson and Dr Sarah Ellingham. We wish them both success going forward. Dave is still with us as a part-time lecturer and Sarah has moved over to Geneva to work for the ICRC. We have two new researchers join us though, with Matt examining diagenesis in mass graves and Meike applying crystallinity indices to archaeological and forensic bone.

We led another successful 'Pint of Science' festival up here, and took an active role in 'Learning at Work Week'. We continued our close relationship with the Teesside Archaeological Society (teesarchsoc.com)

including contributing to a really engaging evening lecture series.

We continue to have a good presence at the large international forensic conferences. Sarah Ellingham won the AAFS JL Angel Award for her presentation at their annual conference in Las Vegas, and Matt Adamson has just picked up the Forensic Sciences Foundation Henry C. Lee International Scholarship for his work combining non-contact scanning and crime scene visualisation. The team has also been clocking up the air miles with research trips to Brazil, the US, Romania and Japan.

More info about what we're up to can be found on our much-visited blog at <http://blogs.tees.ac.uk/anthropology/> or through our Twitter feed @TU_Anthropology. We've also got a number of individual blogs and twitter accounts. Some of our research projects have shiny new webpages, such as the Jê Landscapes of Southern Brazil.

Current PhD Students

Adamson, M.: Degraded and Degrading: Understanding Diagenetic Processes in Commingled Graves from Contexts of Mass Violence.

Chrysostomou, P.: Morphoscopic and morphometric methodological approaches for sorting commingled human remains.

Griffith, S.: Understanding the effects of water submersion on human bone modification.

Olakanye, A.: Microbial forensics: the application to grave location.

Ulgum, P.F.: Understanding the funerary practice of cremation within the southern Brazilian highlands: Applying advanced methods to burned bone in an archaeological context.

Wanjek, M.A.: method of aging bone through analysis of the crystallinity indices by application of Fourier Transform Infrared Spectroscopy.

POSTGRADUATE RESEARCH
ABSTRACTS

**Degraded and Degrading: Understanding
Diagenetic Processes in Commingled
Graves from Contexts of Mass Violence**

*Matt Adamson
Teesside University*

The Human Microbiome Project has established that approximately 90% of the cells in a healthy human body are microbial (Javan *et al.* 2016). Recent studies have begun examining those microbes associated with the internal organs after death, referred to by Can *et al.* (2014), as the “thanatomicrobiome.” A few have noted its interaction with bone. White and Booth (2014) established the enteric origin of the bacteria responsible for the early bioerosion of bone (primarily examining pig femora from single graves), while Damann *et al.* (2015) determined that said bacteria will maintain its communal presence during skeletonisation (primarily examining human ribs from exposed, surface remains). The current project focuses on the bioerosion of bone collected from commingled graves and the microbial communities present within each upon their recovery. Using light microscopy, SEM, and micro-CT, skeletal tissue sampled from multiple sites on each corpse will be examined. The type and degree of bioerosion will be documented using Hackett’s (1981) characterization of microbial attack. The 16S rRNA gene and a separate gene of *Clostridium* sp. (commonly found in decaying organs and blood, Javan *et al.*, 2016), will be sequenced in an attempt to isolate the microbiome present within each bone. The goal: to achieve a better understanding of the effects commingling may have on the diagenetic history of bone and examine whether the microbiome within a single bone will remain similar throughout bone from the same cadaver within a commingled environment over a period of time.

**What Price the Industrial Revolution?
Investigating inequality in the 18-19th
century population of Blackburn,
Lancashire, UK, through stable isotope
analysis**

*Andy Barlow
University of Edinburgh*

St Peter’s burial ground and churchyard received its first burials in 1812 and was used intensively up to the 1860s. An assemblage of *ca.* 2000 individuals was excavated by Headland Archaeology in 2015. A small proportion of this assemblage (n=93) are well-documented with the names, sex and ages known from parish records. Information is also available on the health status of some of these individuals. This offers the potential to link dietary changes to known medical conditions and/or social circumstances.

Permission has been given to analyse one rib/long bone sample from 200 individuals and three molar teeth (M1-M3), where present, from each named individual recovered from the site. Seventy-seven teeth are available for incremental dentine analysis. This allows detailed investigation of the individual diets of this sub-population and facilitates assessment of diachronic patterns of dietary changes over the period of the growth of the industrial town.

The principal aims of the project are three-fold:

1. Reconstruction of adult diet in a 19th Century population through analysis of carbon ($\delta^{13}\text{C}$), nitrogen ($\delta^{15}\text{N}$) and sulphur ($\delta^{34}\text{S}$) isotope ratios of bone samples.
2. Reconstruction of childhood diet in same population, through analysis of carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) isotope ratios of dentine.
3. Comparative analysis of historically documented behaviours with scientific data.

This is a unique opportunity to study a cemetery population from a provincial town of this period.

The impact of sociocultural and environmental change on air quality and respiratory health in the 4th Cataract, Sudan: a bioarchaeological perspective

Anna Barrett

Department of Archaeology, Durham University

Department for Ancient Egypt and Sudan, The British Museum

This project will focus on the analysis of skeletal indicators of respiratory disease in human archaeological populations from the 4th Cataract, Sudan. The presence of respiratory disease, which can produce bony changes on the inner surface of the ribs and inside the sinuses, has been linked to particulate pollution associated with poor air quality, a problem that is still present in many countries today. This project seeks to establish if changes to climate, environment, and sociocultural practices which may have affected particulate pollution within the 4th cataract, can be correlated with patterns in the prevalence of respiratory disease through time. The project will also look at any possible variation in the presence of respiratory disease according to sex, age, and social status. It is hoped that the research will ultimately lead to a greater understanding of the complexity of factors affecting respiratory health and provide comparable data to other sites within the Nile Valley.

