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WELCOME TO THE ANNUAL REVIEW
FOR 2015

Ronika K. Power
University of Cambridge

Welcome to the BABAO Annual Review for 2015! It's hard to believe that another year has flown by, but upon reading all the wonderful reports contained herein, it is no surprise that 12 months evaporated so quickly... We are a very busy association, indeed!

One of the key moments of 2015 was undoubtedly our change of leadership. I am sure I speak on behalf of the membership when I extend warm thanks to Piers Mitchell for all his hard work during his Presidential term from 2012-2015. I also join the chorus of members to extend a heartfelt welcome to our new President, Charlotte Roberts, Professor in the Department of Archaeology, University of Durham.

This edition of the Review is bursting with the news, progress and accomplishments of our members at all levels of engagement with Biological Anthropology and Osteoarchaeology. I'm sure you'll agree that we have outdone ourselves, yet again! Our members and Departments are to be commended for continued excellence in teaching, research and professional practice.

In the Call for Contributions for this year's Review, we asked for members to share experiences of outreach and impact of their work across the broader community. The range of activities being carried out under the flag of Biological Anthropology and Osteoarchaeology is astonishing, as is the cross-section of communities touched by members' work across the country and indeed, the globe. From local and national platforms within the UK, our members are working with school groups and adult learners to teach and promote osteology at fairs, festivals, museum events, public lectures and courses; with local communities to explore their heritage; and with all modes of traditional, online and social media. On a global scale, biological anthropologists are

having profound impact in addressing poverty and its associated conditions of ill health; and our members are working and sharing with local communities through public lectures, knowledge exchange programmes and field schools across the world.

Indeed, submissions to the Review should be valued for their own impact potential, seeing as they educate and inspire members of our own community about the vast spectrum of work carried out across our disciplines. In an increasingly time-poor culture, the efforts invested by all contributors featured in this document are infinitely appreciated. We all benefit from getting to know you and your individual and collective research interests a little better each year.

ASSOCIATION NEWS

President's Column

Charlotte Roberts
Durham University

First, I would like to thank Piers Mitchell for all his hard work for BABAO as President over the last three years. After having voted me in as your next President, I hope I can live up to your expectations. I certainly have a great and hard working committee to support me! I should also not forget to thank other hardworking outgoing committee members (Jo Buckberry, Linda Fibiger, Gundula Müldner, Tim Thompson, and Stefanie Vincent).

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 organisation, 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: Student Representative, Representative from a Museum, and Representative from a Professional Organisation. Very soon there will be job descriptions posted for each committee member on the website so you can see what each post entails. Please consider

standing. This brings me to the website. Dave Errickson, our Publicity Secretary is working hard with a major revamp of our website; without going into details, we should in the not too distant future have a fully functional and up to date site.

Another wonderful Annual Conference was enjoyed by many very ably hosted by the University of Sheffield (Pia Nystrom, Diana Swales, Jennifer Crangle, Alison Atkin and a team of student volunteers (see later for a full report). Organising the annual conference is no mean feat, but I am pleased to say that the next two conferences are well in hand. Patrick Mahoney is coordinating the 2016 conference in Canterbury, Kent (University of Kent: 9th-11th September), and Joel Irish, along with Isabelle de Groote and Constantine Eliopoulos will host the 2017 conference at Liverpool John Moores University (8th-10th September). We are close to also announcing the 2018 conference venue! Many thanks to all who have agreed to do this very important task.

Finally, a tremendous thanks should go to Ronika Power for pulling this Review together, and to all of you who have contributed. It's a great publication that shows how active our members are out there in the world of biological anthropology and osteoarchaeology. Again, this effort ultimately relies on you to "produce the goods"!

Best wishes for the rest of 2016, and see you in Canterbury in September.

Report from the Membership Secretary

*Anwen Caffell
Durham University*

The former membership secretary, Stefanie Vincent, stood down at the AGM in September 2015 after five years of service. I would like to thank her for all her hard work in that time.

Membership numbers stood at 484 at the end of 2015, which is a slight increase from our

477 registered members at the end of 2014. Half our members were students (240, 49.6%), and most of the remainder were employed (201, 42.5%), which is roughly in line with previous years. The remaining members were unwaged (34, 7.0%), or retired (9, 1.9%).

Those members who had specified an occupation were grouped into broad categories (see Membership Categories, below); note that these figures include some unemployed and retired members. Members working in academia formed the largest subsection, and included lecturers, post-doctoral researchers, and other teaching/technical support staff. Almost as many members were working in the commercial sector (74), assuming that all members who defined themselves as archaeologists or osteologists/osteoarchaeologists 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:	80	(37.2%)
Osteologist:	37	(17.2%)
Archaeologist:	31	(14.4%)
Osteologist/Archaeologist:	6	(2.8%)
Forensic:	15	(7.0%)
Medical:	12	(5.6%)
Museum:	12	(5.6%)
Other:	22	(10.2%)

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.

We recruited 90 new members during 2015, in comparison to 85 during 2014. The number of overseas members has remained constant since 2014, numbering 111 and making up 22.9% of our membership at the end of 2015. The majority of our overseas members come from Europe (71, 64.0%), but we also have members from the Americas (28, 25.2%) and

other areas including Australia, New Zealand, India and South Africa (12, 10.8%).

During 2015 we continued to be unable to accept online payments via our Pay Pal service. This method of payment was popular in the past (77% of members paid online in 2012), especially with our members who do not have UK based banking. I am pleased to announce that (thanks to Gundula Müldner's tireless work last year) we have been able to reinstate PayPal as of the 4th of January 2016. I will be in touch with those members who were waiting for PayPal to be reinstated to arrange payment of their backdated fees in due course.

Please do not hesitate to contact me if there are any questions regarding BBAO membership, either at the address inside the front cover of the Annual Review or through our website at www.babao.org.uk.

Report from the Grants Secretary

*Karina Gerdau-Radonić
Bournemouth University*

In 2015, the committee awarded three grants. For the commercial sector, Paola Ponce, Archaeology South-East (Contracts Division of UCL Institute of Archaeology), was awarded a £1500 grant for her project *Diagnosing Legg-Calvé-Perthes Disease in Human Skeletal Remains*. Two General Grants were awarded, the first one, for £1000, to Vitale Sparacello, Junior Research Fellow at Durham University, for *A New Case of Neolithic Tuberculosis from Liguria, Italy: the Pollera 21 Child*, the second one, for £855, to Edouard Masson-MacLean, PhD candidate, University of Aberdeen, for *New Methods to Solve Old Problems: Identifying Salmon and Trout Vertebrae Using Geometric Morphometrics*.

Project summaries

1. Dr Paola Ponce, Archaeology South-East

Diagnosing Legg-Calvé-Perthes Disease in Human Skeletal Remains

This project will present and disseminate the results of two cases of Legg-Calvé-Perthes disease (LCP) from a post-medieval site, the Queens Chapel Savoy, London and will provide guidelines for identifying the condition in human remains. The uniqueness of LCP disease is its low incidence, only affecting 1:10,000 paediatric patients. The condition is triggered by a traumatic disruption to the blood supply of the femoral head, resulting in a permanent deformed "mushroom-like" appearance of the femoral head. Due to its rarity, varying degrees of preservation and completeness of human remains, and the fact that the condition might be unrecognised by many archaeologists, the palaeopathological evidence of LCP disease is scarce.

2. Dr Vitale Sparacello, Durham University

A New Case of Neolithic Tuberculosis from Liguria, Italy: the Pollera 21 Child

Tuberculosis is a re-emerging disease that has its roots in our distant past. Burials from Liguria (north-western coast of Italy) have yielded some of the earliest skeletal evidence of tuberculosis in the world: an adolescent from Arene Candide cave, and an adult woman from the Arma dell'Aquila cave. During a recent re-assessment of the material from the nearby Grotta Pollera cave, we discovered that an infant, about 5 years old, bears skeletal lesions that strongly suggest tuberculosis infection. Given the rarity of ancient tuberculosis lesions, especially in infants, this project proposes to carry out dating and molecular analyses on this important finding.

3. Mr Edouard Masson-MacLean, University of Aberdeen

New Methods to Solve Old Problems: Identifying Salmon and Trout Vertebrae Using Geometric Morphometrics

Pacific salmon and trout (*Oncorhynchus spp.*) have been an important resource for populations of the North Pacific and Bering Sea coasts of North America for thousands of years and represent a critical resource. As a result, their fossil remains, mainly comprised

of vertebrae, are frequently recovered from archaeological sites. However, it is impossible to identify *Oncorhynchus spp.* vertebrae to species using traditional osteological comparative methods, thus preventing researchers from addressing important subsistence selection, archaeological and environmental questions related to the particular species exploited. This project aims to use geometric morphometrics (size and shape analysis) to solve this identification.

Report from the Student Representative

Simone Lemmers
Durham University

Another year has flown by during which we had many new students join BABAO. For those of you have just joined, the BABAO students form a very important part of our association, both in numbers as well as contributions. During our annual conference, the student members take part in podium and poster presentations displaying their work. The last two years, we had a small Pre-Conference student pub gathering. Since this evening is a great casual moment to chat with fellow student members before the whole conference madness started, and a welcome event for those who arrived early to the hosting town, we plan to keep this tradition going in the upcoming years.

Apart from our annual conference, our student members are also actively present via the digital branches of association, consisting of our Facebook group and forum (currently almost 300 members). Within these groups we exchange information about funding opportunities, upcoming conferences and workshops, museum exhibitions, publications and new discoveries in the field. If you would like to become a part of the Student Facebook Group, visit our page at <https://www.facebook.com/groups/20007038661/> and the student forum can be found via this link: <http://babao.proboards.com>. We are currently on the edge of getting our official BABAO website rejuvenated, which will also find its links in student communication improvement. It is our hope that in the next

few years this communication facility will continue to improve. I will keep you posted on the developments!

This year, the membership fees had to be increased unfortunately, but luckily we have been able to keep the student membership fees fairly low. Please keep in mind that with being a member, you can also apply for a BABAO grant. We received some great applications last year, but unfortunately we had to reject a lot of interesting projects because forms were not filled in correctly. So when you do apply for a grant (and I encourage you to do so!), please make sure to read and follow the instructions carefully!

As always, please so do not hesitate to contact me with any questions or suggestions regarding any student-related matters. You can contact me via the Facebook page, or by email: s.a.m.lemmers@durham.ac.uk

PEOPLE

Jonny Geber took up a 5-year post as Lecturer in Biological Anthropology at the Department of Anatomy, University of Otago in New Zealand in October 2015.

In January MOLA was pleased to welcome Niamh Carty and Elizabeth Knox to the osteology team at MOLA. Both have primarily been working on the *Crossrail Broadgate Ticket Hall* project.

PROJECT NEWS AND UPDATES

HOT Project

David Gonçalves

*Research Centre for Anthropology and Health
University of Coimbra, Portugal*

The objective of the *HOT Project* (www.hotresearch.wix.com/main) is to improve our understanding of the effect of heat on bone and teeth and to improve practices regarding the examination of burned human skeletal remains. In order to do that,

skeletons from the CEI/XXI identified skeletal collection housed at the University of Coimbra are being partially burned under laboratorial conditions to document heat-induced changes and to allow developing and testing new methods.

Transitions in Prehistory: Subsistence and Health Change in Northern Chile

Andrew Millard (Durham University), Sian Halcrow (University of Otago), Bernardo Arriaza (Universidad de Tarapaca, Chile), Vivien Standen (Universidad de Tarapaca, Chile), and Charlotte King (University of Otago)

The transition to agriculture marks a critical tipping point in history, precipitating a radical departure from the preceding 2.5 million years of human life. This newly acquired mode of sustenance affected every facet of society including social complexity, technological innovation and settlement patterns. Human skeletal remains provide the only direct evidence for assessing responses to the development of agriculture. Despite the advantages of food security, the model of prehistoric health change during this transition posits that there was a universal negative effect on human well-being. However, recent work indicates that the patterns of biological response to the development of agriculture are far more complex than originally thought. We now have an unparalleled opportunity to test this model of health change with exceptionally large and well-preserved skeletal samples in northern Chile. We will strengthen the model of health change by documenting dietary and health evidence, employing new approaches to study diet and a comprehensive array of accepted macroscopic methods. This project represents a unique opportunity to advance our understanding of the origin and complex processes of human biological changes during a seminal event in history, one that has far-reaching consequences for our society today.

Linenhall, Chester

*Carole Davenport
Contract Osteologist*

The *Linenhall Project* in Chester is underway, with the first phases of excavation to preserve the archaeological record producing material dating from Roman to recent periods. To date a total of 20 individuals have been recovered from the Greyfriars site, with the possibility of further individuals being recovered in the next phase. Analysis on the skeletal material is being undertaken by Carole Davenport in conjunction with Liverpool John Moores University. The material is expected to be included in several ongoing projects prior to reburial in August 2017. The site report and publication dates will be confirmed once all material from the site has been recovered.

The Archaeological Consultant for this project is Nexus Heritage, with LP Archaeology as the Archaeological Contractor. This project is funded by Stephenson Developments and benefits from the cooperation of the Society of St. Francis.

MUSEUM REPORTS

Centre for Human Bioarchaeology Museum of London

Jelena Bekvalac

It was a pleasure again in 2015 to welcome numerous researchers to the Centre for Human Bioarchaeology (CHB) to carry out their studies using the curated collections at the Museum of London (MoL) and the important biographical collection retained in the crypt at St Bride's church, Fleet Street. The CHB assists the team at St Bride's with curation of the remains and access for research, with the Rector and church team always very interested and supportive of all the research that takes place in the confines of the crypt.

The crypt had a number of different researchers over the course of the year and saw the return of students and Roland Wessling from Cranfield University to

continue with the ongoing and innovative project *ViSA (Virtual Skeletal Analysis)* with the 3D scanning of the pelvis and mandibles. In the summer further radiography of the individuals took place in the crypt with Katherine Van Schaik, a PhD student from Harvard Medical School and Harvard University Department of Classics; Institute of Evolutionary Medicine, University of Zurich working on a collaborative study with Frank Rühli, Director, Institute of Evolutionary Medicine, University of Zurich, investigating the extent to which osteological and morphological pathology are correlated with age. Reveal Imaging Ltd were hired for use of the portable digital radiographic kit to carry out radiography of the targeted skeletal areas to aid in addressing a number of questions relating to disease burden and age. The project is ongoing with the radiological analysis in combination with the recorded osteological data and historical data for age at death with the aim for results that will have direct implications in light of the third epidemiological transition. An additional boost to research study was the splendid news that Katie's application for a Wellcome Trust Small Grant had been successful, which would enable further radiography and working with a statistician for the project.

We were delighted to be informed that Olivia Kielbasinski-Podlaszewska a biomedical student from St George's Hospital, London had won the prize for best poster (*The Innominate Tubercle – a Survey of Variability in an Archaeological Skeletal Population*) at the winter meeting of the British Association of Clinical Anatomists held at St George's. The research that Olivia undertook was based on the crypt individuals, "... to examine the variability of the tubercle in an archaeological skeletal population (18th to mid-19th century), located at St. Bride's Church, London. Differences in morphology were analysed in relation to femoral side, sex, age, femoral length, femoral neck length, and femoral neck-shaft angle. Results are intended to provide DAA surgeons with data on whether the innominate tubercle provides a reliable guide during surgery, and if there are any variables affecting the size of the

tubercle." Olivia will be writing up the results for a publication and we are so pleased that analysis based on an archaeological collection can have the potential to have a directly positive outcome to a modern surgical procedure.

With the curated collections held at the museum, as in previous years there has been a wide range of research projects undertaken on all the skeletal remains for undergraduate studies, masters' dissertations and PhD theses by students from national and international institutions. The research projects incorporated analysis of the Roman, Medieval and Post Medieval collections investigating areas including growth and development, growth variation in non-adults (Claire Hodson, Durham University PhD student), pathologies, stature and body proportions, the impact of corsetry, dental structure anomaly of enamel production (Dr Garot, Bordeaux), periodontal disease (Ruqayah AlMutairi, Masters student Queen Mary University, Barts, and the London Dental School), treatment and care in non-adult skeletal remains from late medieval to Renaissance (Benn Penny-Mason, Durham PhD student) and metrics investigating sexual dimorphism of zygapophyseal joints of the vertebrae (Carolyn Felton, Southampton University PhD student). We always enjoy having researchers with us and learning from them about their comprehensive and diverse research projects. We will miss engaging with them in person at the Centre while we go through the strategic process of the museum relocation but look forward to meeting more in the future.

The 2015 PPA and AAPA conferences were held in St Louis, USA and I was fortunate to be able to attend the conferences to present at the PPA and AAPA. At the PPA the presentation discussed the continuing collaborative research with Gaynor Western and Mark Farmer on hyperostosis frontalis interna and for the AAPA I was delighted to have been invited by Madeline Mant (Chair) to contribute to the Invited Poster Symposium *Beyond the Bones: Engaging with Disparate Datasets*. The theme of the session was "The

crucial interplay between new technologies and traditional approaches to anthropology... to illustrate and promote a discussion of the problems, limitations, and benefits of drawing upon and comparing datasets, while illuminating the many ways in which anthropologists are using multiple data sources to unravel larger conceptual questions in anthropology". It was a lively and engaging session with interesting interactions and discussions amongst the participants and those attending, seamlessly brought together by the discussant Dr Carolina De La Cova. The hard work and enthusiasm of the organisers was much appreciated and all received the good news that the session will be published as a collection of papers from the poster presentations bringing together the theme of the session.

In April of 2015 I was delighted to receive the exciting news that the grant application applied for with Gaynor Western and Mark Farmer to the City of London Archaeological Trust (Rosemary Green Grant) had been successful. With the generous award it will enable the three-year funding of the research project *The Impact of Industrialisation on London Health*. The project will investigate the impact of industrialisation on health based on archaeological skeletal human remains using modern clinical imaging technologies. A major component of the project will be the application of digital radiography, with the radiography of targeted elements of ca. 2,500 selected adults from the medieval and post medieval periods, from London cemeteries and those outside of London from non-metropolitan sites. They will enable a comparison in geographical terms and across the time periods, for investigating disease patterns from the past and up to the present to aid in answering the question. At the end of the project the resultant radiographic images, taken following the clinical standards of Digital Imaging and Communications in Medicine (DICOM) will be available to share through the CHB website.

In May we participated in the well-organised and presented research seminar: 'Designing a Research Framework for historic (1066–

1900) burial grounds in Greater London'. It was organised in conjunction with Historic England and Allen Archaeology and convened in the Clore Learning Centre, Museum of London. It was ably led by Natasha Powers and Jane Sidell for the gathered participants to consider the areas listed for debate with the resultant feedback available on line <https://content.historicengland.org.uk/content/docs/planning/draft-research-agenda-historic-burials-london.pdf>. We were also invited to participate in three MoLA organised seminar series funded by Wellcome with a focus on London, considering the Roman, Medieval and Post Medieval periods. The sessions provided an opportunity for stimulating discussions with a rich mix of participants from a spectrum of fields. The resultant discussions were minuted and it is anticipated that there will be a report in the future.