Physical impairment and disability in Anglo-Saxon England: An investigation into the possibility of differential mortuary treatment and disability-related care

Solange Bohling

University of Bradford

Although disability and physical impairment are both inevitable aspects of human life, until recently, disabled individuals have been largely ignored with regards to the archaeological record. While many archaeological studies focus on age and sex as means to investigate social status in ancient populations, disability and levels of impairment can similarly reveal much about

aspects of past societies for which there is little or no historical evidence.

This project will investigate physical impairment and disability in Anglo-Saxon England (5th-10th Centuries AD). This project has two aims: 1) to determine if an individual's physical impairment had an impact on how they were treated by their community in death, and 2) to explore archaeological case studies in order to investigate the possibility of care for disabled individuals in Anglo-Saxon England.

A series of Anglo-Saxon cemetery populations (N>50) with evidence for skeletal physical impairment have been chosen. Osteological data for these populations (age and sex) will be gathered from the author's analysis and from reliable osteological reports, and funerary data (body position, location in cemetery, grave goods etc.) will be collected for each individual from excavation reports. Those individuals with skeletal evidence for physical impairment (e.g., extreme limb shortening, severe infection, physical deformities) will be analysed in detail with both written descriptions and photographic evidence recorded.

The funerary treatment of individuals with and without physical impairments will then be compared quantitatively and qualitatively. We will look at whether there was a tendency to bury physically impaired individuals in a non-normative manner, or if they were included within cemeteries in the same manner as the rest of the community. Changes in funerary treatment between the early (pagan), and later (Christian) periods will also be explored. This use of skeletal analysis paired with the study of funerary rites allows us to make informed inferences about the Anglo-Saxons' attitudes towards those with physical impairments, a subject for which there is little written evidence, especially for the earlier centuries.

The second half of the project will focus on particularly severe cases of physical impairment from various Anglo-Saxon populations. A modified version of Lorna Tilley's 'Bioarchaeology of Care' method

will be utilised for each case study to determine the functional impact of the impairment, to think about whether this would have compromised social and economic interaction, and to establish whether it was likely that care was provided. This part of the study will allow us to determine whether disability-related care was present in Anglo-Saxon society which will enhance our knowledge of Anglo-Saxon attitude towards physical impairment.

The influence of skeletal size on age-related criteria from the pelvic joints in Portuguese and North American samples

*Vanessa Campanacho
University of Sheffield*

Completed PhD Abstract

This thesis investigates the possible effect of body size – stature, body mass, robusticity, articulation size – in age-related criteria of the pelvic joints in individuals more than 17 years of age at the time of death. Two samples were studied from the Identified Skeletal Collection from the University of Coimbra (Portugal), and the William Bass Donated Skeletal Collection (USA). Body mass, stature and joint surface area affect some of the age-related criteria at the pubic symphysis, iliac auricular surface and acetabulum. Robusticity has a minimum effect on the pelvic joints degeneration. However, different patterns were obtained between samples suggesting a variable effect in joint metamorphosis.

Morphoscopic and morphometric methodological approaches for sorting commingled human remains

*Popi Chrysostomou
Teesside University*

The commingling of human remains is a scientific challenge commonly encountered in both medicolegal and bioarchaeological settings. The term “commingled remains” refers to the intermixing of body parts or skeletal elements of one or more individuals and is typically attributed to human activity or other taphonomic processes. Reported cases

of commingling often relate to mass executions in armed conflicts, aircraft accidents, terrorist attacks, dismembered homicide cases, animal scavenging, archaeological ossuaries and museum collections. Despite the frequent occurrence of commingled remains, research on sorting methodologies remains relatively limited even though the segregation of elements to form complete or nearly complete individuals is an unquestionably important component not only for the analysis, but also the identification and return of human remains. Unfortunately, the heavy reliance on observer experience for the visual segregation of remains has produced a method that is currently as much an art as it is a science. The present study aims to investigate both visual and metric methods for segregating human remains. The main hypothesis of the research is that the visual segregation of remains – that to the present day remains an experience-based approach – can be formulated into a scientific method within a statistical framework. The research objectives are to provide standardised, replicable, and validated methods for the macroscopic reassociations of human remains. In addition to the visual sorting methodologies (that also explore skeletal relationships never previously investigated), this research also aims to develop new osteometric sorting models. The overall outcome of the study will be the development of coherent, scientifically-based visual and metric sorting techniques in accordance with the post-Daubert forensic science best practices.

A study of post-depositional practices in Medieval England

*Jennifer Crangle
University of Sheffield*

Completed PhD Abstract

This thesis examines all post-depositional behaviours, practices, physical engagement and interaction by the living with the buried dead in England, from the advent of Christianity to the post-Reformation period. Such activities incorporated everything from cemetery management to translations and

elevations, and the creation of charnel chapels. The aim was to assess the role and significance of post-depositional practices within the wider medieval funerary context and to identify and define different forms of post-depositional disturbance. Recognisable attributes of such practices were documented, while establishing any regulatory procedures, structure or aspects of exclusivity inherent in each category of disturbance. The origin and prevalence of each category of disturbance was established, from their initiation to cessation, and medieval attitudes towards the dead, physical interaction with deceased individuals and human skeletal material were elucidated. It was concluded that there existed a previously unrecognised funerary phenomenon, practiced throughout the medieval period, whereby the buried dead and disinterred skeletal material were curated and played a significant role within contemporary religious observance and society.

An Archaeological Examination of Human Dissection and Its Role in Anatomical Education in England from 1600-1900

Jenna M. Dittmar
University of Cambridge

Completed PhD Abstract

Since the Medieval period, the importance of anatomical dissection has been increasingly utilised in medical education. In recent decades a number of archaeological excavations have uncovered evidence of this practice in the form of tool marks on human skeletal remains. The aim of this research is to advance our understanding of anatomical dissection within medical contexts from 1600 to 1900 by assessing these tool marks on dissected skeletal remains and placing the findings into the socio-historical context. A full osteological assessment utilising both macro-and microscopic methods was conducted on skeletal remains that had tool marks consistent with dissection (n=339) and autopsy (n=68) from sites across England. Firstly, a set of criteria to differentiate between human dissection and autopsy was developed by analysing the known dissected collection from the University of Cambridge.

Once able to be confidently identified, the analysis of the skeletal remains of the dissected revealed considerable variation in the dissection procedure resulting from; 1) the scarcity of bodies, 2) the age of the individual, and 3) the perceived post-dissection educational value of a body. This research highlights the importance of osteological and tool mark analysis in the study of the history of medical education as a great deal of new information about the procedure of human dissection from the late 1600s to 1900 and the individuals dissected to advance scientific knowledge was revealed.

Understanding the effects of water submersion on human bone modification

Sam Griffith
Teesside University

The recovery of skeletal remains, both modern and archaeological, from water sources is relatively common. However, there is currently an incomplete understanding of how different physical, chemical and biological processes modify remains during submersion. Limited knowledge of how bone tissue is altered in aquatic environments can affect the reliability of data drawn from bone. Therefore, this multidisciplinary research project aims to gain a more nuanced understanding of diagenetic alterations to submerged bone. Research is investigating the application of quantitative imaging techniques to the analysis micro-wear propagation on submerged bone caused by sediment-induced abrasion. Scanning electron microscopy and laser scanning are being used to image wear on bone's surface; with the aim of establishing whether these methods will allow remains' taphonomic histories to be determined with a higher degree of resolution than is possible through gross morphological analysis. Laboratory and field based experiments are also investigating the effects of different diagenetic processes on DNA survivability and trace element uptake in submerged bone.

Stressed at Birth: Investigating metric variation in infants to determine whether subjection to stress during early development affects skeletal dimensions

*Claire Hodson
Durham University*

The aim of this PhD is to examine the correlation between intrauterine growth and exposure to stress through the analysis of perinatal skeletal populations of different time periods and geographic locations. Assessment of multiple skeletal populations will enable the identification of skeletal element(s) and measurement(s) that indicate exposure to stress and whether such changes are consistent within and between populations. Stressors are limiting and detrimental influences, thus maternal health, diet, exposure to disease, and social and environmental changes will all be considered in relation to growth. All individuals assessed are between *circa* 30 gestational weeks and 6 months of age as this is when growth is at its peak and thus the skeleton is most sensitive to stressors. This project will further our understanding of the relationship between infant health and growth in past and present populations.

An archaeological and osteological investigation of the functionality and population demographics of the Medieval hospitals of England and Wales

*Emma Hook
University of Sheffield*

The excavation of over two hundred burials from St James Hospital, Lincolnshire, provides a unique opportunity to investigate the demographic and everyday functionality of one of the largest known rural Medieval hospitals in England.

The skeletal assemblage recovered from the site provides an opportunity to investigate the demographic profiles of those afforded burial at times of varying social, political and economic stress. It is expected that the mass burial of plague victims will comprise a catastrophic cross section of society. The

skeletal material recovered from the hospital cemetery will reveal a selective demographic of the hospital population. Two lines of investigation will look at the health of the hospital population and the presence of child oblation.

In Medieval society admittance to hospital was often discriminatory, governed by benefaction and at the discretion of the hospital master, far from the expectations of a hospital today. The hospital was founded in the Christian concept of *hospit le*, they were run as religious institutions, where care of the eternal soul took precedence over temporal illness.

Therefore, this research aims to reclassify hospitals via the demographic profile of those afforded burial, and to explore the daily functionality of the hospital via an exploration of inmates' health status through paleopathologies. The inferences found at St James' Hospital will be compared with contemporary sites across England and Wales to trace changes in habitual activity as well as the development and heterogeneous nature of the Medieval hospital over time across England and Wales.

The Hyksos in Egypt

*Nina Maraanan
Bournemouth University*

During the Second Intermediate Period, *ca.* 1640-1530 BCE, a dynasty believed to be of foreign origin established a local power in Egypt. The Greek word Hyksos, from the Egyptian title *Hq3w-h3swt*, has been used to describe the ruling dynasty as well as the larger body of foreigners from the NE of Egypt. Circumstances around the Hyksos origin, rise to power and exile from Egypt have been unclear. Textual evidence of the time period is scarce, however the increase of primary source material due to excavations in Egypt and the Near East have provided new information of the background and customs of these people. However, human osteological material has remained lightly investigated. To remedy the situation, skeletal material from

Avaris and other appropriate sites is used to create biographical profiles of the people, with a special emphasis on activity-related changes and morphometric information regarding relatedness. Both conventional and novel methods are used to examine the material and the results are included in the *The Hyksos Enigma* project.

Osteoarthritis in past populations: risk factors and comparative analysis of clinical diagnoses and treatments

Ian McAfee
University of Sheffield

Arthritic pathological conditions are something that many individuals will face in their advanced years. However, new research is showing that risk factors (i.e. diet, activity, genes) affect how the conditions progresses causing younger individuals to develop symptoms. Osteological diagnosis is a relatively simple and straightforward process including identification of a pathognomonic condition (eburnation) or 3 markers that are associated with osteoarthritis (i.e. porosity, joint contour change, sclerosis) for a probable diagnosis. A problem arises with the modern movement for repatriation of the skeletal remains and the subsequent notes that are left behind. Due to the simplistic diagnoses, notes regarding the condition are not as thorough as they could be. A method devised by this candidate will help to make for better records so that future researchers will have a better understanding as to the state of the condition. Better records are just one area that needs further involvement, as new research is altering the understanding of this condition. It was once believed that arthritic conditions were mainly an age-related condition, and while this remains true, individuals are developing the condition much earlier or not developing any symptoms at all. Therefore, it must be concluded that the condition is part of a larger whole with many factors that are correlated, rather than independent. Better understanding of these factors, as well as modern treatment and management methods, will help us to better understand how the

condition affects living individuals and our deceased forbearers.