The Centre ran a number of higher education study days with the Black Death always a popular topic for groups of Masters' students, students from the USA, and attendees of the South Devon Higher Education College. For younger individuals I visited St James School for Girls with some of the teaching collection to run a science club session and also returned to be an invited speaker for their Minerva talk. We continued to participate as part of the sessions for the After School Club for the City of London School Girls and took part again in the *Public Health Through Time* study days for GCSE students studying History of Medicine. With the success of the After School Club and the keenness of the girls when learning and interacting with the skeletons, a 'Young Osteology Group' has been developed. For this first instance it will be to prepare the small group of girls for a Take Over day at Guildhall to engage with the visitors about excavations in the area and the skeletal material revealed.

Further involvement with school pupils continued when I was invited by the Youth Programme Officer at Wellcome Collection to participate in the Wellcome *Bodies of Knowledge* study days programme and was able to run an osteological-themed session as

part of the programme for study days each term for secondary school pupils. The CHB participated in the Roman and Prehistory 'A' Level study days organised by our colleague Kath Creed at Mortimer Wheeler House, with rewarding days with the school pupils having an opportunity to consider primary sources and actively engage with archaeological artefacts. As part of the Festival of Archaeology with a Roman theme we engaged with a mixed audience of children, families and adults - all most intrigued and fascinated with the Roman skeletons and learning of the ongoing research with Rebecca and colleagues. For active and keen youngsters I had a fun time with the Fulham Palace Young Archaeologists running an osteology session on a Saturday morning. They were a super group and completely absorbed by the wonderful world of bones and skeletons, certainly some future biological anthropologists.

Throughout the year Rebecca and I were out and about spreading the word of the CHB and research projects on the collections, talking at local history and archaeological societies, Friends Groups, conferences and teaching courses. For the Museum Friends Group I spoke about dental interventions found in the collections, entitled "Dental Delectations" and at the end had a group all keen to look after their teeth well! I had the pleasure of speaking as part of the *Save Norton Folgate* programme talking about the excavations at Spitalfields market and was again able to speak about these remarkable excavations and skeletal remains as an invited speaker for the *Spitalfields Huguenot Summer Project*. As last year I 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. Rebecca was an invited speaker at a war conference in sunny Seville talking about research on Roman skeletal remains and spoke in Cambridge at the Centre for Research in the Arts, Social Sciences and Humanities (CRASSH) conference about research into the Black Death. We participated in the Global Medieval conference and presented a paper on monastic health from collaborative published work with

Rebecca and Sharon De Witte. As part of the commemorations for the 350th anniversary of London's Great Plague of 1665 I was delighted to have been invited to speak at the 'evening event of lectures and displays exploring London's great plagues' organised by the Royal College of Physicians entitled "This calamitous year: Plague, doctors and death". It was a compelling evening and I learnt a great deal from the displays and other speakers Katie Birkwood, RCP rare books librarian and Stephen Porter.

We were again involved in a number of media outputs, including filming about the ongoing excavations in light of the Crossrail project and Rebecca being filmed and recorded for radio by Pallab Ghosh in light of the important research on the Roman skeletal collections. The Roman collections were also centre-stage for two exhibitions at the museum. Firstly, *Glory and Gore*, based on the collaborative analysis and research published by Rebecca and Heather Bonney, NHM, of the skulls of five males discovered in close proximity to Guildhall and the location of the Roman amphitheatre. The more recent *Written in Bone* exhibition highlights the continuing ground-breaking collaborative research based on the Roman collections and shares exciting results from the ancient DNA and stable isotope analyses.

In September we both had the pleasure of attending the BABAO annual conference in Sheffield and thoroughly enjoyed the enthralling variety of presentations and associated workshops. Having been fortunate to receive the BABAO 2014 commercial grant it was possible to present "The impact of industrialisation on female health: Understanding the aetiology of hyperostosis frontalis interna", discussing the output from the grant and the opportunity it enabled to digitally radiograph 50 crania from Christ Church Spitalfields and micro CT scan six of them to further enhance the research in to hyperostosis frontalis interna (HFI) with Gaynor Western and Mark Farmer. Rebecca with Madeline Mant, McMasters University, Canada, presented a poster "Executed Witch from Lundenwic?", with their recent findings

from analysis of the remains of an adult female, discovered on the Thames Foreshore in 1995, believed to have suffered the fate of Anglo-Saxon capital punishment with evidence of multiple blunt force trauma injuries. We were also pleased to be included with Megan Brickley in the podium presentation of the ancient DNA work carried out by Helen Donoghue, UCL, on individuals from the Cross Bones burial ground, "Molecular evidence of tuberculosis from mid-19th Century human remains without typical palaeopathology, from the Cross Bones burial site, Redcross Way, London".

Throughout the year we spent many hours and days in the glorious rotunda store with the skeletons and there were several occasions throughout the year of 'Behind the scenes tours of the rotunda' for a variety of groups. They proved to be incredibly popular and those able to attend were amazed by the sheer scale of the skeletal collections, how much can be learnt from them and fascinated to have the chance to literally walk through time with the people of the past. Continuing the theme of sharing the thrill of working with skeletal remains the CHB again supported BABA0 at the London Anthropology Day held at the British Museum in July. I had an enjoyable day shared with Tim, Stef and Gundula to encourage the participants to consider studying within the wide-ranging field of biological anthropology and highlighting to them the many benefits of joining BABA0.

The Wellcome exhibitions team, CHB and Museum of London are working together again and will continue to do so over the next three years in relation to the *Skeletons: London Buried Bones* exhibition that was shown at Wellcome in 2008, with the outcome for it to go on tour and have a regional flavour. There will be three exhibitions in different parts of the country over three years, each comprising of ten skeletons being a combination of those excavated and displayed in London and others from regions in association with the venue location. It is a great opportunity to be able to work with Wellcome again and for the

popular exhibition to be reinvigorated and shared with new audiences.

Work has been going on with the web team for the migration of the CHB website to a new MoL website framework. It is anticipated that this will be live in spring and as such the CHB website will look different but we have striven to keep all of the information in place and the data all accessible as before. The advantages for the CHB will be that it will be possible to add and update the information and cemetery sites. There will probably be some teething problems and if you should encounter any after it does go live, do please contact us so that we can help and also alert our web support team to rectify them.

The museum continues with the big strategic plan of moving to a new location at the old general market area of Smithfield Market and as such with this plan in place, the resultant work necessary for the Centre means we unfortunately will be unable to support external access for research to the collections. However, all of the osteological data that is currently on line will be available and sites where it is not yet on line we can assist with sharing that data with excel sheets. We will happily support and assist all studies that we can with data from the database, our other digital resource archives and any other pertinent information about the cemetery sites. It will be a time of considerable change and certainly challenges with the tasks involved for the skeletal collections but equally an exciting time. We look forward to the future and a new Centre that will continue to welcome and support researchers with their fascinating array of studies for many years to come.

Museums of the Royal College of Surgeons of England

*Hayley Kruger
Carina Phillips*

Work on a collections and significance review of the museums, archives and library at the RCS continued throughout 2015. The review, which is funded by the Arts Council, is

looking at how collections at the RCS are used, stored and managed and their potential for teaching, research and public engagement. Throughout 2015 the review highlighted some of the more unusual and interesting objects in our collection, including the skull of the bear that inspired Winnie-the-Pooh! (see Odontological Collection Section below)

The Hunterian Museum

In 2015, the Hunterian welcomed nearly 85,000 visitors. Our major exhibition was *Surgeons at Work: the Art of the Operation*, which focused on representations of surgeons and surgery across the centuries from portraits to reportage drawings and even satirical cartoons. In November an exhibition *Designing Bodies: Models of Human Anatomy from 1945 to Now* opened and this focused on the creation and use of 3-dimensional models in surgical teaching and training – particularly on innovative models developed by past and present RCS staff.

We continue to offer UK schools opportunities to engage with our collections through free guided tours, *Medicine Through Time* sessions to support the history GCSE module, and our ‘Cutting Edge Careers’ Surgical Skills sessions for students planning to study medicine. These sessions enable us not only to support the next generation of medical students, but also connect with the current generation who generously volunteer their time to teach basic surgical skills at these workshops.

We also continue to work with our fellow colleagues from the engagement team at the Royal College of Pathologists who provide pathologists and microbiologists to deliver family sessions on microscopy, ethics workshops for schools on the concept of medical consent and a new session ‘Where’s My biopsy’ based in the Wellcome Museum that provides medical students with an insight into the processes involved from taking a sample to eventual diagnosis.

Find out more at: www.hunterianmuseum.org
or email Hayley Kruger:
hkruger@rcseng.ac.uk

The Wellcome Museum of Anatomy and Pathology

The Wellcome Museum of Anatomy and Pathology supported 5000 scientific and medical visitors and researchers in 2015. The museum displays specimens of human tissue dissected to demonstrate anatomical and pathological structures. The pathology collections in particular have been used by various researchers in the last year. A majority of the collections are of modern date and therefore covered by the Human Tissue Act. For more information or to book a visit to the Wellcome Museum of Anatomy and Pathology see:
www.rcseng.ac.uk/museums/wellcome.

The Odontological Collection

The Odontological Collection is composed of over 11,000 specimens, both human and animal, which demonstrate a wide variety of dental development and pathology. It comprises largely of cranial remains, but has a smaller number of post-cranial remains and skeletons. Approximately 3,000 of these specimens are archaeological in origin. The collection can be viewed using our online catalogue SurgiCat:
<http://surgicat.rcseng.ac.uk>. Throughout 2015 the Odontological Collection continued to be used by a number of researchers.

Towards the end of last year the collections review highlighted one of the Odontological Collection more unusual specimens, the skull of the bear that inspired the creation of Winnie-the-Pooh. The bear, known as Winnipeg (Winnie for short) lived a lot of her life at London Zoo. It was here that author A.A. Milne and his son Christopher Robin visited Winnie. After her death her skull was donated to former Curator of the Odontological Collection, Sir James Frank Colyer, who was researching dental diseases in various animals. Winnie was over 20 years old when she died and had lost all her teeth due to chronic periodontitis. Her skull is now on display in the Hunterian Museum.

Please contact Carina Phillips via cphillips@rcseng.ac.uk if you would like further information about using any of the collections at RCS for study and research.

EXCAVATION AND ANALYSIS OF HUMAN REMAINS IN 2015

MOLA **(Museum of London Archaeology)**

Don Walker

Department reports

MOLA osteoarchaeology blogs can be found on the organisation website:

<http://www.mola.org.uk/blog/osteoarchaeology>

MOLA Facebook and Twitter features #OsteoWednesdays where images of pathological lesions and other changes of interest are displayed and briefly described.

<http://twitter.com/MOLArchaeology>
www.facebook.com/MOLArchaeology

MOLA ran a series of Wellcome Trust funded research seminars on urban health in London: 1. *Londinium: a proxy for health in modern developing countries?*, chaired by John Pearce, King's College London; 2. *The medieval city: famine, pestilence and death*, chaired by Don Walker, MOLA; 3. *The post-medieval metropolis: industrialisation and enlightenment*, chaired by Richard Barnett, Wellcome Trust. A number of BABAO members kindly contributed.

Ex-diagnostic radiographer David Allan has continued his volunteering work in 2015, reviewing and cataloguing the MOLA digital radiograph collection in preparation for inclusion on the Oracle database.

Outreach/Impact

As part of a MOLA 'Archaeology in Schools' project, funded by a COLAT grant, Michael Henderson has been running osteology workshops in several schools in London. The project aims to reach primary school age children from diverse communities in selected boroughs who may have fewer opportunities

than others to visit museums and engage with local history. The sessions are related to the National Curriculum and the history and archaeology of the local area and we hope to expand this project further in the future.

Don Walker gave talks for Gresham College and Birkbeck Archaeology Society on St Mary Spital.

Excavation and contract work

In 2015 MOLA osteologists were heavily involved in the main phases of archaeological work at Liverpool Street Station for the new Crossrail Broadgate Ticket Hall. This was the site of the New Churchyard, also known as Bedlam burial ground, in use between the 16th and 18th centuries. The burial ground served as an extramural overflow cemetery for the poor and non-conformists. All four osteologists were present on site to advise on the excavation and to assess the skeletons. Following assessment, 792 skeletons were selected for full analysis. Combining these with recorded burials from previous excavations will provide a sample of more than 1200 skeletons from a period for which there is currently little osteological data from London. The majority of burials are 17th century; a period associated with severe plague outbreaks, and it is hoped that DNA analysis will provide important information on the evolution of *Yersinia pestis*. Roman remains from the site include a minor road, decapitated burials and fluvial deposits containing large numbers of human crania.

Work continued on the site of Maidenhead United Reformed Church, formerly the Congregational Church. MOLA osteologists assisted in the excavation and assessment of the 19th-century non-conformist burial ground. Eight brick-lined vaults and five earth-cut graves were located during the 2015 excavations. A total of 26 articulated skeletons were recovered. The identities of three skeletons have been established from coffin plates and burial records. This work continued that of previous excavations carried out on the east side of the chapel in 2014 which recovered 44 individuals.

Work also continued on the assessment of 355 individuals from the Baptist burial ground at Mare Street, Hackney. Coffin plates were associated with 137 burials. This together with information from *ca.* 50 death certificates will provide important evidence to compare with that from the osteological study at full analysis.

Excavations at St Bartholomew's Hospital uncovered 12 Roman burials, two of which were accompanied by coins and one with a finger ring.

MOLA osteologists assisted Allen Archaeology in the excavation and assessment of *ca.* 450 18th- and 19th-century burials from St George's Church, Brentford, formerly George chapel (built 1762–1766). Records suggest that burials associated with the chapel continued up to 1868.

Work was completed on St Marylebone's Paddington Street burial ground with final analysis and publication. Documentary research and osteological analysis of a sample of 291 skeletons provided insights into the lives and health of a population from a wealthy London parish.

Final publication of a series of six excavations carried out between 1987 and 2007 provided details of a Roman cemetery sited in the upper Walbrook valley. The study examined land use and grave erosion in an area subject to waterlogging.

Collaborative work continued between Pete Rauxloh of MOLA, Natasha Powers of Allen Archaeology and Berlin archaeologists on the comparison of the medieval Spitalfields cemetery with a contemporary assemblage from Petriplatz, Berlin.

Projects run by MOLA Northampton included the excavation and assessment of human remains from the A43 Corby link road scheme. These included 26 Iron Age/Roman transition cremations, four Roman cremations and two Saxon inhumations.

Oxford Archaeology Heritage Burial Services *Alice Rose*

It has been another busy year for Heritage Burial Services, Oxford Archaeology. The main focus of our work has been the post-excavation analysis of 1162 skeletons from Stoke Quay, Ipswich (see below). The full time team currently consists of Louise Loe, Mark Gibson, Alice Rose and Lauren McIntyre, with contributions from Vickie Jamieson and Zoe Ui Choileain. Lauren joined the team last August to cover Helen Webb's maternity leave.

Between our three offices we excavated human skeletal remains from some 20 sites in 2015, the majority consisting of small assemblages of inhumations and/or cremation deposits. The main ones are summarised below, followed by a summary of our post-excavation work and outreach activities.

Fieldwork

Site F, Thame, Oxfordshire

Excavations at Thame, Oxfordshire were carried out between January and August as a joint venture with Cotswold Archaeology. Along with an impressive Neolithic Causewayed enclosure and evidence of Iron Age, Roman and Saxon occupation, excavations revealed 15 inhumation burials, at least nine of which were buried in a crouched position. In addition, there were a number of deposits of disarticulated human bone and approximately 10-15 urned and unurned deposits of cremated human bone. The burials probably date from the Late Iron Age to the Early Roman periods, but this will be explored further during the post excavation programme. Initial assessment of the skeletons indicates a mixed group of males, females and juveniles with some evidence of joint disease, trauma and moderate to severe dental disease.

St Cross College, Oxford

An unexpected burial was discovered during excavations at St Cross College, Oxford. The isolated inhumation is likely to date to the time of the English Civil War (1642-51),

based on the discovery of two coins found on the skeleton, one dating from 1640-41 and one dating from 1635-36. Interestingly, the burial had been made in unconsecrated ground, in what had been the back garden of a large tenement. Analysis revealed this was a young adult female with very little pathology. The individual was likely to have been buried in a shroud but the unusual position of the skeleton, with flexed arms and legs, suggests they may have been buried whilst in rigour mortis.

Bridge Farm, Sutton Courtenay

Excavations at Bridge Farm, Sutton Courtenay, uncovered 21 articulated skeletons, 6 contexts containing human remains, 1 *in situ* cremation and 8 deposits containing cremated human remains. The collection represents a wide variety of burial practices spanning several time periods, including crouched Prehistoric burials, an *in situ* Bronze Age cremation, a diverse small Roman cemetery and a larger, more uniform, late Roman cemetery. The smaller Roman cemetery includes several deviant burials, including prone and bound individuals. The individuals appear to have a range of pathological conditions, including extensive metabolic disease and non-specific inflammation.

Worthy Down, Hampshire

Redevelopment work at Worthy Down, Hampshire has revealed at least 11 supine inhumations, which are likely to be Late Roman, dating from 3rd to 4th century BC. At least one of the skeletons appears to have been decapitated, with the skull placed between the legs. Work is currently ongoing at Worthy Down and it is expected that at least another five skeletons will be recovered.

Woolwich Waterfront

The latest phase of the Woolwich project revealed 76 east-west orientated inhumation burials. Map regression (among other factors) indicated that these were post-medieval, however radiocarbon dating has assigned several of them to the late 7th to early 8th century, indicating a Saxon burial ground. All

of the burials are unfurnished and more may be discovered during the next phase of works.

Post Excavation

Stoke Quay, Ipswich

As in 2014, much of this year's work has consisted of the post-excavation analysis of 1162 Saxon and Medieval skeletons from Stoke Quay, Ipswich. The osteological analysis was completed in April and radiocarbon dating and isotope analyses have now been carried out. The last few months have been spent collating, querying, and interpreting the large amounts of data which we have generated using OA's recently developed bespoke, web-based, database. First impressions indicate a relatively 'normal' demography consisting of males, females and juveniles. An interesting attribute of this assemblage is the fact that nearly the whole cemetery was excavated, and so almost the entire burial population is accounted for. As with the demography, patterns of pathology appear to be relatively 'normal' for the time period with a few exceptions, including an extremely high prevalence of cribra orbitalia. The report will be published later this year/early next.

Chelmsford Effluent Pipeline, Essex

A number of urned and unurned human cremations were discovered during excavations in 2014 in advance of the Chelmsford Effluent Pipeline, Essex. These were originally assumed to all date to the Bronze Age, however, subsequent post excavation analysis and radiocarbon dating has confirmed that one of the isolated cremations dates to 5500-5600 cal BC, making it the first Mesolithic cremation from England to be identified. After receiving the first radiocarbon measurement for this context two further samples, one of bone and one of charcoal, were sent for analysis to confirm the result. This is an extremely significant discovery as there are only around 20 confirmed examples of human remains from Mesolithic Britain.

Gill Mill Quarry, Oxfordshire

A synthesis of osteological analyses of human remains recovered during OA's excavations,

spanning some 20 years at Gill Mill Quarry, was completed this year. This report brings together data on numerous cremations, inhumations and disarticulated human remains spanning the Middle Bronze Age to the Post-Roman period, with most dating from the Roman period. This synthesis will appear in a monograph about the excavations, due to be completed this year.

Kingshill South, Cirencester

The full analysis of four adult inhumations and six juvenile inhumations from the Roman period, as well as 43 predominantly Roman contexts containing disarticulated human bone and an undated unurned cremation burial was completed in June. In general, a variety of burial practices were observed and the articulated skeletons were osteologically unremarkable. The report will be published later this year.

Lesnes Abbey, Bexley

Six inhumations (five adults, 1 juvenile), found in earth cut graves during excavations at Lesnes Abbey, Bexley, were fully analysed prior to their re-burial. Radiocarbon dates from two skeletons place them between AD 1290-1415 and 1454-1641 and it is assumed they were associated with the Abbey. The skeletal assemblage is small and incomplete and the juvenile exhibited endocranial inflammation and cribra orbitalia.

St Michael's Church, Workington

A sample of 78 discrete, articulated skeletons (58 adults, 20 juveniles) from St Michael's Church, Workington, have been fully analysed. The skeletons are from three phases, including pre-Norman phases 2b and 3 (7th to 11th centuries) and later medieval to early post-medieval Phase 5 (13th-18th centuries). In general, the population appeared to be well nourished, with a lack of major pathology. Other findings include the identification of possible family groups in the pre-Norman phases; a possible difference in diet and/or oral hygiene between males and females and differences in physiological and nutritional stress between phases 2b and 3.

Westgate Centre, Oxfordshire

Major excavations at the site of the Westgate Centre, Oxford prompted a review of some 60 skeletons recovered during previous excavations on the site in the 1970s. The skeletons were associated with the Franciscan Greyfriars Friary and the review was carried out to explore the potential for further analysis, should additional burials be found during the current works. Excavations will continue into the first half of this year.

Radcliffe Infirmary, Oxfordshire

In December, we were commissioned to begin the full post-excavation analysis of the 18th-19th century Radcliffe Infirmary burial ground, Oxford. Full analysis of the skeletons will build upon previous observations from our assessment, which has identified a high prevalence of trauma, deficiency diseases, dental disease and other indicators of poor health. In addition, the assemblage has examples of medical intervention, including trepanation, amputation and post-mortem investigation, including craniotomies.

Outreach

Past People of Oxfordshire Database Launched

The School of Archaeology of Oxford University (OU) and OA collaborated with Oxfordshire heritage officers and museum curators to develop a database collating over 7,000 burials excavated from archaeological sites within the county of Oxfordshire. The project was a Knowledge Exchange fellowship, funded by HEIF. The database, entitled the *Past People of Oxfordshire*, includes archaeological background, burial practices and osteological data from each site. It also records the fate of the human remains, and if retained, where the remains are curated. Unfortunately, due to the sheer number of skeletons excavated in Oxfordshire, it was only possible to record *ca.* two-thirds of all known burials in the time available. Nevertheless, we hope that the database will prove a useful resource for archaeologists and osteologists in the commercial, academic and heritage sectors, and for interested members of the public exploring their local archaeological heritage. Technical

development of the database and website was undertaken by OA's IT department, and collation of archaeological data by Ceri Boston of OU.

Ashmolean Live Friday

In May, OA and the School of Archaeology, Oxford University (OU) teamed up for a Live Friday Event at the Ashmolean Museum, Oxford. The event, called 'Social Animals', was an evening of talks, exhibits, performances, workshops and displays on research in the social sciences. The aim was to explore what makes societies work with contributions from a variety of disciplines, including geography, archaeology, business studies and more. OA and OU's contribution – *The Past People of Oxfordshire* - focussed on the study of skeletons that have been recovered during archaeological excavations in the region. Osteologists gave demonstrations and previewed the Oxfordshire burials database (see above).

Society for Medieval Archaeology

In June, Louise Loe and Helena Hamerow (University of Oxford) organised a special event for members of the Society for Medieval Archaeology (SMA) focussing on the findings from Stoke Quay, Ipswich. The event was popular and allowed the SMA members to see some of the material and to meet the Heritage Burials team.

Historic England Members Open Day

In September, a series of talks were held at OA for local members of Historic England. This included a visit to our Heritage Burials Services department where a talk and demonstration on the information that may be obtained from studying human skeletons were given.

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/>

Twitter: [@oatweet](https://twitter.com/oatweet)

Website: <http://oxfordarchaeology.com>

Wessex Archaeology *Kirsten Egging Dinwiddy*

Team

Jacqueline I. McKinley: Principal Osteoarchaeologist

Kirsten Egging Dinwiddy: Osteoarchaeologist

Reports Completed

Unburnt remains (KED)

Grove Road, Harwell, Oxfordshire (87553)

A minimum of six individuals are represented in the assemblage from this Early to Middle Iron Age and Romano-British settlement site. The remains of four inhumation burials have been dated as Early/Middle and Middle Iron Age (neonate and adult male), and mid-/late and late Romano-British (older adult male and female). In addition to these are an Iron Age subadult probable female and a Romano-British infant, each from the redeposited material. Notable observations include post-depositional manipulation, an unusual example of impaction of a pegged maxillary incisor, and a posterior, mid-thoracic perimortem sharp blade injury (Middle Iron Age male). The confirmation of a Middle Iron Age date illustrates the importance of securely dating unaccompanied burials, which would otherwise be assigned as broadly 'prehistoric', and prevent their consideration within their true temporal context.

Hucclecote, Gloucestershire (GLRCM: 2014.14; 103730–2)

A lightly worn permanent molar with pinhole carious lesions was recovered from a Romano-British pit.

Land adjacent to Steart Village, Steart Point, Somerset (TTNCM: 105/2011; 77221)

Human bone from a small Romano-British rural settlement was subject to analysis. The material derives from the burial remains of a neonate found in a shallow depression cut into an occupation layer, and redeposited bone

from two rubble-rich structural collapse layers (another neonate and an adult).

Merlin's Cave, Symmond's Yat, Herefordshire (MC 14; 104060.01; for Herefordshire Archaeology)

A bone-filled pit, revealed by weathering of this cave-front site, contained the disarticulated remains of at least four individuals, three adults and an infant, along with a large quantity of animal bone. The four are in addition to the two *in situ* burials previously excavated in the immediate vicinity. Radiocarbon dating and Bayesian analysis suggest that all five of these post-Roman individuals died within a period of a few decades.

Ridgeway Farm, Swindon, Wiltshire (86361)

Analysis was undertaken on the human bone from a Late Neolithic/Early Bronze Age burial (subadult) and redeposited bone from a ring-gully and two pits (Iron Age and Romano-British; an adult and two neonates). Lamellar new bone on a fragment of cervical vertebra of the subadult may have been caused by the effects of a Cervical Artery Dissection – a tear in the lining of the vertebral artery.

Sherford New Community – Phase 1.1, Plymouth, Devon (107560)

Much of a single lower rib from an older adult was found in a large Romano-British dumped deposit. The bone is in excellent condition and showed signs of localised inflammation on the external surface of the neck.

Mixed-rite

Old Dairy, Amesbury, Wiltshire (79291; JMCK prehistoric, KED Anglo-Saxon)

Work was completed on the remains recovered from the site, which featured three ring-ditch monuments, two interconnecting, and part of an adjacent Early Anglo-Saxon cemetery. The earliest material proved to be of Early/Middle Neolithic date, comprising unburnt remains found redeposited in a number of pits (MNI 1). Early Bronze Age remains were recovered from a ditch terminal (unburnt; MNI 1) and from an undisturbed, unurned and capped cremation burial, which

also included bird bones. Extensive endocranial new bone was observed in the unburnt, manipulated remains of an Early/Middle Bronze Age juvenile. The later 6th–early 7th century cemetery featured a grave encircled by a small ring-ditch, and satellite graves. At least six individuals were represented – one juvenile, the rest being adults. The focal grave held the ransacked burial remains of an adult male, who had survived a blunt force trauma to the skull.

Assessments and Ongoing Projects

Cremated remains (JMCK)

Galloper Wind Farm, Leiston-cum-Sizewell, Suffolk (LCS 161; 104811)

The remains of a small Romano-British cremation cemetery, comprising one unurned and three urned burials, was excavated in an area where such discoveries are relatively rare. Assessment indicated a minimum of four adults, at least one over 35 years of age, and one probable male. Staining on bone from one grave conveys of the one-time presence of an iron grave or pyre good.

Southam Road, Banbury, Oxfordshire (79072–3; JMCK)

A minimum of three individuals (subadult/adult) were identified during the assessment of the cremated bone from a possible unurned burial, two cremation-related deposits (each with redeposited pyre debris), and a gully (redeposited). Iron nails were found in the two cremation-related deposits and fragments of cattle bone from the burial probably represent food offerings placed on the pyre. These are likely to be of Romano-British date; radiocarbon dating has been recommended.

Shelton Resilience Scheme, Wroxeter, Shropshire (86452; JMCK)

Cremated remains from several contexts found dispersed across the scheme area have been analysed. A minimum of three individuals (adults, one possible female) are represented in the assemblage from two Early Romano-British unurned burials and a series of potentially associated deposits. Pyre goods are represented by bird and mammal(?) bone, decorated bone veneer, bone pin fragments,

copper alloy sheet and iron nails. Staining on the bone suggests other metal artefacts were once present. A number of Romano-British cemeteries have been recorded around the city of Wroxeter.

Unburnt remains (KED)

Yeovilton, Somerset (86162)

The most recent phase of investigations on the site revealed two Romano-British graves, situated in the corner of an ancient field. Each grave contained the remains of a large adult male and evidence for coffins. More secure dating via radiocarbon analysis has been recommended for at least one individual.

Zone 2 and 3, Porton Down, Wiltshire (108953)

Further investigations within the prehistoric mortuary landscape north of Salisbury revealed the remains of a Middle Bronze Age flexed inhumation burial (adult male) in a poorly defined, shallow grave. Signs of a metabolic condition, gum disease and a cyst/localised infection (orbit) were noted (The results are included in the volume 109 (2016) of the *Wiltshire Archaeological & Natural History Magazine*).

Mixed-rite

Greentrees, Salisbury, Wiltshire (105121; JMcK)

Most of the assessed material is unburnt, deriving from two inhumation graves (subadult and adult female) and a pit containing redeposited bone (adult), all situated in close proximity to a Beaker pit. The truncated remains of an urned cremation burial were recovered nearby (adult), and a possible placed deposit of unburnt bone (adult male) was found in another pit just up slope. Samples from each returned a Middle Bronze Age date. Pathological lesions include infection and a fracture. The remains form part of a wider prehistoric mortuary landscape where the remains of four inhumation burials (one Early Neolithic, three Middle Bronze Age) and a Late Bronze Age cremation-related deposit were recovered as part of the adjacent Bishopdown investigations.

'Operation Beowulf', Barrow Clump, Figheldean, Wiltshire, (85370-2; JMcK & KED)

Analysis is still on-going for this outreach project for the Defence Infrastructure Organisation and Heritage Lottery Funded Operation Nightingale. The project involved the extensive excavation of a heavily badger-disturbed Beaker monument, Bronze Age barrow and Anglo-Saxon cemetery. The assemblage includes the remains of three Bronze Age cremation burials, 70–75 Anglo-Saxon individuals, and redeposited prehistoric bone (unburnt) from an antiquarian prospection trench.

Poundbury Farm, Dorset (60027; KED & JMcK)

Investigations in the remaining area of the multi-phase rural settlement, agricultural and mortuary site at Poundbury Farm, near Dorchester (reported on in K Egging Dinwiddy and P Bradley Prehistoric Activity and a Romano-British Settlement at Poundbury Farm, Dorchester, Dorset (Wessex Archaeology Monograph 28, 2011), revealed further human remains which have now been analysed. Cremated remains comprised those of at least one Middle Bronze Age individual, found in an unurned burial and an urned 'cenotaph' deposit, bringing the site Bronze Age total MNI to 15 (11 cremated). A further 14 Romano-British individuals are represented in the assemblage recovered from 13 inhumation graves (site Romano-British MNI 56 including one cremated). Four of a group of nine graves also contained the near complete skeletal remains of young sheep. One of these graves contained the remains of a juvenile (approximately 10 years old) whose body had been decapitated as part of the burial rite. The skull had been placed on its left side, between the knees and facing the right thigh, and the accompanying lamb had been laid outside the coffin, along the left side. Preliminary results suggest the typical range of pathological conditions for the period.

On Site

Jacqueline is currently directing a large cemetery excavation and, with Kirsten, is

using the opportunity to train field staff in the excavation, recording and understanding of ancient mortuary features.

York Osteoarchaeology

Malin Holst

Anwen Caffell

Katie Keefe

Máiréad Ni Challanáin

Earthworks Archaeology

Trinity Hall, George Street, Chester, MNC & MH

Seven Roman skeletons included three adult females, a middle aged male and four adults of unknown sex who were buried in wooden coffins. Two individuals had DEH and the male had degenerative joint disease.

Heritage Network

Land to the Rear of California, Baldock, Hertfordshire, KK, MNC & MH

Fifty-seven skeletons and 60 urned cremation burials were found along a Roman trackway. The latter included 66 individuals (44 adults and 12 non-adults) and grave goods were present in 26 burials. The inhumations formed a well-structured cemetery with few grave goods. The cemetery contained 46 adults (25 males, 18 females, 3 unsexed; mostly mature), one adolescent, six older juveniles, three younger juveniles and an infant. Developmental anomalies, evidence of nutritional stress, numerous injuries, infectious disease and joint disease were observed. Males appear to have suffered more from nutritional deficiencies and general physical stress. Trauma to the ankles, collarbones and trunk was common and two of the most severe fractures occurred in males. Periosteal reactions on the ribs were seen in three skeletons. Two individuals probably had tuberculosis, and another individual had hypertrophic pulmonary arthropathy. Degenerative joint disease and osteoarthritis affected the spine, hips and wrists. Dental health was poor, with higher-than-average levels of tooth decay, abscesses, plaque, and ante-mortem tooth loss.

Northern Archaeological Associates

East Coast Pipeline, East and North Riding of Yorkshire, KK, MNC & MH

Skeletal assemblages dating from the Neolithic to Anglo-Saxon period were recovered, including 16 skeletons (5 males, 7 females) and 5 cremated bone assemblages. Childhood stress affected two individuals. Degenerative joint disease (spinal and extra-spinal) was the most prevalent pathological condition; osteoarthritis was also present in several individuals and affected the hip joint in particular. Several individuals suffered from trauma, including a clavicle fracture and possible sharp-force trauma. Dental health across the periods was poor with a high frequency of dental calculus and caries. Two of the 5 cremation burials were urned and were associated with round barrows. Their weight varied from 0.7g to 856.1g.

University of Leicester Archaeological Services

Genfield Park, Kirby Muxloe, Leicestershire, KK & MH

Seven early to middle Bronze Age cremated bone assemblages contained comparatively small amounts of bone, representing between 0.03% to the 23.6% of the amount of bone expected from a modern cremation. All of the burials contained the remains of adults.

Oxford and Newarke Street, Leicester, KK & MH

Most of the 20 Roman skeletons were coffined and orientated east to west. One juvenile had been decapitated; another juvenile skull was interred in a box. Most burials had grave goods. Most age ranges were represented, with more males surviving into mature adulthood than females, and almost equal proportions of males and females. The non-adults were all juveniles. Indicators of childhood stress were prevalent, and trauma was observed. One mature adult female had crushed vertebrae, a mature adult male had fractured his left ankle, and another had fractured his forearm and knee, suffered a soft-tissue injury to his thigh and injured his foot. Sinusitis affected over half of the population (only women and children). Evidence for tuberculosis was noted in a

middle adult female with extensive spinal lesions and a young middle adult male. Inflammatory lesions inside the skull were prevalent, affecting twice as many males as females and one juvenile. Joint disease was prevalent and affected the hips in both sexes, the shoulder and spine in women, and the knees and ankles in men. More males developed spinal osteoarthritis, possibly secondary to injuries, and one mature adult male had DISH. The dental health was slightly better than the Roman mean.

Stablebridge Road, Aston Clinton, Buckinghamshire KK & MH

Four Roman skeletons included three mature adults and a juvenile. Degenerative joint disease was seen in the adults and both males had osteoarthritis in the wrists and spine. The males had sinusitis, and all three adults had lamellar bone in their lower limbs and trauma in the spine. A male also had dislocation of the left radius and carpals, and fractures to the distal right ulna and one rib. One male was decapitated. The female had evidence of binding the chest, possibly as a form of medical intervention. The neonate may have been suffering from a metabolic disorder. The dental health of the males was poor.

Waterfield Place, Market Harborough, Leicestershire, KK & MH

A single Iron Age inhumation located close to a ditch terminus was buried prone. This was an old middle adult male, with a parry fracture of the right ulna and fracture of the left hand phalanx, cribra orbitalia, DJD, minor congenital anomalies in the spine, coxa vara, sinusitis and numerous dental abscesses.

Matthias Garn and Partner

St Martin's Church, Fangfoss East Riding of Yorkshire, MH

An archaeological watching brief recovered 23 articulated skeletons and over 1,000 disarticulated human bones dating to the late medieval and post-medieval periods. Three-quarters of the population were adults, most of whom were mature, while the children were mostly young, reflecting a normal demographic profile. They were of average height for the period and displayed pathology

in the form of degenerative joint disease, genetic anomalies, inflammatory lesions on the shins, and dental disease.

York Archaeological Trust for Excavation and Research

12-18 Swinegate, 14 Little Stonegate & 18 Back Swinegate, York, North Yorkshire, KK & MH

Seven skeletons dating to the 10th-11th centuries and buried in wooden coffins at St Benet's Church included 3 mature adult males, 2 middle adult females, 1 older adolescent and a juvenile. One of the mature adult males may have been of African or mixed ancestry. The adults exhibited joint degeneration. Two of the males had crush fractures in their spines, one had fractured his ulna, and another had an ossified haematoma on his left shin. Minor developmental anomalies were common, cribra orbitalia was observed in an adult male, female, and juvenile, and DEH was seen in five of the adults. The adolescent suffered from actinomycosis. An unusually high prevalence of calculus was seen, but a low frequency of caries.

Conferences

Holst, M. 2015. Recent Research on Prehistoric and Roman Human Remains from Yorkshire, Podium Presentation at York Archaeology Conference 'York before York-the Prehistory of the City'

Alexander, M., Craps, D., Schmill, N., Holst, M., Jenner, M., Kingston, K., Rowsell, K., Speller, C., Warinner, C., and Collins, M. 2015. Did rheumatoid arthritis really begin in 1800? Poster presentation at the 17th Annual Conference of the British Association for Biological Anthropology and Osteoarchaeology at the University of Sheffield.