Microbial forensics: the application to grave location

Ayo Olakanye
Teesside University

Cross-subject collaborative research in forensic biology, crime scene science and environmental microbial ecology at Teesside University has resulted in studies in an important field that can be termed molecular microbial forensics. The proposed research project will adopt state of the art molecular profiling techniques to monitor the changes of soil microbial communities in response to body decomposition. This will allow us to address a key problem in forensic investigation, namely location of sites of body deposition. Thus, the presence of specific biochemical and molecular markers will be investigated as indicators of this process. Key environmental parameters such as time, temperature and moisture, and pH are some of the factors that will be evaluated to determine their impact on decomposition rates, material seepage, and soil microbial community changes. Therefore, this programme will exploit the existing expertise in molecular microbial ecology and archaeological/anthropological forensics to facilitate a greater understanding and accuracy in determining the time of death, particularly in medico-legal investigations.

Life in Transition. An osteoarchaeological perspective of the consequences of medieval socioeconomic developments in Holland and Zeeland (AD 1000-1600)

Rachel Schats
Leiden University

Completed PhD Abstract

This research investigates the impact of socioeconomic developments on the physical condition of medieval populations in Holland and Zeeland between AD 1000 and 1600 through the analysis of human skeletal remains from three archaeological sites. In a

brief period of time, this region went from being scarcely populated to an area characterised by expanding urban centres and flourishing trade systems. These large scale developments must have had an impact on the daily lives of medieval people. However, even though these changes are well-studied historically, there is a paucity of data concerning individual people. Therefore, focusing on several skeletal indicators of disease, activity, and diet, this research has analysed both rural and urban skeletal collections to study the physical consequences of medieval socioeconomic developments from a hitherto unexplored perspective in The Netherlands.

Although differences are observed between the skeletal collections, the key finding is the absence of a marked distinction between town and country. The noted variations in skeletal indicators of disease, activity, and diet are minor and do not support the traditional idea that towns and villages in medieval Holland and Zeeland had become worlds apart. While urban living is frequently associated with negative consequences, this is not supported by this research. Especially in terms of disease, a more nuanced view is necessary. While the risks appear to have been different, one living environment cannot be considered better than the other.

The effects of industrialization on the state of health and disease of a Victorian urban population: A case study from St. Hilda's Church, South Shields (Newcastle)

*Valasia Strati
University of Sheffield*

The rapid urbanization of the Industrial Revolution in 18th-19th century England presented new health and disease challenges. As relatively little work has been done in the study of skeletal remains from this era, due to the paucity of skeletal collections, this research seeks to determine the effects of industrialisation on the demographic and health and disease profile of Victorian populations.

The research utilises the Victorian working-class skeletal assemblage recovered from the 19th Century burial ground of St. Hilda's Church South Shields. The results are compared with a number of broadly contemporary skeletal assemblages, similar archaeological publications and documentary accounts of the health of the working-class of this era in order to contextualise the results, characterise the population under study and determine if St. Hilda's follows the general pathological and demographic profile of this period. This comparison aims to provide a generalised health and disease picture of urban populations and a specific objective is to provide an osteological insight into the health and disease of a primarily poor urban community.

For the stated comparative purposes the post-medieval skeletal collections from Newcastle Infirmary and the graveyard at Carver Street Methodist Chapel in Sheffield are utilised. Furthermore, comparative analysis of all findings with the published results of broadly contemporary cemeteries of similar background, such as St. Martin's-in-the-Bull Ring, Birmingham, St. Marylebone, London; St. Luke's, Islington; Christ Church, Spitalfields and the Quaker burial ground, Kingston-Upon-Thames, will be performed.

With the most cited effects of industrialisation being increased pollution, increased population density, poor living and working conditions, low life expectancy, metabolic and infectious disease, and increased rates of trauma, this research is focused on the in-depth investigation of the following topics: trauma patterns as indicators of working and living conditions; specific and non-specific infections as indicators of polluted environment and poor hygiene standards; spinal joint disease as indicators of occupational stress; skeletal markers of dietary deficiency and high stature (including investigation of nutritional status of sub-adults with isotopic analysis); increased sub-adult mortality as indicator of overcrowded conditions; and patterns in male-versus-female health.

A Biocultural study of the Vestini population of Loreto Aprutino: Diet, Health, Status, and Identity in the 6th-4th centuries B.C. in Central-Southern Italy

Beatrice Triozzi
University of Sheffield

The main objective of this research is the characterisation of the biological and cultural variability in the Vestini population of Loreto Aprutino (Abruzzo, Italy) to determine whether there are differences in health, lifestyle and gendered behaviour among different Vestini population groups, and to understand how and why they may differ.

The Vestini are one of the various populations that inhabited the Abruzzo Region during the Iron Age. They played an important role during the period before and after Romanisation, first as enemies and then as allies of the Romans. Their territories occupied either side of the Gran Sasso Mountain and a small portion of the Adriatic coast. Despite the key role of this population little is known about them. In the last years, various research projects have been conducted on the skeletal remains and the grave goods derived from the Western side of the mountain. In contrast, only a small amount is known about the Vestini that inhabited the Eastern side of the Gran Sasso and only the burial goods have been investigated.

A detailed osteological and dental analysis will be performed, along with the evaluation of the pathological conditions of the individuals. This will be correlated to the examination of associated burial artefacts to explore aspects of the population's identity.

This research will help to characterise the Vestini population and it will also allow us to further investigate their socio-political structure and relationships with Rome.

Understanding the funerary practice of cremation within the southern Brazilian highlands: Applying advanced methods to burned bone in an archaeological context

Priscilla Ulguim
Teesside University

Recent research into the archaeology of the southern Jê in the highlands of southern Brazil, and northern Argentina, has focused on the significance of earthwork mound and enclosure complexes, which are frequently associated with funerary activity and often present cremated human remains. These structures are interpreted in the literature as evidence for manipulation of the landscape and the presence of increasingly complex societies within the region. However, relatively few detailed studies have been carried out on the human remains, and in general advanced analytical methods have not been regularly applied to cremated archaeological material in the region.