Holst, M. and Keefe, K. 2015. 'To prove I'm not forgot' - Giving a voice to the urban poor through analysis of skeletal populations from Northern England. Podium presentation at the 21st Annual Meeting of the European Archaeological Association, University of Glasgow.

Gowland, R., Caffell, A., Levene, A., Newman, S. and Waters, G. 2015. Children of the Revolution: A rural/urban comparison of child health during the 18th-19th centuries in the North of England. Podium Presentation at the 17th Annual Conference of the British Association for Biological Anthropology and Osteoarchaeology at the University of Sheffield.

DEPARTMENTAL REPORTS

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

The BARC has moved! Last year saw the School of Archaeological Sciences, University of Bradford, move across campus from the Phoenix SW building to the Richmond Building at the heart of the city centre campus. Most of Archaeological Sciences is located on J, K and L floors, with our main excavation store and taphonomy laboratories located in the workshop, giving easy access. The BARC is located on L floor, and is integrated into the Faculty's Integrated Life Sciences Learning Centre. All of our skeletal collections have been combined into a single (climate controlled) bone store, with our teaching laboratories, radiography lab and research lab all on the same level. The Keith Manchester Lab (teaching) includes state of the art project, touch screens and PACs-equivalent monitors for viewing digital radiographs. The project allowed us to purchase a Fuji Computer-Radiography set up, bringing our radiography laboratory firmly into the 21st century. The BARC is located alongside teaching labs for anatomy and physiology, including the simulation suite which houses our Anatomage table and human patient simulator, iStan. The Anatomy and Pathology Resource Centre includes anatomical models and specimens which can be integrated into our teaching and touchscreen AV equipment. Last year we closed our collections for the duration of the move, but we are now open, with access possible for doctoral students and researchers;

see <http://www.barc.brad.ac.uk/index.php> for more information, a full list of our collections, and access request forms.

Our various research projects have continued over the last year. Julia Beaumont was awarded the £20,000 New Lecturer Award, Rank Nutrition Prize Fund 2015, to investigate nutrition as recorded in the carbon and nitrogen isotope ratios of dentine formed in-utero and infancy. She will use the prize to fund the collection and analysis of deciduous teeth from local Bradford children, in light of their medical histories, over the next 2 years. Hannah Koon, Andrew Wilson and Rob Janaway have been working on a project to investigate the impact of drainage on archaeological remains in churchyards for Historic England, in collaboration with Louise Loe and others from Oxford Archaeology. Over the summer we exhibited textile art by Karina Thompson, which used our radiographic and skeletal collections for inspiration. One of Karina's pieces 'The Leper's skull' was shortlisted for the Fine Art Quilt Masters competition at the Festival of Quilts 2015, which can be viewed at <http://www.thefestivalofquilts.co.uk/Content/The-Leper-s-Skull>. Karina Croucher's AHRC-funded project 'Continuing Bonds: Exploring the meaning and legacy of death through past and contemporary practice' has commenced, following her return from maternity leave. Jo Buckberry, Allison Cullingford (Special Collections) and Sarah George (JB Priestley Library) were awarded a Wellcome Trust Research Resources Scoping Award for the Calvin Wells Archive, currently split between the BARC and Special Collections within the library; they are submitting a full bid to catalogue and digitise aspects of the archive. Jo is continuing to work on the Udal project and is looking forward to another trip to North Uist this summer.

This year we are welcoming a new PhD student, Solange Bohling, who starts in February 2016. Solange is researching deviant burial in early Anglo-Saxon cemeteries, and will be supervised by Jo Buckberry and Karina Croucher. Laura Castells Navarro was

awarded a Cumberland Lodge Scholarship, and is enjoying the programme of events so far. AHRC/CDA students Michelle Williams-Ward and Clare Rainsford have returned to Bradford after a year researching at Norwich Castle Museum. Jo is co-supervising two students through the Heritage Consortium: Sarah Taylor is based primarily at the University of Huddersfield with Glenn Foard, and is 'Investigating the battlefield burial practices and the wider social attitudes of the English to battlefield casualties from the 15th to the 17th centuries'; Rebecca Cessford is based primarily at the University of Hull with Rosemary wall, and is researching the 'Stannington Sanatorium for Children: A potential use of radiographic imagery in reporting on tuberculosis in non-adult human remains'. Becky presented a poster about the Wellcome Trust supported project to develop access to the Stannington Archive at BBAO in Sheffield. Finally we were delighted when MSc student Ruth O'Donoghue won the runner up prize in the student poster competition at the Annual Conference.

Ongoing PhD Research

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.: Mobility and identity in Iron Age Europe: osteoarchaeological and isotopic analyses of cemetery populations from the East Alpine region.

Rainsford, C.: People and animals in early medieval cemeteries.

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

Williams-Ward, M.: Burial and identity in early medieval Norfolk.

PhD Theses Submitted

Brettell, R.: Embalming in Late Roman Britain. A molecular-based approach to identification and an evaluation of significance.

Tellier, G.: A study of the Neolithic and Bronze Age populations of Wales from osteological and contextual data.

Dissertations Submitted for the MSc Human Osteology and Palaeopathology, 2014/5

Bohling, S.: An osteological analysis of degenerative joint disease in two medieval European populations.

Clark, M.: Diet and mobility in Late Iron Age Dorset.

Dolgos, V.: Tibiofibular periosteal reaction in leprosy: pathogenesis.

Douthwaite, A.: The use of 3D capture and reconstruction to evaluate spinal changes of tuberculosis.

Horne, P.: Nutritional stress and stunting in an Anglo-Saxon population: a comparison of dental and skeletal age.

Kavanagh, D.: An investigation of congenital defects and palsy of the upper limb.

Lloret Perez, M.: Testing transition analysis method in an English sample: St Brides church (Fleet Street, London).

Maaranen, N.: Transition analysis: A validation study on a Finnish sample.

McAfee, I.: A unified method for assessing arthritic markers on the lumbar vertebrae and lower limbs.

O'Donoghue, R.: Investigating physiological stress: carbon and nitrogen stable isotope analysis of 19th century subadult dentine collagen.

Pescheck, S.: Age identity and the elderly in Iron Age Britain. Evidence from Wetwang Slack, East Yorkshire.

Poulus, E.: Diseases of the middle ear in palaeopathology and their prevalence and significance in the Wolverhampton collection.

Schoonmaker, J.: How modern is gout? An examination of the prevalence of gout in pre-medieval Britain.

Woodger, A.: Stable light isotope and historical sources used to assess diet in 17th/18th century migratory Dutch whalers.

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

Members of the Department of Archaeology, Anthropology and Forensic Science (AAFS - Holger Schutkowski, Karina Gerdau-Radonic, Nivien Speith, Martin Smith and Fiona Coward) at BU, together with their colleagues of the Department of Life and Environmental Sciences (LES - Amanda Korstjens and John Stewart) and the newly formed Faculty of Health and Social Sciences, are looking back at another very positive and quite fast-paced year. Activities included presentations by staff and students at various international conferences (PPA, AAPA, EAA and, of course, the annual BABAO Meeting) among them this year's BABAO Jane Moore Prize winner, MSc student Lukas Waltenberger. Summer saw our MSc students working their fingers to the (plastic) bones involved in our annual Mass Grave simulation exercise and the visit of a Belgian photographer and artist Lieven Lefere who seized the occasion to expressively display forensic work in an exhibition currently showing in Brussels; another highly stimulating London Anthropology Day, where BU staff ran a workshop on human migration; a further season of our Big Dig training excavation exploring the transition from Iron Age to Roman Britain, which yielded the discovery of 200+ Iron Age roundhouses, 16 of which

were excavated (albeit no skeletons this year!), a Durotrigean settlement nicknamed 'Duropolis' by the archaeologists. Martin, Karina, Holger and Nivien continued to enjoy presenting stories from the skeleton(s) to numerous local schools and to assist Dorset Police with their enquiries into skeletal finds, this year all in archaeological contexts.

With regard to staff activities and research, we saw some renewed and delightful success this year, with exciting things in the making. Manfred Bietak, Institute of Oriental and European Archaeology at the Austrian Academy of Sciences, and Holger Schutkowski were awarded a European Research Council Advanced Grant to work on the origins, impact, and legacy of the enigmatic Hyksos rule during the second millennium BCE in Egypt. Work on diachronic trends of diet and subsistence in the ancient Near and Middle East with Arkadiusz Sołtysiak, Warsaw, is on-going.

During August 2015, Martin Smith commenced work with Tim Darvill investigating an elongated mound on farmland near Cirencester which has proved to be a previously unknown (and unexcavated) Cotswold Severn long barrow. Such things should not be rushed and this project will recommence in the summer with the intention to return over several seasons during the coming years and investigate carefully. Martin is currently working on bringing various recent projects to publication, in addition to a book on skeletal trauma aimed at a general (non-anthropological) readership.

Karina Gerdau-Radonić continues her on work on Peruvian collections particularly along the central coast of Peru. Last year, one of our MSc students was able to travel to Peru for his dissertation under her supervision, where he looked at dental health on two pre-Columbian populations. Karina is also pursuing her interest on commingled remains and has started a new project on estimating minimum numbers of individuals. Finally, this year saw the publication of BABAO's

first *Trends* volume that Karina edited alongside Kathleen McSweeney.

The BU skeletal collections, managed by Nivien Speith, received a number of external visiting researchers and provided material for a range of new MSc dissertations, which emphasises the sustained analytical and educational value of such collections and the importance for shared access to such assemblages. Nivien continues to oversee the BU anthropological collections and laboratories as well as teaching activities and is currently continuing her research in social bioarchaeology as well as working on developing innovative educational approaches in anthropology.

Amanda Korstjens continues her research into primate behaviour and ecology, including interesting fieldwork conducted in Indonesia, while John Stewart has been busy undertaking on-going research at Trou Al'Wesse, Belgium, now excavating at the Mousterian levels and finding much in the way of lithics, butchered bones (animal) and charcoal. Fiona Coward continues to explore human social evolution and the cross-overs of biological and social anthropology, and is now on maternity leave until 2017, as she has welcomed her baby son into the world at the beginning of January 2016.

Last but not least, the Department welcomed a new PhD student, Richard Mikulski, this autumn, who is working on two Crusader period mass graves from the already well-known College Site at Sidon, Lebanon, on a fully-funded BU studentship. Congratulations are due once more to all our UG, PG and PhD students who successfully completed this year!

Visit us here:

<https://www1.bournemouth.ac.uk/discover/faculties/faculty-science-technology/our-departments/departments/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

Ongoing PhD Research

Allen, P.: Investigating the effects of environment on prey detection rates: a key variable in human evolution.

Haydock, H.: Stable isotopes as an indication of weaning age in Post-Medieval to modern populations.

Knul, M.: Faunal and human biogeography and terminal Ice Age climate change.

Norton, E.: Evaluating geophysical and remote sensing techniques and methodologies for the detection and location of mass graves.

Pitt, J.: The ecology of chickens - past and present.

Shedden-Gonzalez, A.: Using primates for establishing priority conservation sites in Mexico.

Waters, K.: Differential patterns of mortality and morbidity. A bioarchaeological approach to childhood in Roman-Britain.

Mikulski, R.: Medieval mass graves of the Crusader period - a contextualised analysis of violence and warfare in the Levant.

Division of Biological Anthropology
Department of Archaeology and
Anthropology
University of Cambridge
Laura Buck

In 2015 the Division of Biological Anthropology at Cambridge continued to produce innovative research in diverse fields including human biology, palaeopathology, osteology, human evolution, primatology, and genetics. In addition to the research carried out by Division members, the weekly seminar series (co-organised by Aurélien Mounier and

Laura Buck) featured internationally regarded speakers on topics covering the entire breadth of the field. The Duckworth Collection, curated in the Division under Marta Lahr, also played host to numerous national and international researchers to conduct research on its important collections.

In terms of palaeopathology research in the Division in 2015, Piers Mitchell completed his term as BABA0 president in September, and was elected president of the Paleopathology Association in April. His research has focused on two main projects this year. His *Ancient Parasites in Past Civilisations* project involves four student projects at PhD (Ivy Yeh), MPhil and undergraduate level. Research into the parasites in a medieval latrine in Jerusalem, that demonstrated evidence for long distance travel by pilgrims or traders from Europe, resulted in considerable international media interest, a small selection of which includes:

<http://www.archaeology.org/news/3103-150320-jerusalem-latrine-parasites>

<http://news.yahoo.com/medieval-parasite-filled-poop-found-jerusalem-latrine-114618131.html>

<http://www.scienceworldreport.com/articles/23509/20150320/human-parasites-discovered-medieval-cesspit-hint-ancient-trade.htm>

Piers also published *Sanitation, Latrines and Intestinal Parasites in Past Populations* with Ashgate, which is the first ever book to investigate the health consequences of sanitation in past societies. He was a keynote speaker at British Society for Parasitology Autumn Symposium in London, talking about ancient parasites. His *Anatomical Dissection in Britain in the 1700s and 1800s* project involves one PhD student (Jenna Dittmar). Papers were published this year on criteria for identifying dissection in archaeological material, and on dissection in the Cambridge Anatomy School in the 18th and 19th centuries.

Jay Stock's *Phenotypic Adaptability, Variation and Evolution* Group (PAVE: www.pave.bioanth.cam.ac.uk, @PaveCambridge) has expanded in several exciting directions over the past year. Two new PhD Students, Eóin Parkinson and Steph Payne, have joined the group and are studying skeletal morphology in late Neolithic Malta and human physiology and adaptation respectively. Jay's ERC-funded ADaPT project (www.adaptproject.eu) is now well underway, with five postdocs working on two strands of research. Three postdocs, Pere Ibáñez-Gimeno, Laura Buck and Robert Beyer are working on 'Hunter-gatherer skeletal variation: phylogenetics, climate and human adaptation'. Pere aims to characterise global hunter-gatherer postcranial variation, Laura is comparing skeletal adaptation to climate in macaque and Jomon forager skeletons in Japan, and Robert has begun work on palaeoclimatic and vegetation models of Africa. For the second strand of the project, 'Testing models of human adaptation during dispersal: skeletal variation, mobility and energetics', Danny Longman and Ali Macintosh are studying modern elite athletes in an evolutionary context, to enhance understanding of our adaptive capabilities as a phenotypically plastic species. Emma Pomeroy has had further grant success this year in winning a three-year Leverhulme Trust and Isaac Newton Trust Early Career fellowship to further her research with Veena Mushrif (Deccan College, Pune, India) investigating variation in skeletal morphology in India. Laura Buck has taken over Colin Shaw's Co-chair position of the Cambridge Biotomography Centre (cbc.zoo.cam.ac.uk) and the facility goes from strength to strength, having increased its external scanning to the point where a dedicated technician has been hired. Jay's contribution to the ERC-funded FRAGSUS Project (Fragility and Sustainability in Restricted Island Environments; based in Queen's University Belfast; @fragsus) continues in collaboration with the Cambridge-based 'Bone Crew' of Ronika Power, Tamsin O'Connell and Simon Stoddart, and Malta-based colleagues Bernardette Mercieca-Spiteri (osteologist, Superintendence of Cultural Heritage) and

Sharon Sultana (curator, National Museum of Archaeology [NMA], Heritage Malta). The Bone Crew had its second season working on the Xaghra Circle assemblage in the NMA from March-May, its first Knowledge Exchange visit from Bernardette Mercieca-Spiteri in July, and acquired two new PhD students, Eóin Parkinson and Jess Thompson. The Bone Crew continued its outreach objectives through 2015, including hosting a lab-based seminar on human remains for the Cambridge Archaeology Field School; a public lecture on the *FRAGSUS Project* in Sydney, Australia; invited interview for 'Arts Experts' film series at Macquarie University, Sydney; and several high school visits, Open Days and general public outreach events across Cambridge and Sydney. Finally, as part of a collaboration with an international consortium of colleagues, Jay recently published the first ancient genome from Africa, from a skeleton from Mota in Ethiopia, in *Science*.

The HENGE group is led by Nick Mascie-Taylor and Rie Goto. Research at HENGE covers major aspects of the study of Human Population Biology and Ecology with the aim of enhancing our understanding of the biosocial and ecological factors modifying the adaptability of human populations. HENGE is heavily involved with the inter-relationships between poverty, nutrition and disease and is currently working on three UKAid (Department for International Development, DFID) funded projects in Bangladesh and Nepal. One of these UKAid funded (£85 million) longitudinal project has been running for the last eight years and aims to move (graduate) 1 million extreme poor Bangladeshis out of poverty by March 2016. Each year Goto and Mascie-Taylor conduct surveys on the same households (about 1,800 households) to ascertain their changing socio-economic conditions. A very important element of their research is whether improving socio-economic status results in improvement in nutritional status and health and well being. Based on the March 2015 survey over 1.14 million people have successfully graduated out of poverty, well above the target, with very few households

falling back into poverty. There have been highly significant reductions in the prevalence of anaemia and stunting in children. Failure to escape from extreme poverty is associated with chronic illness and disability and having an older as well as female head of household. HENGE is also promoting a nutrition/health package involving provision of micronutrients essential vitamins and minerals) in a powder form in a sachet (like small packets of sugar) which can be sprinkled onto foods prepared in the home, regular deworming, wearing of flip flops (to prevent hookworm infection) and health education (washing hands after defecation and before food preparation). In Nepal the research has focussed on differentiating between a simple poverty line (based on cost of basic needs) and a multidimensional approach to poverty including nutritional status. Other research being conducted by the HENGE group is on analysis of the nutritional status of Chilean children between birth and three years of age, the relationship between lead intake and IQ in Sudanese children, the nutritional status of mother and child pairs from Bangladesh using the most recent Demographic Health Survey and on the relationship between gut mucosal damage and nutritional status. Nick Mascie-Taylor continues to edit the *Journal of Biosocial Science* published by Cambridge University Press and is currently in his third term as President of the European Anthropological Association.

Robert Foley and Marta Mirazón Lahr continue to lead research at the Leverhulme Centre for Human Evolutionary Studies (<http://www.human-evol.cam.ac.uk>), which involves seven Post-Docs and eight PhD students, and in 2015 hosted Alan Morris, University of Cape Town, and Jaume Bertranpetit, Pompeu Fabra University, as Visiting Professorial Fellows. LCHES continued to host the Human Evolutionary Studies Discussion Group active programme of talks and discussions. Robert continued his Leverhulme funded research on human evolution and technology, and became the Co-Chair of the University's Language Sciences Strategic Research Initiative. The *IN-AFRICA Project* (<http://in-africa.org>),

funded by an ERC Advanced Grant to Marta, continued its programme of excavations in the Turkana Basin and Central Rift Valley of Kenya, and the Western Rift Valley of Uganda. In addition to new fieldwork, research continued on the description of new fossil finds, and the East African Middle Stone Age and its environmental context. Publications included “Virtual ancestor reconstruction: Revealing the ancestor of modern humans and Neanderthals” in the *Journal of Human Evolution*. Robert and Marta continued their collaboration with Eske Willerslev and his group on ancient DNA studies, with a study of the origins of the plague “Early divergent strains of *Yersinia pestis* in Eurasia 5,000 years ago” published in *Cell*. In October Marta and Robert, with Chris Stringer and Lawrence Martin, organised the Royal Society/British Academy Discussion Meeting on *Major Transitions in Human Evolution*.

Toomas Kivisild’s genetics group’s research concerns evolutionary population genetics, with a particular focus on questions relating global genetic population structure to evolutionary processes such as selection, drift, migrations and admixture. In 2015 the group continued work on their major ERC-funded project ‘An inter-disciplinary approach for identifying evolutionary active regions in the human genome’ from 2011-2016. The project supports several doctoral and postdoctoral researchers investigating evidence for recent adaptation to lifestyle, environment and diet among human populations across four focal regions: the Andes, Siberia, Southeast Asia and Madagascar.

The department is home to several independent researchers working on different projects under the umbrella of primatology. Peter Walsh’s research (apesinc.org; [@EbolaGorilla](https://twitter.com/EbolaGorilla)) concerns primate social networks and the modelling of group movements, particularly with reference to their relevance for the transmission of such diseases as Ebola, SIV and Malaria. His methods are also applied to improving ape conservation strategies.

Jurgi Cristóbal Azkarate pursues work on the effects of food availability/provisioning, climate and mating on hormones in Barbary macaques, snub-nosed monkeys and spider monkeys with collaborators from the University of Roehampton, Central South University of Forestry and Technology (China) and Autonomous National University (Mexico), respectively. He is also refining methods of quantifying hormones in macaque and meerkat hair with researchers from the Zoology department at the University of Cambridge and the University of Zurich. Jake Dunn’s research interests and projects include studying the evolution of speech, via non-human primate vocal anatomy, sexual selection and the evolution of coat colour in non-human primates, primate phylogeography, and conservation strategies. Bill McGrew continues his research into primate tool use and culture.

Cranfield Forensic Institute
Cranfield Defence and Security
Cranfield University
Kayleigh Cooper
Nicholas Marquez-Grant

Cranfield Forensic Institute has had a fantastic year in 2015. The enrollment of full-time and part-time UK and international students to our MSc courses has continued to attract enthusiastic students. Our courses continue to be accredited by The Chartered Society of Forensic Sciences and our archaeology and anthropology research often involves multi-disciplinary approaches. The MSc courses which continue to be offered are in Forensic Anthropology and Archaeology; Forensic Investigation; Forensic Ballistics; Forensic Engineering and Science; Forensic Explosives and Explosive Investigation and Forensic Computing.

In addition, the variety of our MSc projects this past year has not been disappointing and a number of them presented at the BABAO conference in Sheffield in 2015 and others will be presented at the 68th Annual Scientific Meeting of the American Academy of

Forensic Sciences in Las Vegas, in February 2016.

Other MSc students who carried out research with anthropological significance included Emma Saunders, supervised by Nicholas and in collaboration with Charlotte Roberts (Durham University), who researched the *Bioarchaeology of the 21st Century British Skeleton* and how our modern lifestyle is affecting our skeleton; as well as Hannah Webster who examined blast trauma and how it affects the skeleton; Ioana Macoveciuc who looked at how sharp and blunt force trauma markers on the bone were modified through cremation; as well as a number of other projects covering the topics of palaeopathology, taphonomy, micro-CT scanning of bones, bone chemistry and measuring bones with CT images. This year, we have also taken on a number of MSc by Research students, including Melodi Ghui who is researching quantitative traits of sharp force trauma on scapulae and vertebrae.

We are pleased that our number of PhD students has continued to increase in all forensic disciplines. John Rickman is researching the diagnostic signatures of ballistic impacts to bone. This research aims to enhance the diagnosis and interpretation of ballistic impacts to bone in forensic anthropological and pathological investigations. Emma Morgan will look at the bioarchaeology of WWI soldiers as well as damage to WWI textiles; Vijarn Vachirawongsakorn is examining the effect of taphonomic factors on blunt and sharp force trauma in a number of skeletal elements; and a number of recent PhD students are also undertaking research into forensic archaeology, funerary archaeology and the scientific analysis of art objects.

We are pleased to congratulate Deborah Harrison on passing her PhD viva and wish Oznur Gulhan the best of luck for her upcoming viva examination. Kayleigh Cooper continues her research into dental calculus, using the fantastic analytical facilities that are available on campus. Brigida Corrieri has presented her research at the Postgraduate

Research Symposium, held by the Chartered Society of Forensic Sciences, 5 November 2015 in Manchester and BAHID Conference 2015 in Manchester. She has also been accepted to present a poster about the use of photogrammetry and GIS for the differentiation of human/non human cranial sutures and curvature at the 68th Annual Scientific Meeting of the American Academy of Forensic Sciences in Las Vegas, in February 2016. Marco Cummaudo continues to work on species differentiation at a microscopic level using histology primarily and Vail Johnson is continuing her research into body decomposition in confined environments.

With regard to the staff at Cranfield Forensic Institute, we congratulate Andrew Shortland and Peter Zioupos for gaining their professorships. We are also pleased to announce that Roland Wessling has started his PhD, alongside his staff commitments and will be working on his *Virtual Skeletal Analysis (ViSA)* project which aims to develop quantitative assessments of virtual 2D and 3D bone scan data. Roland will be presenting his initial research at the 68th Annual Scientific Meeting of the American Academy of Forensic Sciences in Las Vegas, in February 2015. In addition, we also welcome Fiona Brock who will be Lecturer in Applied Scientific Techniques. Keith Rogers, Peter Zioupos, Sophie Beckett and Charlene Greenwood continue to research bone mineralogy and biomechanics. We are also pleased to announce the appointment of a number of post-doctoral positions in the department under the supervision of Keith Rogers. Nicholas Márquez-Grant and Karl Harrison continue to consult for a number of police forces around the country. In addition, Nick continues to run a module on osteoarchaeology to undergraduates at University of Oxford and was assisted this year by Kayleigh Cooper. Nick also continues to supervise PhD research at Oxford and is assisting in the revitalization of the Biological Anthropology Group there.

Nicholas Márquez-Grant and Roland Wessling continue to be deployed into Europe

to assist in the identification of WWI and WWII British soldiers at the request of the MOD and in liaison with DNA laboratories. In addition to this, in September a group of staff and alumni travelled to Zellik, Belgium, to assist the Flanders Heritage Agency in the examination of 22 German World War I soldiers, who had been excavated during a rescue excavation. As well as standard recording methodologies, 3D laser scanning was performed on the remains to digitise injuries and pathological conditions. The skeletal analysis and the study of the artifacts that were found with the remains are hoped to contribute to identifying the casualties of war. Following this visit, the remains were respectfully reburied at the German military cemetery in Langemark-Poelkapelle, Belgium. As part of the ongoing collaboration with Operation Nightingale, Peter Masters was also involved in the excavation of a WWII Spitfire from farmland in Holme Fen, Cambridgeshire.

On the subject of facilities, we are very pleased to announce the relocation and growth of our Microscopy Suite. We were very happy to have our brand new Scanning Electron Microscope delivered just in time for Christmas! Thanks to the work of Jon Painter, this equipment is sure to provide exciting potential for our archaeological science research.

This coming year we are very much looking forward to another excavation season at Haslar Royal Naval Hospital, which will be our 6th season there. As always, we look forward to working with our current MSc students on their research projects and welcoming our new PhD researchers to the department.

Department of Archaeology
Bioarchaeology Research Group
Durham University
Tina Jakob

In 2015, the Bioarchaeology Research Group at the Department of Archaeology in Durham saw new additions to its staff and laboratories.

We were very pleased to welcome our new colleague, Eva Fernandez-Dominguez. Eva graduated in Biology from the University of Barcelona in 1999, obtaining her PhD in Human Palaeogenetics at the same university in 2005. Between 2005 and 2012, Eva worked as a post-doctoral researcher in the Forensic and Population genetics laboratory at Complutense University (Madrid), The University of Manchester and the Institute of Archaeology and Palaeosciences in Portugal. In 2012, Eva was appointed as Lecturer in Forensic Anthropology at Liverpool John Moores University and since 2015 she is a Senior Lecturer in ancient DNA at the Department of Archaeology in Durham, where she will lead our ancient and modern DNA laboratories. Eva is a specialist in the aDNA of prehistoric human populations and forensic genetics and will be teaching both undergraduates and MSc students.

Charlotte Roberts continued her research, particularly focusing on infectious diseases such as tuberculosis and leprosy, but she was also involved in outreach activities to academic and non-academic audiences in the UK and abroad:

- Gresham College Free Lectures, Museum of London: 'The archaeology of disease documented in skeletons' (<http://www.gresham.ac.uk/lectures-and-events/the-archaeology-of-disease-documented-in-skeletons>);
- Harmby and Spennithorne Women's Institute: 'Human bones do tell tales';
- *Skeleton Science* exhibition: together with Kirsty McCarrison and Matt Storey to bring the exhibition to Bede's World, Tyneside;
- Series of six lectures on palaeopathology to students from various disciplines at the Federal University of Espirito Santo, Vitoria, Brazil;
- Two lectures on palaeopathology to students on the Transylvania Bioarchaeology field school in Cluj, Romania;
- Inaugural lecture to open the Centre for Medical History, University of Winchester: 'Archaeological human

remains and the history of infectious disease: possibilities and realities’.

Charlotte also organised (together with Michaela Binder) an invited poster session on ‘The Bioarchaeology of Cardiovascular Disease’ at the Annual Meeting of the American Association of Physical Anthropologists, St Louis, Missouri, USA.

Vito Sparacello, Marie Curie Research Fellow working with Charlotte Roberts, was appointed as Scientific Expert for the UNESCO Chair in Medical Anthropology Università degli Studi di Genova, Italy. Vito also acted as scientific advisor for the exhibition *Le Sfide di Homo sapiens* (“Homo sapiens’ challenges”) at the Museo di Archeologia Ligure, Genova, Italy. Vito was awarded a £ 1,000 Research Project Grant from the British Association for Biological Anthropology and Osteoarchaeology (BABA0) for his project entitled *A new case of Neolithic tuberculosis from Liguria, Italy: the Pollera 21 child*.

In 2015, Durham University invested in a £750K suite of state of the art isotope and aDNA laboratories in the Archaeology Department to support student and staff research and teaching on the MSc Archaeological Sciences and MSc Palaeopathology programmes. The laboratories will open in Spring 2016 and are ably supported and managed by our research technicians Steve Robertson and Beth Upex. Some of the ancient DNA projects that are being conducted at the moment aim to contribute to the knowledge of the emergence of the first farming societies in the Levant and Anatolia, the mechanisms involved in the Mesolithic-Neolithic transition in Spain and Portugal and the biogeographical origins of the first megalithic builders in Portugal.

Janet Montgomery (together with Andrew Millard, Tina Jakob and Kurt Gron) organised the biannual United Kingdom Archaeological Sciences conference UKAS 2015 in April 2015. The conference was extremely well attended and brought together a large number of researchers, with more than 50 podium and

32 poster presentations. Janet and Tina have also contributed to the temporary exhibition of a Viking Age female individual at the Museum of Iceland, Reykjavik, entitled *Bundled Up in Blue* (<http://www.thjodminjasafn.is/english/temporary-exhibitions/current-exhibitions/nr/4531>).

Becky Gowland returned to teaching in October after a lovely year of research leave! Becky’s British Academy funded project *Children of the Revolution* has now finished and she is busy writing up the results. Becky is also 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*. This year Becky presented papers at the SAA in San Francisco, the AAA in Denver, BABA0 in Sheffield, and in Iceland.

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, and also worked as research assistant on Becky Gowland’s *Children of the Revolution* research project funded by the British Academy small grants.

Anwen Caffell and Andrew Millard were part of the team that established the identity of the skeletons discovered on Palace Green, Durham, in 2013 as the Scottish soldiers imprisoned in Durham Cathedral and Castle after the Battle of Dunbar in 1650. Osteological analysis established that a minimum of 17 individuals were represented, and the majority were young men and adolescents aged 13-25 years. Minimal evidence for trauma (both ante- and peri-mortem) was consistent with the fact that these men were new recruits inexperienced in battle, and that the most severely wounded were released following the battle. Andrew established that most of the individuals originated from Scotland or Northern England, although three had non-British

isotopic signatures. Radiocarbon dating confirmed a mid-17th century date of the human remains. Further information is available on the Scottish Soldiers website: <https://www.dur.ac.uk/archaeology/research/projects/europe/pg-skeletons/>

In addition to teaching commitments, Tina Jakob continued her research on the human remains from the multiphase cemetery of al Khiday 2 in Central Sudan (directed by Donatella Usai and Sandro Salvatori). She also analysed human skeletal remains from the QSAP-funded excavations on Mograth Island, Sudan, directed by Prof Claudia Näser, Humboldt University Berlin. Other research, together with Joe Walser III, involved the analysis of individuals from the large Muslim cemetery of El Qoz, Zaragoza and human remains from Bronze Age contexts from Zaragoza, Spain.

Student Successes

We are delighted to report that Davina Craps, Marieke Gernay, Maria Lahtinen and Brittney Shields successfully defended their theses this year. Sophie Newman has submitted her dissertation on ‘The Growth of a Nation: Child health and development in the Industrial Revolution in England, ca. AD 1750-1850’. Congratulations to all of them!

PhD Students

Year 1

We would like to welcome our new 1st-year PhD students:

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.

Penny-Mason, B.: Morbidity, Medicine & Maturation: A History of Paediatric Medicine & Childhood Disease in England AD 1450–AD1650.

Year 2

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 from the Roman Period to the Post-Medieval (ca. 1550–1850).

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

Mui, S.: Facing death: exploring the inhumation process in early and middle Saxon England.

Year 3

Filipek-Ogden, K.: Immunity and isolation: Assessing leprosy susceptibility and stigma in Medieval England (11th-15th Centuries AD), and its subsequent impact on contemporary society.

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

Quinn, K.: The impact of mobility on tuberculosis in England: a bioarchaeological and stable isotope approach.

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

Petersone-Gordina, E.: A bioarchaeological study of a complex urban cemetery from 15th-17th century Riga, Latvia.

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

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

Year 4

Kendall, E.: Milk matters: The effects of environment on breastfeeding practices in two Early Medieval English cemetery populations.

Matias, J.: More than male and female: gender in western Iron Age Europe.

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

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

Tamorri, V.: The semiology of tomb arrangement in predynastic and early dynastic Egypt.

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

Year 4+

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

MSc in Palaeopathology 2014-15

Blevins, K.: Investigating the infant and childhood origins of tuberculosis.

Brozou, A.: Using stable isotopes to reveal the differences: did diet change after entering the medieval leprosy hospital at Naestved, Denmark?

Cadbury-Simmons, R.: The strange disease of Lidwina the Virgin: a bioarchaeological study of multiple sclerosis.

Crowder, K.: Isotopic profiling of diet, health and mobility amongst the non-adult Gepid population buried at the Archiud Cemetery in Transylvania, Romania (4th-7th Centuries AD).

Duane-Roche, D.: The quality of life for Royal Navy personnel in the 18th and 19th centuries.

Enehaug, M.: The use of stable carbon and nitrogen isotope ratios to determine differences in diet between men and women from Medieval (12th -13th century CE) Bergen, Norway.

Hughes, S.: Confrontation at Coach Lane. A study on the prevalence of violence at the Quaker burial ground in Coach Lane.

Jones, A.: A biocultural approach to maternal health in Medieval and Post-Medieval England.

Kachur, A.: Standing tall in shields: stature estimation from skeletal remains in North-East England.

Morrison, S.: Intra- and inter-observer error evaluations of sex estimation methods for non-adults.

Ong, I.: Reassessing viability of identifying anaemia using cribra orbitalia.

Prayudi, A.: A study of bruxism from post-medieval Quaker burial in Coach Lane, North Shields.

Quade, L.: Urban disease in a rural environment: Evidence of pauper apprentices in Fewston, North Yorkshire from migration stable isotope analysis.

Rosen, S.: The problematic epidemiology of venereal syphilis: a comprehensive appraisal of the New World evidence for treponemal infection.

Scratchfield, Z.: The relationship of maxillary sinusitis and otitis media at post-medieval Coach Lane, North Shields.

Stratiadou-Paraskeva, Z.: Increased risks of mortality: periodontal disease and periosteal new bone activity in a post medieval population from Coach Lane, North Shields.

Tobin, A.: The costs of conquest: detecting changing environmental stress in the transition from Iron Age to Roman England.

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

Linda Fibiger

Research Projects

Kath McSweeney is currently collaborating with a team from the National Institute of Archaeology and Museum, Sofia, Bulgarian Academy of Sciences, in on-going excavations at Provadia-Solnitsata, Bulgaria, a Neolithic and Chalcolithic salt-production site. Osteoarchaeological analysis of the human remains from the Late Chalcolithic cemetery associated with the site continued in summer 2015. Forty-five individuals have been excavated and analysed so far, revealing some interesting burial practices. Other collaborative projects with the National Institute of Archaeology and Museum, Sofia, include the analysis of human remains from the Neolithic sites of Mursalevo and Nova Nadezhda, Bulgaria. Research in the United Arab Emirates continues with a Middle Neolithic settlement and cemetery site in the Emirate of Umm al-Quwain and the analysis of human remains from a number of prehistoric tombs from the Emirate of Abu Dhabi, excavated by a Danish team from Aarhus Museum in the 1970's.

Linda Fibiger, together with John Harris from Social Anthropology at Edinburgh and Joan Smith from the Edinburgh College of Art are part of a major EU-funded (Horizon 2020) multi-national research project. 'Transmitting Contentious Cultural Heritages with the Arts: From Intervention to Co-Production' sets out to develop, investigate, contextualise and implement new ways of transmitting contentious cultural heritage. Part of the project will involve the creation of a traveling exhibition featuring an artistic research project related to skull collections, as well as the creation of a programme of events and educational interfaces.

Field School

A further season of the field school at the World Heritage site of Nessebur on the Black Sea coast of Bulgaria run by Kath McSweeney occurred in May 2015. The purpose of the school is to enable MSc

Human Osteoarchaeology and Forensic Anthropology students at the University of Edinburgh to consolidate what they have learned in the taught element of the Masters programmes. The students get the opportunity to analyse skeletal remains from a multi-period necropolis, containing 1000+ individuals that dates from the Classical Greek through to the Byzantine periods. The field school will run again in May 2016.