The objective of the study is to employ advanced methods alongside osteological profiling to investigate the evidence of funerary practice from cremated remains at a range of archaeological mound and enclosure sites of the region. These methods aim to understand primary-level change in the bone structure and to provide robust and quantifiable evidence regarding the context and nature of combustion. This study proposes to investigate and apply Fourier Transform Infrared Spectroscopy (FTIR) to analyse the crystalline structure of bone samples; histological analysis to provide evidence of microscopic structural change; and systematically apply colour analysis, with the aim of providing more accurate evidence regarding bone colour change. The development of such analysis will aid in the validation of hypotheses regarding the funerary practices performed by such groups in the past and provide important information about the individuals involved.

A method of aging bone through analysis of the crystallinity indices by application of Fourier Transform Infrared Spectroscopy

*Meike Wanjek
Teesside University*

Indices of crystallinity are used widely for the analysis of bone, including the determination of the age of the material. It is possible to analyse bone samples using FTIR spectroscopy in order to differentiate between modern bone, possibly of forensic interest, and archaeological skeletal remains. Attempts have been made to examine the diagenetic changes resulting in variation of spectral peak ratios to determine the post mortem interval, however with little success. This study will apply these methods to bone of varying ages in an attempt to relate time since death to crystal change.

REVIEW OF THE 18th ANNUAL BABAO CONFERENCE, 2016

*Emily Carroll
University of Reading*

In 2016 BABAO's 18th Annual Conference was hosted by the University of Kent's School of Anthropology and Conservation. The event was held at the beautiful Woolf College located at their Canterbury campus from the 9th to the 11th of September, and played host to a total of 43 podium presentations and 76 posters.

For those who were able to arrive on the Thursday before the conference, the Skeletal Biology Research Centre and the Living Primates Group kindly organised a small networking event consisting of a stylish wine reception and a tour of the universities first class facilities. Attendees were lucky enough to see the kinds of research being conducted at the institute and get a feel for what life is like for the researchers at Kent University.

On the Friday morning, we were warmly welcomed by the conference support staff for registration and coffee. After receiving our BABAO goody bag, the conference started off with a friendly welcome from Professor

Charlotte Roberts and Professor Jim Groombridge in the Woolf College amphitheatre. The first session of the day entitled 'Bioarchaeology, Archaeological Science', focused on human life styles in recent human evolution through the analysis of hard tissue, which was interpreted within a broader cultural context. The Keynote speaker was none other than Clark Spencer Larsen of Ohio State University, who gave an insightful talk on the health and lifestyle of Çatalhöyük's Neolithic community. We then crossed the ocean to Britain where Jo Appleby and Jane Evens presented their research on cremation and mobility in the Early Bronze Age using newly developed analytical methods. Next, Rebecca Gowland and her colleagues took us forward in time to discuss the bioarchaeological evidence for pauper apprentices in the UK, and Nathalie Antunes-Ferreira provided us with an insight into the inequalities of post-medieval Portugal applying both funerary anthropology and palaeopathology in her research.

After a short break with particularly tasty biscuits, the talks continued with the theme of Bioarchaeological Science with Anwen Caffell and colleague's presentation on the Scottish Soldiers from the Battle of Dunbar, a particularly interesting case study of a group we previously know little about. We were then introduced to a case study from Thorton Abbey that examined pestilence and famine in the 11th century by Diana Mahoney Swales. The talks then turned to teeth! Megan Brickley and her team next gave a talk on rachitic teeth and detecting episodes of vitamin D deficiency. The day was then closed by Stacey Lander and her colleagues who presented their research on dental morphology and population relationships between Khosian and Bantu peoples of south Africa. This lead nicely into the poster sessions of the day, which were based around the themes of Dental Studies and Bioarchaeology, exhibiting the research of both students and academics alike over the last year. The evening was topped off with the BABAO Annual General Meeting where several matters were discussed and the new committee members were announced; this

was then celebrated by a lively reception held in the college atrium that was not short of either conservation or wine!

The next morning, armed with coffee to sooth any hazy heads from the night before, commenced with Primatology. This session focused on the study of non-human primates and how they offer a comparative perspective on our own biology, morphology, physiology, development and behaviour. A very interesting analogy for ourselves, the keynote speaker Louise Barrett from the University of Lethbridge kicked things off with her insightful talk on the social dynamics of monkey groups. Next Johanna Neufuss and her team took us from monkeys to apes, with their presentation on hand use and the characteristics of vertical climbing in wild mountain gorillas, which was nicely complimented by Tatyana Humle and her team's discussion on the use of stick tools by chimpanzees. Then, the tone changed as Adrian Lowes gave an interesting talk on countering the risk of infanticide from chimpanzee mothers. This was then followed to S.A.M Lemmers discussion on a comparative study of dental development in four non-human primates, and then a talk from Mark Skinner on the potential for evaluation infant orangutan health from dental markers.

After a lively coffee break were much was discussed and new acquaintances were made, the session entitled 'Evolutionary Perspectives on Human Behaviour' began. The respected Michael Gurven from the University of California acted as the keynote speaker and discussed whether atherosclerosis is inevitable based on research conducted in the Bolivian Amazon. Next, Sarah mayers and her team presented on postnatal depression, Andrew Millard gave a lively discussion on the meaning of weaning, and Andrea L Waters-Rist presented her research on Sychrontron-based x-ray fluorescence of strontium and calcium in dental enamel to examine breastfeeding and weaning practices.

A tasty and filling lunch was then served in the Woolf College atrium, where people had the opportunity to visit the posters and network. The session then continued with Arkadiusz Soltysiak's and Tina Jackobs taking us to the urban centres of northern Mesopotamia to talk about child abuse and infant sacrifice. This was followed on by Anne van Duijvenbode's very interesting presentation on the social ties of intentional cranial modification in the indigenous Caribbean. Jessica Bess and colleagues then moved things on to talk about the role of phenotypes and genotypes in assertive mating patterns in two human populations. The session was then closed by Rebecca Redfern with an impressive presentation from her team on the multi-disciplinary analysis of ancestry, mobility and diet in a population from Roman Southwark, London.