Edinburgh Unit for Forensic Anthropology (EUFA)

News

Members of the Edinburgh Unit for Forensic Anthropology (EUFA) have been busy presenting their research at a number of national and international conferences over the course of last year, including the British Association for Human Identification Annual Conference at Manchester, the International Conference of Young Archaeologists, Iran in Tehran, the Winter meeting of the British Association for Forensic Medicine in Edinburgh, the 7th Scientific Meeting of the Spanish Association of Forensic Anthropology and Odontology in Toledo, Spain, and the Forensic Anthropology Society Europe Symposium, in Marseille, France. Helen Langstaff won the student prize for best oral presentation for her work on 'Comparison of the contiguous facial area method and the additive facial area method when assessing facial heritability' at the Annual Conference of the British Association for Human Identification in Manchester.

Elena Kranioti and Julieta Gomez Garcia-Donas also delivered a workshop in Forensic Anthropology at the Institute for Forensic Medicine, of the Ministry of Justice in Tirana, Albania, while Mandan Kazzazi ran a Dental Anthropology Workshop at Shahid-Beheshti University, Iran, Tehran in October 2015.

Elena Kranioti was also elected as Board member of the Forensic Anthropology Society Europe for 3 years (2016-2019).

Siobhan McLaughlin (Forensic Radiologist), Ralph Bouhaidar (Forensic Pathologist) and Elena Kranioti (Forensic Pathologist and

Anthropologist) have founded the Edinburgh Forensic Radiology and Anthropology Centre (EFRAIC) which is dedicated to the use of post-mortem medical imaging for the investigation of sudden and unexpected deaths as complementary tool to forensic autopsies.

Research Projects

Elena Kranioti is involved in two new research projects. The first is the Analysis and reconstruction of the production of controlled divinatory cracks in Shang Dynasty oracle bones from the 13th and 12th century BCE held in the National Museum of Scotland funded by the Challenge Investment Fund of the University of Edinburgh. Elena and Antoine Ruchonnet, a recent MSc graduate, have started working on a joint project with the department of Asian studies and the National museum of Scotland (NMS) on the investigation of a collection of oracle bones housed at NMS. The projects seeks to study the oracle bones and turtle plastrons and to replicate the divination procedures as practiced in ancient China with a series of experiments on producing heat-induced cracks.

The second project is *Adorned Afterlife - Existential Craft* (again funded by the Challenge Investment Fund of the University of Edinburgh). It is an interdisciplinary research network in partnership with the National Museum of Scotland (NMS) consisting of experts from the fields of Jewellery Design (S. Bottomley), Archaeology, Forensic Anthropology (Elena Kranioti), Classics, History and Museology. The network will seek to identify more speculative objects in collections believing our museums are filled with intangible artefacts that relate to the body as adornment. For more information see the project website <http://www.adornedafterlife.eca.ed.ac.uk/>.

Completed PhD Research

Diana, A.: No winter lasts forever...? A human-osteoaerchaeological study of populations from Romania during the Little Ice Age.

Frazer, S.: An archaeozoological study of the Links Of Noltland, Orkney.

Langstaff, H.: The heritability of facial morphology.

Thiemann, N.: Facial soft tissue thickness in modern Greeks using advanced medical imaging techniques.

Willows, M.: Health in Medieval Scotland.

Ongoing PhD Research

Baber, J.: The application of Bergmann's and Allen's Rules in Archaic Human Populations.

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.

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.

Lille, 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.: Mortality and morbidity in Scottish Medieval populations.

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

Dissertations Submitted for the MSc Human Osteoarchaeology, 2014/15

Depace, M.: Diet and dentition on the Black Sea: An examination of dental health and dietary reconstruction at ancient Mesambria.

Downing, M.: An experimental investigation of sharp force skeletal trauma with replica Bronze Age Weapons.

Hooper, M.: Assessing bilateral facial asymmetry of modern Cretans through virtual anthropological morphometrics.

Mallon, L.: A comparative study of activity-related changes in rural and urban settlements in Ireland.

Valstrand, N.: An osteoarchaeological study of two Late Iron Age cremations burials in Northern Sweden.

Dissertations Submitted for the MSc Osteoarchaeology, 2014/15

Gilbertson, C.: Non-metric cranial traits: a comparison of Medieval adult males and females from one Scottish and three English populations.

Huggett, V.: "A Bit of a Sticky Situation": Sources, production methods and recognisability in the archaeological record of ancient adhesives.

Kotzmanova, K.: Sub-adult burials from Late Chalcolithic Çamlıbel Tarlası, North Central Anatolia.

Mackie, T.: Tracking animal husbandry and pastoralism in Iron Age Central Anatolia: An isotopic case study and a diachronic comparative analysis from Boğazköy-Ḫattuša.

Pereira, H.: Health, disease, and diet: A pathological and comparative study of Agios Georgios during the Venetian Period.

Romaniuk, A.: From simple studies to complex issues: Research on rodent bone assemblages from Skara Brae, Orkney, Scotland.

Dissertations Submitted for the MSc Forensic Anthropology, 2014/15

Bonicelli, A.: Determining 'Age at Death': A new multidisciplinary laboratory-based method.

Diehl, M.: Material properties of blunt force trauma weapons and cranial fracture patterns on a simulated skull.

Gutekunst, M.: Commingled human remains: Testing the Mesh-to-Mesh method on the Calcanei.

Jenkins, S.: The use of humeral trabeculae as a forensic identification method.

Jorgensen, K.: Discovering possible causes of fibrocartilaginous enthesal change: A test of the Coimbra Method.

Nash, K.: Bilateral asymmetry in the calcaneus: A study of its presence and implications for Forensic Anthropology.

Nasseri, F.: Manual forensic craniofacial approximation of an unidentified skull using the Manchester Method.

Novak, M.: Microscopic and macroscopic analysis of sharp force trauma cut marks on the Synbone and bone.

Robertson, L.: Decomposition rates in Crete.

Robles, M.: Determination of sex: Three-dimensional reconstructions of the frontal sinus in a Cretan population.

Ruchonnet, A.: Cranial blunt force trauma on free-moving individuals vs individuals resting on a solid surface.

Scholl, A. R.: Histological estimation of age at death: An analysis of new and established methods applied to a modern Cypriot population.

Department of Archaeology
University of Exeter
Catriona McKenzie

Postgraduate Research Students

Cynthia Bradley continues her doctoral research on 'Remaking the Mazeway: Skeletal and Mortuary Evidence from the Ancestral Pueblo site of Wallace Ruin, southwestern Colorado, USA'. During the past year, she evaluated and rejected the hypothesis that the selection of at least 30 corpses for deposition within a long-abandoned Chaco great house was based upon age or sex. This research also entails the first significant application of *anthropologie de terrain* in Southwestern bioarchaeological research. Current evidence suggests that corpses were deposited upon room floors in an open space rather than being covered by an earthen fill, as was common in Ancestral Pueblo mortuary practices.

Belinda Tibbetts is in the third year of her doctoral research on foetal and infant skeletal palaeopathology as an indicator of maternal health and population stress. During the second year of her PhD Belinda has been collecting data and refining her methodology. She spent the summer at Çatalhöyük as a member of the Human Remains team, working on her own research and contributing towards the project's objectives. Her analysis of infant remains has been presenting some interesting and unexpected results, and she is looking forward to consolidating these results in her final year.

Mandy Kingdom is now in the second year of her doctoral research 'The Past People of Exeter' and has transferred to part-time status. Over the last year she has been busy analysing skeletons from Exeter Cathedral Green. A number of samples from Exeter Cathedral Green and from Princesshay have been selected for stable isotope analysis. This

work is in collaboration with a doctoral candidate at the University of Reading. She has also given a number of research presentations, including one at the EAA in Glasgow. In addition to her doctoral research Mandy has been working on the University of Exeter's training excavation at Ipplepen in Devon.

Sarah Cuthbert is entering her second year as a doctoral researcher on her AHRC-funded project *Enriching the Neolithic: The forgotten people of the Barrows*. Sarah has been busy re-analysing Neolithic assemblages and collecting data for analysis.

Other Research News

Catriona McKenzie is working as a co-investigator on a new project, '*Literary Archaeology*': *Exploring the Lived Environment of the Slave*, which was funded by an AHRC Early Career Developmental Award.

MSc in Bioarchaeology, Dissertations Completed in 2015

Ananyevskaya, E.: Ritual deposits of horse remains in Eurasian Steppe Region and Northern Europe.

Barnstaple:, S.C. An osteological analysis of the North Walk Cemetery.

Ferne, R.: An osteological examination of markers of occupational stress in two medieval skeletal collections from Exeter.

Fraser, T.: Zooarchaeological analysis of the faunal remains from Tuly Street, Barnstaple.

Greenwood, L.: Diffuse Idiopathic Skeletal Hyperostosis (DISH) in skeletons from two Exeter Medieval Cemeteries.

La Quesne, R.: Tooth crown size and structure in human sex determination.

Lauritsen, M.: Differentiating feasting and daily refuse in Pueblo II middens.

Short, A.: An osteological analysis of the Ipplepen skeletal assemblage.

**School of Applied Sciences
University of Huddersfield**
Anna Williams

Forensic Anthropology at Huddersfield is growing in popularity, with the second intake on the Master's courses in [Forensic Toxicology](#) and [Forensic DNA/Body Fluids](#), and the first cohort on the MScs in [Forensic Anthropology](#) and [Forensic Entomology](#).

The [Forensic Anthropology Research Group](#) (FARGo) is thriving, with 13 members, researching a range of decomposition-related topics, using the ever-popular 'HuddersFIELD' outdoor forensic laboratory for decomposition and taphonomy experiments. FARGo works in close collaboration with the [Burial Research Consortium](#) and the [Aquatic Forensic Group](#) on these projects.

Lorna Irish has successfully submitted her PhD thesis entitled 'The identification and quantification of gaseous products in relation to victim recovery (VR) dog efficiency', and is due to sit her viva in the next few weeks. Her External Examiner is Shari Forbes from University of Technology Sydney. She has presented at a number of police and practitioner conferences, and will be giving an oral presentation on 'Identification of Decomposition Odours that Elicit a Response from Trained Cadaver Dogs' at the American Academy of Forensic Sciences meeting in February 2016. Her research has been reported in the media on several occasions, such as [here](#).

FARGo welcomes Danyelle Thickett as a new part-time final year PhD student. Her thesis is entitled 'The Relationship of Developmental Instability, as measured by Fluctuating Asymmetry, to Ill-health experienced by Past Populations'. Danyelle has transferred from the University of Sheffield, where she was previously supervised by Andrew Chamberlain.

Fully-funded PhD studentships in forensic science at Huddersfield for 2016 are to be advertised shortly.

Anna Williams has been promoted to the position of Principal Enterprise Fellow and is continuing her public engagement and science communication work. She presented at the Royal Institution, The National Media Museum, London Month of the Dead, St Bart's Pathology Museum, the Otley Science Festival and the British Science Festival in 2015.

For more information, to apply for MRes or PhD study, or to use the HuddersFIELD facility, please contact Anna Williams, at a.williams@hud.ac.uk.

Media publications and conferences

Williams, A. [Coming to a field near you? The 'body farms' where human remains decompose in the name of science](#). *The Conversation*, 13th November 2015.

Williams, A. [Why scientists can't explain why death smells like death](#). *The Independent* 27th September 2015.

Williams, A. [The smell of death: its chemical pattern could become a powerful forensic tool](#). *The Conversation* 25th September 2015.

Irish, L. Parkes, G. and Williams, A. 2016. *Identification of Decomposition Odours that Elicit a Response from Trained Cadaver Dogs*. American Academy of Forensic Sciences, 2016, Las Vegas.

**Research Centre in Evolutionary
Anthropology and Palaeoecology
School of Natural Sciences and Psychology
Liverpool John Moores University**

Laura Bishop

It was a great year for us at LJMU and we welcomed new staff and students to our projects and collections at home and abroad. Our BSc(Hons) Forensic Anthropology programme had a very successful year, and we produced another crop of excellent graduates. Also in September 2015 we welcomed our first cohort onto our new MSc in Forensic Anthropology. We will also start

an MSc in Bioarchaeology with its first intake in September 2016.

We have welcomed Kyoko Yamaguchi to our academic staff. Kyoko has a range of research interests ranging from human osteology to relating genotype to phenotype. Her research complements our research groupings in *Human Variation and Adaptability* (with Joel Irish, Isabelle De Groote and James Ohman), *Forensic Anthropology* (Matteo Borrini, Costa Eliopoulos and David Jordan) and *Contexts of Human Evolution* (Laura Bishop, Carlo Meloro and Eline van Asperen).

Just a few of our research highlights for calendar year 2015 include Joel's work with the *Rising Star Expedition*, which found and described the fantastic fossils of *Homo naledi* from South Africa. Isabelle continued her excavations at Scladina Cave in Belgium and even took several of our undergraduates with her for training. Matteo has been serving as a visiting professor at Humanitas University in Milan during 2015, and has also appeared on the small screen in 'Britain's Medieval Vampires'. Costa continued his work with war graves in Cyprus. David continued his research into soils, taphonomy and detection of buried anthropological remains, and he is working to reveal the buried cities of the emperor Hadrian at Italica and of the Caliph at Cordoba in southern Spain. Laura was on sabbatical in the USA for most of the year, and spent the summer excavating early hominin sites in western Kenya. Carlo worked with colleagues in Brazil and starting new collaborations there and Eline has been advancing her pioneering work on dung fungi while still continuing her research on fossil rhinos.

Our research students have had wonderful and well-earned successes during 2015. Eleanor Dove won a student poster prize at the Annual Meeting of the American Association of Physical Anthropologists in St Louis, Missouri for her poster entitled 'A (w) hole new idea: Using nutrient foramen location to identify relative growth and the center of ossification in juvenile tibiae' and Carla Burrell won the Doreen Beck Student

Research Bursary awarded by the Paget's Association. Carla is investigating Paget's disease of bone in the Norton Priory skeletal collection. Sam Rennie won an AESOP Erasmus scholarship and spent 6 months at the University of Pretoria working with skeletal remains of African populations. Carole Davenport became qualified as a Certified Forensic Anthropologist III.

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/> and several of our PhD students, including Ele, Carla, Carole, Jutta Kuosa, Sarah Canty, Sam Rennie and Satu Valoriani are doing research on the hundreds of Poulton skeletons we currently house. The project trustees are open to research on the collections and details can be found on their website. We also hold collections from the Gloucester Museum on loan.

We have welcomed several students from South Africa as academic visitors as part of the AESOP Erasmus Mundus partnership between European and South African universities. Many of these have been students of Dr Anna Oettle at the University of Pretoria and we have enjoyed their collaboration with us and with Prof Caroline Wilkinson and her team at LJMU's Face Lab <https://www.ljmu.ac.uk/research/centres-and-institutes/face-lab>.

Finally, 2015 saw us saying congratulations and well done to our successful PhD students, Patricia Furphy, James S. Oliver, and Nicola Town. We will miss them but wish them all the best in their post-doctoral careers.

Visit us online at:

<https://www.ljmu.ac.uk/research/centres-and-institutes/research-centre-in-evolutionary-anthropology-and-palaeoecology>

Department of Archaeology
University of Sheffield
Diana M Swales
University of Sheffield

2015 was a busy but exciting year at Sheffield, the greatest pleasure of which was welcoming 178 delegates to the 17th BABAO Annual Conference. The organising committee consisted of a core of Pia Nystrom, Diana Swales and Jennifer Crangle, with notable assistance from Alison Atkin with regards to the website, social media and, not least, the quiz. The conference was further facilitated by an outstanding team of student volunteers consisting of Laura Baiges-Sotos, Anna Bloxam, Margarita Dagla, Emma Green, Linzi Harvey, Becky Haywood, Stacey Massey, Jessica McGinn, Hannah Plumer and Valasia Strati.

Current PhD student Vanessa Campanacho and Kevin Kuykendall organised a session '3D Surface Scan Applications in Bioanthropology: A Workshop and Discussion of New Technology', which was run by Simon Stone and Thomas O'Mahoney from MechInnovation Ltd. Rebecca Redfern from the Museum of London provided us with a second workshop 'Do you Have Any Skeletons? Top Tips on Accessing and Researching Collections in the Heritage Sector'. Both workshops were great successes and we thank Rebecca, Simon and Thomas for their involvement.

Congratulations are due to Kyle Billington, Ioanna Moutafi, and Jennifer Crangle who completed their PhDs in 2015. Since submitting her thesis, Jennifer been invited to present her research at various institutions and societies, including UCC (University College Cork) and the University of Leeds Medieval Group seminar series. She has also published an article from this research (see members publications).

Another excellent Masters cohort this year produced some of our most exceptional overall marks and research projects. Anna Barrett, Katherine Cash, Charlotte Cole, Berta Cunillera Font, Sara-Lyn Forman, Nicola

Hughes, Lilli Janotte and Sarah Poniros (MSc Human Osteology and Funerary Archaeology), Angela Maccarinelli and Michael McCready (MSc Osteoarchaeology) and Margarita Dagla and Emily Nisbet (MSc Palaeoanthropology) all received Distinctions.

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.

Campanacho, V.: The influence of skeletal size in bone degeneration rate, of the pubic symphysis, auricular surface and acetabulum, in two identified skeletal collections (19th to 21st centuries).

Crangle, J.: An examination into post-depositional disturbances of human remains during the English Medieval Period, in terms of their ideological and physical fate.

Ford, J.: Hyaenas 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 archaeoethanatology for revealing funerary practices.

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

Heyerdahl-King, I.: Middle Pleistocene hominid geographical variation and cranial trait comparison.

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.

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.

Plumer, H.: Paleopathologies among the Maya sub-elite: Comparisons between two sites in northwestern Belize.

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.

Salvagno, L.: The neglected goat: a methodological approach to the understanding of the role of this species in English medieval husbandry.

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

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

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

People

Our core teaching team remains unchanged: primatology/human osteology (Pia Nystrom), palaeoanthropology (Kevin Kuykendall), human osteology (Lizzy Craig-Atkins, Katie Hemer) and zooarchaeology (Umberto Albarella, Paul Halstead). Diana Swales continues as Demonstrator in Human Osteology and collections manager.

This year we welcomed three new people to the human osteology and funerary archaeology team. Petra Verlinden, previously of the University of Reading, has been appointed as Project Officer in Osteology to assist with the curation of the post-medieval cemetery assemblage from St Hilda's Church, South Shields. Greer Dewdney, who completed her undergraduate degree with us earlier in the year, has been hired as a Graduate Intern for the *Rothwell Charnel Chapel Project*. Beatrice Triozzi has begun a doctoral PhD project under the supervision of Pia Nystrom and Maureen Carroll.

News and Project Outlines

The past year has seen the initiation and development of a number of biocultural projects at the University of Sheffield.

Elizabeth Craig-Atkins has continued with the *Rothwell Charnel Chapel Project*, in collaboration with Jennifer Crangle and the Reverend Canon John Westwood. The project is a multi-disciplinary analysis of the medieval crypt and ossuary at Rothwell, Northamptonshire

(https://www.sheffield.ac.uk/archaeology/research/rothwell_chapel).

Lizzy's research into the role of weaning history in medieval infant identities continues with her collaboration with Julia Beaumont at the University of Bradford (http://www.sheffield.ac.uk/archaeology/research/infant_identities).