The afternoon continued with the session 'Palaeoanthropology, Palaeolithic Archaeology'. The keynote speaker for which was the renowned Matthew Tocheri from the Smithsonian Institution's National Museum of Natural History. He opened with a discussion on the biological anthropology and osteoarchaeology of Liang Bua, the type site of *Homo Floresis*. Our talks then returned to teeth as Kornelius Kupczik and his team followed with a discussion on tooth root morphology as a possible indicator for dietary diversity among South African Plio-Pleistocene hominins. Next, Ian Towel and co presented their research on the frequency of caries in early hominins and Victoria Lockwood and Matthew Skinner discussed the morphological variation in posterior femoral entheses in humans, chimpanzees, and gorillas. Tara Chapman and her team then presented research on the mobility of Neanderthals and how to make them move. We were then introduced to a new discovery by Tracy Kivell and her team concerning Neanderthal carpal bones found in El Sidrón, Spain. Tomos Proffitt and this team next presented a lithic analysis of a capuchin fragmented assemblage, and Adrián Arroyo and colleagues talked about nut cracking tools by captive chimpanzees and their comparison with pounding artefacts from Olduvai Gorge

(Tanzania). The day was then closed by Alstair Key and Stephen Lycet with their very interesting talk on the form and function of Acheulean hand axes, where they discussed their experimental research. The poster session for the day consisted on Palaeopathology, Archaeological Science and Forensics, and hosted a variety of different research topics.

That evening, the Annual Conference Dinner was hosted downstairs at the stylish Turing College. The vast dining hall allowed academics and students to intermingle, and the delicious three course meal was followed by the famous BABAO quiz! Very well done to the organising committee for hosting a rowdy crowd of knowledge enthusiasts!

On the final day of the conference, the open session was chaired by Patricia Bayle and was kicked off by Thomas Booth's scientific research on the use of micro-CT as a non-destructive method of analysing bone diagenesis and its application to the identification of Romano-British stillborn infants. Rosie Pitfield's then made things ultra-structural with her discussion on cortical histomorphometry in the human humerus during ontogeny. Christian Meyers next took us to Germany to talk about early 16th century dissections at Wittenberg. Next, Jenna Dittmar and Piers Mitchell presented their research on women and children in anatomical education in England from 1600-1900, and Simon Chapple and Patrick Mahoney discussed their findings on how tooth enamel biorhythm corresponds with modern human adult stature and body mass.

After the break the open session continued with Eleanor Dove and her team's presentation on Pre-Columbian syphilis in Europe with three potential cases from Medieval and Roman England. Felicia Fricke then took us back to the sunny Caribbean with her presentation on the osteology, ethics, theory, and practical side of her research. Luis Ríos and colleagues then proceeded with their discussion on children's health in the historic town of 19th Century Madrid, and Charlotte Hurst accompanied by Sophie Beckett

presented their interesting research on using computed tomography to examine neoplastic disease in Anglo-Saxon populations. Next Yun Ysi Siew brought us back to modern day life where she talked about whether it is applicable to use the discriminant functions derived from modern forensic samples to estimate sex in ancient skeletons. Jürgen van Wessel then closed the conference with their high-tech talk on the use of photographs to model large cemeteries in three dimensions. The last poster session of the event was based around the themes of human sexuality and reproduction.

Congratulations to everyone who presented at the 18th Annual BABAO Conference. It was an event filled with cutting edge research, exciting discoveries and new methodologies; a true testament to the quality of research produced by our BABAO members. This year the Jane Moore Podium Prizes went to Simon Chapple and Felicia Fricke for their brilliant and insightful talks, and the Bill White Poster Prize was awarded to Anna Barrett and Kayla Crowder for their creative and knowledgeable posters.

The conference was closed by Professor Charlotte Roberts and praise was given for making the 2016 event certainly one to remember. As the attendees filtered out of Woolf College, they had time to say their goodbyes and exchange business cards. A very big tank you to Kent Universities School of Anthropology and Conservation for hosting such a successful event, and I am very much looking forward to seeing you all at the next BABAO Annual conference in Liverpool.

OTHER CONFERENCE REVIEWS

Review of the 49th Annual Chacmool Archaeological Conference

Gina M.A. Carroll

"Be Part of the Energy" is not only the newest slogan for the thriving city of Calgary, Alberta, it is also an apt representation of the sentiment behind this year's Chacmool Archaeological Conference, hosted from

November 9th and 11th by the University of Calgary's Department of Anthropology and Archaeology. The Chacmool Archaeological Conference is North America's largest student-run conference, and every year it attracts presenters from around the world, all of whom feed off the energy brought to the venue by its hard-working undergraduate student organizers, and graduate advisors. This year's conference was all about the profane, the outlawed, and the prohibited – "The Archaeology of Taboo." This allowed presenters and participants to discuss a range of 'taboo' topics, including (but certainly not limited to) cannibalism, slavery, the social and symbolic use of alcohol, grave robbery, and the desecration of artifacts.

Fitting in with this year's theme of 'taboo', the conference kicked off with beer and a raffle for two tickets to Calgary's very own Naughty but Nice Sex Show. This not only set the stage for the general theme of the conference, but it reinforced the idea that taboos exist throughout space and time. This is an important concept not only for academics, many of whom have to set aside their own personal biases in order to present an honest review of both past and present societies but for the general public as well. What is taboo to you now, might not be taboo tomorrow. What is profane today, may be sacred to you in 50 years. The world, and its norms, mores, and sense of morality are, as all things, in a constant state of flux. In addition to breaking the ice, the Opening Reception, which was hosted by the Chacmool Archaeological Association, provided participants with an excellent opportunity to network with professionals, scholars, and students from across Canada and the United States, and in a handful of cases, across the world.

The conference had its official start on Wednesday morning when Bowdin College's own Dr Scott MacEachern spoke about the relationship between public archaeology and the proliferation of mainstream media bias towards archaeologists who 'keep the past to themselves'. His talk, entitled "Necessary Taboos? Alternative Networks of Discourse

and the Limits of Archaeology" behooved archaeologists to pay attention to the ways in which they are characterized by the general population, especially on social media networks where it is easy to claim that archaeologists keep information hidden from the general population for nefarious purposes. After a rousing discussion, Dr Silvia Bello from the Natural History Museum in London presented her talk, entitled "Prehistoric Cannibalism in Europe: 'Meat' the Humane Cannibals." As the title suggests, Dr. Bello's talk described how cannibalism was practiced by different species of European hominins over the last 1 million years, and highlighted the importance of recognizing cannibalism in the archaeological record. Dr Bello's talk also implored researchers to let go of preconceived notions that cannibalism is practiced only by those who are violently mentally ill, or who have no other choice, and to start viewing it as a funerary rite. An important method of remembering and honoring the dead, and keeping them within the community generation after generation.

After a quick coffee break, hosted by STANTEC and SPEARGRASS Historical Resource Consulting Inc. the talks continued, covering everything from the use of alcohol in slave societies, to the relationship between professional and academic archaeology. Similar themes were presented throughout Thursday, with a number of researchers from the University of Calgary discussing the importance of recognising and accepting bias in archaeological and anthropological research, and acknowledging that shades of gray are just as acceptable as black and white answers. In addition to oral presentations, Thursday highlighted the artistic and intellectual ability of its participants by hosting a poster competition. In a particularly refreshing turn of events, high school students from Davidson Day School in North Carolina presented several posters detailing archaeological projects with which they have been involved. This helped remind students and faculty alike that passion, when ignited at a young age, has the potential to create an entirely new generation of able-bodied archaeologists who will help guide the

discipline into the future. While a number of impressive posters were presented, this year's poster presentation was won by Doctoral candidate, Gina M.A. Carroll, for her research on the functional and phenotypic impact of basicranial hyperostosis, and cranial nerve paresis.

Conference proceedings wrapped up on November 11th – Remembrance Day. The major draw of the day was the session entitled “Taboo or not Taboo: Questioning Nicaraguan Archaeology”, chaired by Dr. Geoffrey McCafferty. This panel, which consisted of eight very talented speakers, considered the geopolitical repercussions of Nicaraguan Archaeology, discussing whether its lack of attention over the last 100 years was the result of an “unwritten taboo to avoid the subject”, and seek academic success in ‘sexier’ Central American locales. Presenters also discussed the moral and ethical dilemmas of the newly considered Nicaraguan canal, and the political, environmental, and social impact building the canal across the country would have on Nicaraguans. This extraordinarily interesting session was wrapped up by Dr. McCafferty's lovely wife Sharisse, who discussed the efficacy of field-schools, and whether they should be viewed as valid research experience of its participants, or be considered high-end babysitting for college-aged children looking to explore the world, and dig in the dirt.

Overall, this year's Chacmool Archaeological Conference was a huge success with all of its participants. While the conference was chaired by Holly Fleming, the real unsung heroes of the conference were the Graduate Advisors – Tatyanna Ewald and Emily Peschel. Both women worked tirelessly to help organize and run the conference and were the main go-to people during the conference's run. They were courteous, kind and helpful, and really highlighted the benefits of giving students the opportunity to create, organize and run an academic conference. Of course, this conference would also not have been possible without the support of the Faculty Advisors – Drs Charles Mather and Geoffrey McCafferty, and

Chacmool Archaeological Association – the heart and soul of archaeological volunteerism and undergraduate student representation at the University of Calgary, and the large number of individuals who volunteered their time throughout the course of the conference. Thank you to all those who helped run and organize this year's conference. It was a truly exceptional experience.

Working your fingers to the bone. An interdisciplinary conference on identifying occupation from the skeleton

Charlotte Henderson

*Research Centre for Anthropology and Health, Department of Life Sciences
University of Coimbra*

The “Working your Fingers to the Bone” conference held on the 6th to 8th of July, 2016 at the University of Coimbra, was organised by Charlotte Henderson (CIAS), Ana Luisa Santos (CIAS and Department of Life Sciences, Coimbra), Francisca Alves Cardoso (CRIA - Centro em Rede de Investigação em Antropologia), Sandra Assis (CIAS and CRIA) and Maria Alejandra Acosta (CEF and Laboratory of Forensic Anthropology, Coimbra).

The aim was to bring together researchers interested in disease, injury and other effects of occupations (in the broadest sense) on the human skeleton and dentition to improve the interpretation of these changes in archaeological and forensic contexts. Identifying occupation, task division and activity-patterns from skeletal remains past populations and using this to assist forensic identification, has been an alluring prospect in bioarchaeology (biological anthropology) from its earliest inceptions. Recent research has highlighted that the multifactorial aetiology of many skeletal changes previously used to identify activity-patterns cannot be applied simplistically. Discussion at the end of the conference led to the suggestion that “degenerative joint disease” or “degenerative joint change” should be renamed “joint change” to avoid implying a specific aetiology (namely degeneration). Details of

the conference content, including the programme and abstracts can be found on the website:

http://www.uc.pt/en/cia/events/Occupation_Conference_2016/.

This conference consisted of 5 keynote lectures, 23 oral presentations and 13 posters. Institutions from 19 countries were represented by the participants representing four continents: Europe, North and South America and Asia. A total of 83 people attended the meeting, 38 of whom were students. The keynote lectures were given by Cynthia Wilczak (San Francisco State University, USA), Sébastien Villotte (CNRS - Centre National de la Recherche Scientifique Researcher, University of Bordeaux, France), Duarte Nuno Vieira (Faculty of Medicine, University of Coimbra, Portugal), Helena Canhão (EpiDoC Unit, NOVA, Universidade Nova de Lisboa), and Geneviève Perréard Lopreno (Laboratory of Prehistoric Archaeology and Anthropology, University of Geneva) and focussed on bioarchaeological, clinical and forensic approaches to the study and interpretation of occupational skeletal changes. Cynthia Wilczak's attendance was funded by Fulbright Specialist Project #7146, which enabled her to spend two weeks in Coimbra giving two further lectures to the Department of Life Sciences and discussing projects with students and researchers.