This year Lizzy also secured British Academy funding (in collaboration with Karen Harvey

in the Department of History, University of Sheffield) for a project entitled *The Material Body: An Interdisciplinary Study Using History and Archaeology*.

Katie Hemer has continued to teach funerary archaeology and has had a productive year as co-director of the *St Patrick's Chapel Excavation Project*, which is a collaborative research project with Dyfed Archaeological Trust. St Patrick's Chapel is an early medieval (5th-10th century AD) Christian cemetery on Whitesands Beach, Pembrokeshire (<https://www.sheffield.ac.uk/archaeology/research/st-patricks>). The project includes a substantial public engagement programme featuring bilingual (Welsh/English) public talks and tours, which attracted over 1000 visitors, and short film. Also, an exhibition detailing the excavation and its findings was installed in St David's Cathedral, Pembrokeshire, throughout August and September.

Kevin Kuykendall's current research (in collaboration with Julia Boughner, University of Saskatchewan, Canada, and Conrad Brimacombe, University of Sheffield) focusing on revisiting dental aging in chimpanzees has generated a number of peer-reviewed publications over the past year. This research re-analyses both existing and new datasets for dental development in chimpanzees to improve age estimation, to better understand the nature and magnitude of the 'wild effect' on dental developmental schedules in captive and wild populations. The project is working towards developing innovative methods to apply this information to aging immature fossil hominids.

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).

Diana Swales and Hugh Willmott have continued with their work on the multi-phase medieval site at Thornton Abbey, Lincolnshire. It has been an exciting year for

this project with the positive identification of the medieval hospital (<http://www.thorntonabbeyproject.com/>). To date, 150 burials have been recovered from varied burial contexts including multiple simultaneous interments. Recent collaboration with Hendrik Poinar at McMaster University has led to confirmation of the presence of yersinia Pestis, and further isotopic work in partnership with Sharon DeWitte is planned for coming year.

Umberto Albarella and his post-graduate research team have been engaged in an extensive programme of zooarchaeological studies of past human-animal relationships. Details of this excellent research are available on our bioarchaeology research page (<http://www.sheffield.ac.uk/archaeology/research/bioarchaeology>).

Outreach and Impact

We continue activities to promote osteology to the public, which this year have included fairs, festivals, museum events and courses for children and adults with learning disabilities. Much of this great work is undertaken by our graduate research community. A notable example of this outreach activity is the *Archaeology in the City* outreach programme developed by our students (<https://archinthecity.wordpress.com/>), which often incorporates osteology and biological anthropology into their events and podcasts.

Lizzy organised a session at the EAA, Glasgow, in collaboration with Jennifer Crangle and Jonny Geber (University College Cork) on the 'Control and Management of Christian Burial'. Ten academic papers were presented by colleagues from the UK, Sweden, the Czech Republic and Australia, all of whom sought to go beyond simple characterisation of funerary rites to discuss the processes and identities involved in their organisation.

PhD student Emma Green, researching archaeoethanatology, ran the Society for Medieval Archaeology student colloquium between 12th-14th November. This included

a workshop on human skeletal remains and the bioarchaeology of health and disease in the medieval period.

Online Activities

Aside from personal and project pages on our departmental website, Sheffield have an active group of bloggers and tweeters. Staff and project blogs include: <https://southafricanpalaeocaves.wordpress.com/>; <http://thorntonabbey2014.blogspot.co.uk/> and www.historymatters.group.shef.ac.uk/. Personal blogs by alumni and current students: Alison Atkin (current PhD): <https://deathsplaining.wordpress.com/>; David Menear (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/>. 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

2015 has been another busy and successful year for both staff and students at Southampton.

We have welcomed some new staff and new initiatives across the university. Two new research centres have been launched: Medicine in History and Society and the Centre for Anthropology.

Andrew O'Malley is now Deputy Director of the Centre for Learning Anatomical Sciences. Scott Paterson has also joined the team, which also includes Scott Border, Jenny Skidmore and Tomasz Cecot. Both Andrew and Scott P focus on forensic human identification, whereas Scott B focusses on neuroanatomy.

Within the department of Archaeology, both Alistair Pike and Joanna Sofaer got promoted to personal chairs. Chloe Belard has joined

Archaeology as a Foundation Fyssen post-doc. Her project, entitled 'The Material Representation of Gender Categories. Contributions of Social Anthropology to the Archaeology of Death (La représentation matérielle des catégories sociales de genre: apports de l'anthropologie sociale à l'archéologie funéraire)' looks mainly at the ornamentation of the body in mortuary contexts in Iron Age Champagne in France. Together with Jaco Weinstock, Ellie Williams is undertaking a zooarchaeological study of the faunal remains from Amara West in Sudan (with Neal Spencer, British Museum). Together with Andrew Shortland (Cranfield) and Joanne Rowland (Freie Universität, Berlin), Sonia Zakrzewski has published a monograph on the use of scientific methods in Egyptian archaeology. This book uses case study boxes to demonstrate possibilities and examples of best practice within Egyptian research. Sonia's focus was obviously on the bioarchaeology and the synthesis of the human and faunal remains into broader archaeological understanding. Sonia has also taken over as Vice-President of the Paleopathology Association and so is now responsible for organising the American meetings of that group.

During the summer, Ellie Williams and PhD student Sarah Stark organised and ran a very successful osteoarchaeology internship programme for interested and keen undergraduate students. This attracted both Southampton undergraduates and undergraduate students from Canterbury Christ Church University and Staffordshire University. Sarah Stark was also busy in other ways as, together with Christian Hoggard from the Centre for the Archaeology of Human Origins in Southampton, she organised and ran a very successful conference and workshop on the integration of geometric morphometric methods into archaeology. This workshop attracted over 100 delegates, and the proceedings will form a special issue of the *Journal of Archaeological Sciences*. Ellie has also been very busy as she has developed a new website for Bioarchaeology and Osteoarchaeology at

Southampton (BOS), which can be found at <http://pathbrite.com/BOS/profile>.

Other postdocs in the department have kept very busy. Alex Pryor (Leverhulme Trust) has been undertaking sampling of mammoth teeth for isotopic analysis, such as at the Upper Palaeolithic site of Kostenki in Russia. Meanwhile Chris Standish (NERC) has remained closer to home, and has been using isotopic methods to date Neanderthal and other cave art across Europe.

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 biological anthropology that has captured the imagination of the first year undergraduates. Together with Medicine and Anthropology, Jo Sofaer has continued teaching a collaborative 'Body and Society' module. Similarly, Sonia Zakrzewski's collaborations with Engineering are continuing with Alex Dickinson and Prof Martin Browne, studying stress and structural integrity in parts of the skeleton through microCT (μ CT). This research has developed thanks to interest in developing better dental implants and joint replacements.

The research published this year that garnered the greatest amount of national and international interest was a scientific study of a leper from Great Chesterford in Essex (published in *PLoS One*). The man studied, who was probably in his twenties when he died in the 5th or 6th centuries AD, was a very early British case of leprosy. The study included macroscopic study of the palaeopathology, lipid analysis, bacterial aDNA study and isotopic study. Genetically, the leprosy strain was shown to belong to the 3I lineage, with the Sr and O isotopes also suggesting a northern European or Scandinavian origin, and hence the story was picked up the popular press as a question of

whether leprosy came to Britain from Scandinavia.

Current Research Students

Three new students started full-time doctoral research in 2015. Caroline Armstrong (supervised by Jo and Alistair) is researching the long-term history of Barton-on-Humber through skeletal analysis, using both osteobiographies and isotopic analysis. Christianne Fernee started her doctoral research studying intra-individual patterns of dental morphology using μ CT. Christiane is supervised by Sonia and Kate Robson-Brown (Bristol) and is funded through SWW AHRC system. Sammy Field has also just started and is working on developing methods of using dental wear to improve age estimation. Sammy is supervised by Simon Mays (Historic England) and Sonia, and is funded through the AHRC CDA system.

Brittany Hill has just submitted her doctoral thesis for examination. Her research has looked at differences in cremations and burials with animals in Roman Britain.

Continuing PhD Students

Chuang, R.: The acquisition of domestic equids in Roman Britain.

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.

King, L.: Variation in auditory ossicles: an evolutionary and palaeopathological evaluation.

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 2014-2015

Fryer, R.: Rural life at Wharram Percy: Strontium isotopic analysis exploring mobility, migration and social exclusion.

Hill, D.: Two possible cases of castration in skeletal remains from Roman Egypt.

Lee, M.-T.: Life on board different ships: comparison between the human remains of the Royal Hospital Greenwich and the Mary Rose.

Mills, S.: Accurate or precise? Analysis of four long bone and four dental non-adult ageing techniques to assess their reliability in estimating age on two distinct non-reference collections.

Needham, M.: A trauma analysis of the Anglo-Saxon execution cemetery, 42-54 London Road, Staines skeletal assemblage.

Thompson, J.: An assemblage of the living and the dead? Re-analysing Tinkinswood Chambered Tomb.

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

The last year saw a number of exciting developments and ventures for the Teesside University applied biological anthropology research group, spanning conferences, publications, workshops and excavations.

Our key development in 2015 has been moving into our new laboratory – and the fun we’ve had kitting it out. We’ve been trying to acquire new space for a while, and now we have a dedicated space for our research and to deliver training and practical sessions for our taught degree students. It goes without saying that visiting researchers are also welcome!

There were several conference presentations from our group across the UK, and some further afield, including papers at the National

Museum in Iceland, and as ever at the American Academy of Forensic Sciences (AAFS) meeting, this time in Orlando. Our team also gave presentations at the Teesside Archaeological Society, the Teesside University Research forums and at a number of other universities. We have been involved in a number of interesting excavations in the north-east, but also further afield (such as the Southern Jê Landscapes Project in Brazil - Abreu and Garcia Field Season 2015).

We have continued to publish extensively throughout the year, with topics ranging from cremation to casting trauma to forensic ecogenomics. *The Archaeology of Cremation: burned human remains in funerary studies*, edited by Tim Thompson, was released by Oxbow Books and we are now working on new titles for CUP and Elsevier. The peer-reviewed international journal *Science & Justice* also sits within the research group, and as a result we have been involved in a number of activities (principally aimed at Early Career Researchers) through the Chartered Society of Forensic Sciences. We’ve also been undertaking significant outreach activities, including taking part in the international science event Pint of Science (<https://pintofscience.co.uk/2015-events/>), and well as the Latitude and Deer Shed festivals.

Our research continues to span both the globe and the breadth of forensic and biological anthropology and archaeology. Congratulations to Sarah Ellingham and David Errickson who both successfully passed their PhD vivas and are now just tidying up some amendments. They have both worked extremely hard and deserve their success. Sarah will leave us soon to take up a post at the ICRC in Geneva. We have also welcomed some new PhD students, including Awatif Shamata (a forensic practitioner from Libya) who will be applying our scanning methods to human remains, and Paul Norris who is currently scanning, modelling and visualising feet and footwear (because someone has to...).

Our group continues to have a growing digital presence. We run a research blog at <http://blogs.tees.ac.uk/anthropology/> and maintain a Twitter feed @TU_Anthropology alongside our individual blogs and twitter accounts. Some of our research projects have shiny new webpages, such as the *Jé Landscapes of Southern Brazil*, scheduled for release early in 2015. Our team is also behind *Anthronomics Ltd*, which is currently working on a significant update for Dactyl.

Current PhD Students

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

Ellingham, S.: Advanced analysis of burned bone from forensic and archaeological contexts.

Errickson, D.: The application of surface scanning in a forensic anthropological context.

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

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

Shamata, P.: Assessing methods of 3D non-contact surface scanning of traumatic injuries of the soft tissues.

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

POSTGRADUATE RESEARCH ABSTRACTS

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

Anna Barrett

Durham University and 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 leave lesions on the ribs and sinuses, has been linked to particulate pollution associated with poor air quality, a problem that is still present in many countries today. Building on previous research, 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.

Rural and small urban populations in Flanders (Belgium) and NW-Europe (ca. AD 1000-1860) - the profile of agrarian inhabitants and urban lower class communities, primarily based on published and new osteological analyses

Marit Van Cant

Free University of Brussels/

University of Sheffield

This study involves the bioarchaeological analysis of six medieval to early modern rural and small urban communities in Flanders (Belgium) between ca. 1000-1860: the small town of Deinze, and five rural sites: Moorsel, Slijpe, Vichte, Zottegem and Oosterweel (a

social higher status group that was buried inside the church).

The osteological research to date has elucidated the impact of occupational behaviour and the effects of human biology as well as the influences on general health when living in an urban or rural environment. It is suggested that living in a town has an impact on stature, development and immunity, and thus culminating in a mortality increase. In the small town of Deinze, the observed high mortality of subadults (24%) does not contradict historical sources that suggested a peak in infant death in the eighteenth century. Moreover, a significant exposure to environmental stress was seen in the prevalence of dental enamel hypoplasia and TB.

The occurrence of respiratory diseases may have been caused by the occupations of the Deinze inhabitants, such as the tapestry manufacturing, which is suggested to imply a susceptibility to acquire TB bacilli. Fewer infectious diseases, on the other hand, are noticed in Moorsel, Slijpe and Oosterweel, however, a high prevalence of healed trauma and enthesal changes (EC) were observed for both sexes in Deinze and Moorsel, and might be due to heavier physical labour.

The study of EC indicated more discrepancies within lower class communities compared to the socially higher ranked women from Oosterweel, who were diagnosed with less stress markers. Furthermore, both historical and socio-economic data of each site will be discussed with the focus between the 12th and 18th Centuries AD, as this era was essential for the formation of the rural market economy.

In this regard, this study of medieval to early modern rural and small urban communities may shed light on the impact of commercialisation of labour on the health of these past populations, alongside the role of rural labour supply.

Cremation practices in late Iron Age and early Roman Britain: Funerary responses to the acculturation of ritualism, culture and technology

Emily Carroll
*University of Reading/
University of Bristol*

Funerary rites are essential for reconstructing past cultural transitions, as they reflect social organization, technology and belief. Alterations in these rites allow us to better understand changes within society as a whole. While changes in inhumations are well-studied, transitions within cremation practices have received less attention, despite being a predominant burial rite for large parts of prehistory. This is not only due to the previous paucity of cremation evidence within the archaeological record, but also because of its varied state of preservation. As a result, the nature of cremation funerals in ancient Britain and the many variations of the practice are not so well established. This research project aims to address this gap in contemporary research by combining anthropological investigation with environmental analysis and the examination of the heat-induced alterations of thermally-altered bone in cremations dated from the late Iron Age to the early Roman period in Britain. The results obtained will be used to investigate the concept of globalisation across this north western province of the Roman Empire. It is intended that this research will not only contribute to the current concepts of mortuary studies in archaeology, but shall also demonstrate the potential of cremated burial data as a means of understanding social transitions in early Roman Britain.

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

This thesis is an examination into 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.

Palaeopathological and isotopic analyses of the individuals excavated at the Jucu de Sus Necropolis (5th - 12th centuries AD), Transylvania, Romania

Kayla Diane Crowder
Durham University

This doctoral research will employ isotopic and macroscopic analyses to reveal the duration of occupation, and the health, diet, and mobility of the individuals buried at the Jucu de Sus Necropolis (5th – 12th Century), Transylvania, Romania. Radiocarbon dating will be conducted to define a date range for the different inhumation periods of the cemetery. Stable isotope analyses will be used to establish a local strontium and oxygen biosphere specific to the archaeological site, and to determine migratory status (local vs. non-local). Carbon and nitrogen stable isotope analyses are to be utilised for determining dietary patterns as well as individual, life-course health profiles via incremental dentine stable isotope analyses. A complete

population health profile will be created via macroscopic skeletal and dental analyses. The resulting data will be combined in order to further investigate the correlation between skeletal lesions associated with nutritional stress/metabolic disorders and increases in the nitrogen profiles. Historical and clinical resources will aid in constructing a complete biocultural picture of the necropolis. The results of this study will help to increase knowledge about the past inhabitants of this under-researched region of Eastern Europe, establish baseline biosphere data for the region, and offer original insight regarding the diet and health of the individuals buried at the Jucu de Sus Necropolis.

Bringing to bear: Biological and biocultural influences on pelvic growth in girls

*Sarah-Louise Decrausaz
University of Cambridge*

My research expands on current work on the obstetric dilemma. It combines skeletal biology with studies in growth and development to better understand the long-term factors influencing mechanical childbirth difficulties. My project examines pelvic growth and body composition change from puberty to adulthood in girls. This research will clarify the factors that affect pelvic development during puberty and can inform on mechanical challenges women face when giving birth as adults. To do this, I am studying birth canal and body sizes and shapes of 250 girls living in contemporary London, England between the ages of 4 and 20 years old. This sample includes body composition and lifestyle data, as well as DEXA scans (dual-energy X-ray absorptiometry scans). For a subset of 40 girls, size and shape measurements were collected every 2 years. DEXA scans provide an image of both a person's entire skeleton and their surrounding fat and muscle tissue, providing an exciting opportunity to examine annual body size and shape changes in both skeletal and soft tissue. This sample includes information on lifestyle (socioeconomic status) and health (such as protein intake,

activity levels, birth weight, age at menarche), which I will incorporate into my analyses to identify biological and biocultural influences on pelvic growth and body composition change. The results of my research will illuminate the impact of pelvic development during adolescence on mechanical childbirth difficulties during adulthood.

**Management of human skeletal collections:
A new protocol**

*Rose Drew
University of Winchester*

Aims

Museums are unfamiliar with the quality of their human remains holdings due to inadequate funding, time and skills, which impedes research. Current protocols are designed for experienced osteologists. The 'rapid assessment system' (RAS) aims to fill this gap using affordable resources (eg. curators) and non-specialist language.

Methods and materials

Thirty-seven volunteers without osteological training trialed the system across three weeks using archaeological specimens of various ages and both sexes, generating 91 datasheets. Twenty-two novices observed at least three skeletons. RAS uses two segments, Inventory (element presence, absence, condition) and Paleopathology (normal and abnormal appearance of teeth and bones).

Results

Volunteers were correct 70.4% for Inventory queries, reaching 75.3% by the third week. Paleopathology results ranged from 85.2% to less than 10% correct. Overall condition of remains, a primary recommendation from English Heritage enjoyed 90% success (81.0 correct from 91 forms); skull condition was correct 96.2% (87.5/91). Differentiation between 'robust', 'gracile' and 'moderate' long bones was 79.7% effective (72.5/91); recognising tooth wear (none, mild, moderate) accomplished 78.6% (71.5/91). Robusticity and dental condition can inform on age and sex.

Implications

Inventory and Paleopathology segments must be offered separately, Paleopathology assessments are appropriate for those with training or patience, also serving as an aid memoire for early-stage researchers. RAS can be tailored to assess specific disorders. This system does not compete with established protocols, but is a complementary, non-invasive recording process. If adopted by commercial firms, universities and museums, data can be readily published, thus reducing handling of fragile and unique remains.