In conjunction with this meeting a workshop training people in the new Coimbra method for recording enthesal changes was also run led by Cynthia Wilczak (San Francisco State University, USA) assisted by Charlotte Henderson and Maria Alejandra Acosta. Due to high demand (52 people attended) three sessions were held, including a session after the conference on the 9th of July.

FORTHCOMING CONFERENCES, COURSES AND WORKSHOPS

**Villes, sociétés urbaines et syphilis en
Méditerranée et au-delà
(XVIème-XXIème siècle)
Colloque UMR 7268 ADÈS Anthropologie
bio-culturelle, Droit, Éthique & Santé
(faculté de Médecine de Marseille),
Marseille, Faculté de Médecine
25, 26 et 27 octobre 2017**

With almost 500 cases diagnosed in France in 2015, syphilis has not disappeared yet. After decades of dormancy that followed the spread of treatment through antibiotics, the pale *Treponema*, which has been on a constant rise, is now emerging, and taking advantage of the slackening of STD prevention practices. On a local scale, the disease may even become epidemic (44 cases were diagnosed in Brive-la-Gaillarde in 2015 alone). Still, the current sanitary conditions are not comparable at all with those of the mid-19th Century, and not even to those of 1922 when, as reported by Virginie De Luca, “the commission on prevention of venereal diseases estimated they cost 140,000 lives” (stillbirths, abortions due to pathologies, infant or adult deaths) and caused a ratio of 1 sick adult out of 10. And yet, the “scourge of Naples” is still challenging society and medicine. The very nature of syphilis both frightens and fascinates. A shameful disease contracted in the intimacy of the bedroom, it has been questioning our societies for many centuries now, notably their morals, their capacity to medically and therapeutically innovate, as well as their arrangements for the enforcement of a public health policy or their will to assume an efficient healthcare policy. Although those questions are not recent, they remain deeply rooted in our relationship to the disease and to the bodies, which can be severely bruised in the third stage of its evolution.

Coming from ancient times, syphilis (along with other venereal diseases), maybe more than any other contagious disease, embodies the tensions of a world that started globalising from the 16th Century on, with a pace

quickening in the 19th Century. If we stick to Alain Corbin's description of "the composite image of the venereal peril, an unprecedented spectre whose original features [...] were to last until the mid-20th Century", we cannot but study a slowly-spreading epidemic whose dynamics Peter Baldwin situates between "prostitution and promiscuity" before shedding light on the "vague desire for control" that is attempting to superimpose on the dynamics of movement. Under the supervision of these two references made by historians, the main topic of this symposium is to propose a convergence between thoughts emanating from historians, anthropologists and doctors with a focus on the "shock" caused by the encounter of the pale *Treponema* with societies on a municipal scale, and particularly in harbour cities. We would like this symposium to be placed in the context of a global thought on Cities, Urban Societies and Syphilis in the Mediterranean (from the 16th to the 21st Centuries), without excluding the propositions that would go beyond this strict geographical context. Therefore, the symposium aims at combining a multiplicity of contexts (colonial, metropolitan, *etcetera*) and a long-time perspective with the contemporary experience of a growing syphilis epidemic.

The symposium's epistemological choice is to propose miscellaneous views and approaches. Joint analyses of historical and biological archives reveal the need for patterns of diffusion and expression of syphilis on the scale of a city, a merchant harbour or a military one. The paleopathological and archeothanatological evidence is scarce in the modern and contemporary periods, notably concerning Mediterranean shores, thus they do not allow either grasping or supporting the sociological and anthropological context that shrouds the cases of persons struck or killed by "smallpox". On the long term, and logically, the paleopathological and historical debate on the origins of syphilis seems to have remained a central question. Far beyond the question of its origins, the contributions to the symposium are expected to propose extensive readings of the relationship between syphilis and harbour societies. This

symposium is therefore unusual in its ambition to initiate a dialogue between diverse subjects (medicine, epidemiology and public health, history, geography, funeral anthropology, social anthropology, sociology) on a single topic and in a common scope.

The symposium will be articulated in 3 sessions aiming at documenting and giving useful information about the spread of the disease on the scale of a city, a harbour and notably a Mediterranean territory. In the concern of comparing the ways of diffusion as well as the sources, contributions about other geographical areas will obviously be welcome, as long as they concern a municipal scale or harbour context (be it civil or military) or if they deal with enclosed spaces (like enclaves or geographically, culturally or socially-isolated populations).

The symposium will start with communications dealing with very contemporary medical issues (Session 1 - Cities, Urban Societies and Syphilis in the Mediterranean: Current Medical Data). These contributions will be based on issues linked with the diagnosis and the epidemiology of syphilis, with the methods of prevention and the way public health policies get down to work, or with the available therapeutic solutions. The symposium will then move on to diachronic perspectives (Session 2 - Cities, Urban Societies and Syphilis in the Mediterranean: Historical Context and Medical-historical Inferences). To finish, the anthropological dimension will be taken into account (Session 3 - Cities, Urban Societies and Syphilis in the Mediterranean: Anthropological Approach). Beyond the paleopathological and archeothanatological contexts, this final session will try to broach the evolution of social constructions or the field of the different representations of the disease.

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Don Brothwell's Research Publications

(in bold are books authored/edited)

Charlotte Roberts

Durham University

N.B.: There does not seem to be a complete list of Don's publications anywhere. Therefore, I have consulted many sources to create this list, including bibliographies in his books. I cannot guarantee I have included absolutely everything, but if anybody out there knows of missing publications, I would be grateful to hear about them!

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