The application of surface scanning in a forensic anthropological context

David Errickson
Teesside University

In homicide cases, skeletal trauma can provide evidence for the specific conditions of an individual's death. Forensic anthropologists can use skeletal trauma to reconstruct the final sequence of events for an individual. Photography is then utilized as a way of interpreting and presenting this evidence in a court of law. Photography is the standard for documenting forensic evidence.

Images are important as they act as a permanent record even after evidence has changed, degraded or disappeared. Imaging techniques from interdisciplinary research are being adapted to record evidence at the scene of a crime. Surface scanning can be used to create three-dimensional (3D) digitisations. Thus, a 3D digitisation can be taken into a courtroom and visualized live in front of a judge and jury. This research uses a series of surface scanners, and focuses on the visualisation techniques of traumatic osteological evidence for the courtroom as well as developing these standards

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 one year of age, as this is when growth is at its peak and thus the skeleton is most sensitive to stressors. By developing innovative new methods of metric assessment, to determine stressor impact on intrauterine growth, the project will further our understanding of the relationship between infant health and growth in past and present populations.

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.

Body size, habitual behaviour and skeletal biomechanics in Neolithic Gozo, Malta

Eóin Parkinson
University of Cambridge

How did socio-cultural change and the environment impact on the human skeleton during the Neolithic and Chalcolithic in the central Mediterranean? This research examines diachronic and synchronic variation in human body size and shape across human populations during the Neolithic-Chalcolithic transition in the central Mediterranean. The IV-III millennium BC is regarded as a period of marked cultural change, which manifested itself in a mosaic of temporal and regional differences emanating from a homogenous Neolithic. Sparse settlement patterns have also sparked debates over the subsistence and mobility of Chalcolithic populations. Previous studies of long bone biomechanics have lent insights into health, subsistence, habitual mobility and behaviour in past populations. This study will utilise metric data derived from 3D laser scanning and direct measurements in order to analyse morphological variation in the humerus, femur and tibia. Data will be collected from a large and highly disarticulated Neolithic skeletal collection from the Brochtorff-Xagħra circle, Gozo, as well as from contemporary populations from around the central Mediterranean. This project aims to explore inter-regional differences and similarities in biological adaptations to the human skeleton during times of cultural, economic and environmental change.

The effects of body type on human thermoregulatory responses to cold conditions

Stephanie Payne
University of Cambridge

This research investigates how modern humans respond to cold conditions. I focus specifically on how our response to cold exposure is dependent on our body type: on our body composition, and muscle and fat distribution. Using thermal imaging to map temperature patterns across a variety of body

types will reveal the interactions between the body's dynamic thermoregulation and the passive insulation of our body tissues during cold exposure. Under controlled cold conditions, my research will also investigate how body type influences seasonal variation in our response to cold conditions, and the interaction between body type and change in physical performance on cold exposure. This is important for both our understanding of human evolution and modern human physiology. Today, the range of human body types is greater than ever before as more populations have access to surplus food and vary greatly in physical activity. My research will provide data for body types that have yet to be comprehensively mapped during cold exposure. From an evolutionary perspective, different ancestral populations will have faced heat stress or cold stress, and so investigating how thermoregulation and body type interact in real time will further our understanding of why certain body types may be adapted for particular climates.

Living outside the city gates: A palaeopathological, isotopic and comparative analysis of the post-medieval St Gertrude Church cemetery population in Riga, Latvia

*Elina Petersone-Gordina
Durham University*

The current research is based on the complex site of the St Gertrude Church cemetery (SGCC) in Riga, Latvia, dating from the 15th - 18th centuries AD. This study will analyse health-related stress and diet in the moderately-wealthy SGCC population and compare the data between the three main burial contexts: the main cemetery, which serviced Gertrude village, and two mass graves, in which, according to historical accounts, poor rural immigrants from the Vidzeme region (north-east of Riga), might have been interred during the famine of AD 1602-3. It is anticipated that the analysis will provide unique evidence for overall general quality of life in the population from Gertrude and help to identify whether the people buried in the mass graves represent a different

'population' group. To achieve this, both skeletal and isotopic analysis will be used.

To view the SGCC in its regional context, previously published data on skeletal stress markers from contemporary urban and rural cemetery populations in the Baltic countries will be compiled and used for comparative purposes. The resulting dataset would demonstrate whether there are significant differences in general health status between post-medieval urban and rural populations in the Baltic region and explore the reasons for disparities. The scarcity of bioarchaeological research in Eastern Europe and the need for detailed and comparable data from the region makes this project an important contribution for future population health studies.

Skeletal growth, development and pathological disturbances during the sub-adult years in the Danish medieval period

*Charlotte Primeau
University of Copenhagen*

This thesis is a PhD by publication and consists of four projects with a focus on sub-adult skeletal growth, development and pathological disturbances during the Danish medieval period. The thesis includes basic method development (Study I, II and IV) as well as applied research on childhood health as evident on adult skeletal material from the Danish medieval period (Study III).

Study I tested if CT images could be used to observe Harris Lines (HL) on tibiae. Results showed that CT and radiographic images compared well for confirmation of the presence or absence of HL, but compared less well for counting the number of HL.

Study II constructed a coloured dental atlas for estimating age-of-formation of Linear Enamel Hypoplasia (LEH) based on histological data from a different research group, combined from two publications (Reid and Dean 2006; Holt *et al.* 2012). The coloured dental atlas was then tested for inter- and intra-observer agreement, with results indicating that the coloured dental atlas could

be used as a reliable method for anterior teeth and first molars.

Study III examined two adult populations (one urban and one rural) from medieval Denmark for HL, LEH and infectious middle ear disease (IMED) and found a trend with higher frequencies for all three skeletal markers for the urban population. A pattern for the Early to Middle Medieval time period was seen, which is believed to reflect the increased hardship in the Middle Medieval period due to the agrarian crises.

Study IV developed a method for estimating age of sub-adults from the medieval period in Denmark from long bone lengths when dental development cannot be used. This was in the form of linear and quadratic regression equations.

Exploring diachronic changes in human activity, diet and health in the prehistoric Baltic context

Michael Rivera
University of Cambridge

This project explores cultural transitions in the Baltic region during the Neolithic, Bronze Age and Iron Age (5,400 BC–AD 850), through a bioarchaeological lens. To interpret behaviour, mobility and activity, 3D imaging will be used to study bone cross-sectional geometry, and musculoskeletal stress markers will be recorded on the limb bones. Recording the rates of non-specific stress markers and estimating stature and body mass variables will help the evaluation general health levels. A study of the cranial and facial dimensions, as well as dental dimensions and palaeopathology will allow the exploration of dietary change. The results of this research will demonstrate the role of these lowland, coastal regions of the Baltics in the global narrative of transitions into farming. The current study will uncover long-term biological adaptation to changing subsistence patterns in the Baltic coastal, lakeside and riverside environments across deep time.

Postcranial skeletal indicators of locomotor behaviour in hominoids

Emily Saunders
University of Birmingham

This research investigates the relationships between locomotor behaviour, ecology and skeletal anatomy in modern humans and extant non-human apes. These allow us to shed more light on how locomotion is reflected in skeletal morphology, on the mechanical characteristics of locomotion that are associated with different habitats, and ultimately, how habitual bipedalism evolved in the hominin lineage.

Morphological evidence indicates varying degrees of bipedal capability in many fossil hominoids, suggesting a complex and mosaic development of bipedalism throughout their evolution. However, the reliability of several morphological features used to infer bipedalism and other locomotor behaviours in fossil hominids had previously not been tested by studying their expression among living apes.

We are assessing the morphological variation in postcranial skeletal features that have been associated with bipedalism, vertical climbing and suspension among extant apes. We are therefore accumulating osteological data for all extant ape genera and most species, including for geographically distinct populations of modern humans, which can be related to locomotor behaviour. Our biomechanical studies of walking gaits in humans, and in captive chimpanzees and gorillas, allow these morphological features to be compared with finer locomotor characteristics, in addition to the broader locomotor repertoires previously recorded for wild apes. With this assessment of the reliability of skeletal features as indicators of locomotor behaviour, current interpretations of the morphology of fossil hominoids can be reconsidered.

N.B. Many thanks to all the BABAO members who kindly responded to my email request about collections containing skeletons of eastern Asian origin.

Assessing methods of 3D non-contact surface scanning of traumatic injuries of the soft tissues

*Awatif Shamata
Teesside University*

The goal of examination and documentation of wounds in a forensic field is to estimate the cause and timing of the injury, which is likely at issue in the courts. It is vitally important for forensic specialists that they have documented these injuries in a correct and accurate manner covering all fine details. Not only does it require much experience, but it demands accurate and modern documentation technologies and methods. Traditional methods for wound documentation and analysis are not adequate for the medico-legal interpretation of injuries for many reasons. Therefore, the aim of this work is to assess the use of a structured light surface scanner by applying it in documenting and examination of different external traumatic injuries in three dimensions. Further, we will assess whether the results of this scanning are useful in the courtroom.

The effects of industrialisation 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 stresses; 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.

The analysis of funerary and ritual practices in Wales between 3600-1200 BC based on osteological and contextual data

*Geneviève Tellier
University of Bradford*

This thesis examines the character of Middle Neolithic to Middle Bronze Age (3600-1200 BC) funerary and ritual practices in Wales. This was based on the analysis of chronological (radiocarbon determinations and artefactual evidence), contextual (monument types, burial types, deposit types) and osteological (demographic and pyre technology) data from a comprehensive dataset of excavated human bone deposits from funerary and ritual monuments.

Funerary rites in the Middle Neolithic (*ca.* 3600-2900 BC) most commonly involved the deposition of single inhumation or cremation burials in inconspicuous pit graves. After a hiatus in the Late Neolithic (*ca.* 2900-2400 BC), formal burials re-appeared in the Chalcolithic (*ca.* 2500-2200 BC) with Beaker burials. However, formal burials remained relatively rare until the Early Bronze Age (*ca.* 2200-1700 BC) when burial mounds, which often contained multiple burials, became the dominant type of funerary monument. Burial rites for this period most commonly involved the cremation of the dead. Whilst adult males were over-represented in inhumations, no age- or gender-based differences were identified in cremation burials. Few significant patterns in grave good associations were recorded within the burial data. The tradition of cremation burials carried on into the Middle Bronze Age (*ca.* 1700-1200 BC), although formal burials became less common. Circular enclosures (henges, timber circles, stone circles, pit circles), several of which were associated with cremated human bone deposits, represented the most persistent tradition of ritual monuments, with new structures built from the end of the fourth millennium BC to the middle of the second millennium BC in Wales.

Taphonomic analysis of human remains from the Brochtorff Xaghra Circle, Gozo, Malta

*Jess Thompson
University of Cambridge*

The Brochtorff Xaghra Circle comprises the largest body of evidence from Neolithic Malta for both human and animal remains, and ritual material culture. Burials were placed in a series of underground chambers throughout the Neolithic, from the Żebbuġ (4100-3700 BC) to the Tarxien (3100-2400 BC), providing scope to investigate changes in burial processes over a span of *ca.* 1500 years. The elaboration and intensification of ritual during this period is well attested through both monumental architecture and figurative art. The aim of this research is to assess whether, and how, this intensification translated into rituals surrounding death.

The Brochtorff Xaghra Circle is unique within both the Maltese and wider European context, containing almost 220,000 fragments of human bone from an estimated 900 individuals. Burials were placed repeatedly in caves and niches with extensive periods of re-use and rearrangement. Of these burials, only 10% remained complete; the vast majority are disarticulated and commingled. However, little is currently known about burial formation processes at the Circle. Taphonomic analysis will assess modes of burial, fragmentation and dispersal, comparing results from the Żebbuġ to Tarxien phases, to produce a clear picture of mortuary practices on a micro-scale over an extended period of time. By engaging with social theory and cultural anthropology, this analysis will examine the construction of identity and ontologies of the body through the treatment of the dead in Neolithic Malta.

A comparative study of spinal disease in ancient Nubians during the Meroitic to Christian Periods

*Samantha Tipper-Booth
Durham University*

A comprehensive study of spinal health, reflecting stresses of daily life, has not yet been achieved for past Sudanese populations, but it can potentially tell us much about a past population's health and welfare, for example their overall quality of life, and the occupational and environmental stresses that led to spinal disease. Most importantly, it provides a comparative deep time dataset for modern clinical studies.

A large number of the living population still live in rural areas, and are dependent on agriculture, including keeping of cattle for their livelihood, in much the same manner as ancient Nubians. However, data collection and reporting on occupationally-related injuries and disease for the Sudan and other sub-Saharan countries today are not comprehensive, because national policies for reporting and maintaining records are not in place or not widely enforced.

This project hypothesises that living in harsh environments (desert and rocky land) and working in high risk occupations, would lead to injuries and joint degeneration in the spine in past Nubian populations. This study on spinal disease and trauma has collected data from 535 individuals from six Nubian populations located from the 1st to 6th cataracts in Sudan. Individuals were examined for a range of spinal pathology and frequency rates were compared, with the objective of providing a picture of health, quality of life and environmental risks and stresses faced by ancient Nubians during the Meroitic to Christian periods (300BC to AD 1500).

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

*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 is 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 the Romanisation, first as enemies and then as allies of the Romans. Their territories occupied either sides of the Gran Sasso mountain and a small land 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 percentage about the Vestini that inhabited the Eastern side of the Gran Sasso is known 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 to further investigate their socio-political structure and their 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.

All out of proportion? Stature and body proportions in Roman and Anglo-Saxon England

*Lauren Walther
Durham University*

The aim of this thesis is to assess the adult stature and body proportions of Romano British (AD 43-410) and the Anglo-Saxons (*circa* AD 400-1100) skeletal populations, throughout various geographical locations in England. Stature has been utilized to indicate health and growth in past populations as it is associated with nutrition and stress experienced during the growth process, whilst body proportions can reflect adaptations to local environments. Previous studies throughout different periods and cultures have assessed stature (Raxter *et al.*, 2008; Sciulli *et al.*, 1990; Steckel, 2004) and body proportions (Giannecchini and Moggi-Cecchi, 2008; Schweich, 2005; Temple *et al.*, 2008), however few have focused on these two time periods. The stature and body proportions of both populations will be determined through the reconstruction of living stature through the use of Raxter *et al.* (2006) revised Fully's anatomical method and through the analysis of a variety of indices. New mathematical regression formulae will be created for each population based on the reconstructed living stature, which will be statistically compared to mathematical regression formulae currently utilised by bioarchaeologists to determine accuracy of each equation. The use of different indices will aid in assessing possible ecogeographic patterns with regards to body morphology. Finally, this study of stature and body proportions will aid in the assessment of temporal or geographical trends with regard to social status, sex and population mobility.

Differential patterns of mortality and morbidity. A bioarchaeological approach to childhood in Roman-Britain

*Kyle Waters
Bournemouth University*

In recent years the interest in the archaeology of children has increased dramatically and although high levels of infant and child

mortality existed in past populations, knowledge of sub-adult demographics during the Roman Rule of Britannia is largely limited. This has been suggested to be reflective of a population's mortality but also as a consequence to social, cultural and environmental conditions. This research focuses on the South of Britain as the Romans conquered Britannia from the South and maintained trade links from the South to the Roman Empire. The current study considers a sample of 951 Romano-British sub-adults aged from birth to 17 years of age excavated from Poundbury (n=419), Cannington (n=192), and Winchester (n=340). These urban settlements were selected due to their location in the South of Britain and the large number of sub-adults within the samples. It must be noted that the extent of Romanisation will be considered as this may vary between sites. Through a large-scale analysis using morphological and metric methods demographics age-at-death, sex and pathological alterations will be assessed. By analysing the differential patterns of mortality and morbidity for sub-adults from the Romano-British period this research will significantly enhance existing archaeological interpretations of childhood during this period, in particular, the determinants of mortality and morbidity in relation to sexual differences.

REVIEW OF THE 17th ANNUAL BABAO
CONFERENCE, 2015

Michelle Williams-Ward
University of Bradford

The 2015 BABAO conference came back 'up North' to the city of Sheffield on the 18th to the 20th September and was hosted by the University of Sheffield's archaeology department. For the 187 delegates this certainly was an appropriate setting to hear the world-class research from the 40 podium presenters and 69 poster presenters.

Armed with our stylish yet environmentally friendly tote bags the conference could commence. The conference began in the beautiful (if chilly) surroundings of the St

Georges lecture theatre, an early 19th century converted church at 12.45pm on Friday 18th September, with a wonderful welcome address from the universities head of archaeology, Professor Dawn Hadley. The academic programme began at 1pm with a session on children in society chaired by Dawn Hadley and Mary Lewis. As the keynote speaker, Maureen Carroll (University of Sheffield) 'kicked' this session off with a fascinating talk about the ideas and treatment of children within the first year of life in the Roman Empire. We moved from Britain to Egypt and from urban to rural locations, even to the sea, hearing about childhood and nutritional health. One paper which discussed the high prevalence of stress indicators on both rural and urban children between the 18th and 19th centuries was imaginatively and aptly entitled 'Children of the Revolution' by Rebecca Gowland. I have to say the song of the same name resonated for several hours after, even now a quick rendition could not be helped.

We were also introduced to the toy laser gun in this first session for any speakers who dared to run over, which amused the audience, who I'm sure secretly waited for it to be pointed at the speakers (maybe that was just me). But for anyone who did not attend the conference who may now be panicking at the thought of a (toy) laser gun being present, no anthropologist or osteologist was hurt in any way by the gun's tiny flashing light.

Friday afternoon moved from childhood specifically to more general matters of growth and development. Mary Lewis began with another rock music inspired title 'Teenage Kicks' where she discussed tracking puberty through the skeleton and the impact of disease on skeletal growth, and we heard our first talk of the conference on Iron Age populations by Claire M Hodson. The last paper of the day moved from the macroscopic to the microscopic with an interesting talk by Rosie Pitfield regarding age estimation from bone histology.

Two workshops were available after the last session of Friday. Firstly, for the

anthropologist of the digital age; 3D surface scan applications in bio-anthropology by Simon Stone and Thomas Mahoney from MechInnovation Ltd and Kevin Kuykendell and Venessa Campanacho from the University of Sheffield. The second workshop by Rebecca Redfern from the Museum of London focussed upon accessing and researching skeletal collections within the heritage sector. The day's events were brought to a close with a firm favourite amongst, well everybody, drinks and nibbles at a local favourite the Devonshire Cat Pub.

Day two of the conference moved to the tropical paradise (warmer building) of the Henry Stevenson building and began with a session entitled 'Treatment of the Dead' chaired by Tim Thompson and Kirsty Squires. The keynote speaker, Paul Pettitt (Durham University) started this session off with a fantastic paper discussing the long term evolution of mortuary activity from ape to Palaeolithic, even managing to reference Lord of the Rings. We also heard an excellent presentation by Jennifer Crangle who showed us how perceptions of post-depositional disturbance often differ from the osteological and archaeological evidence. We moved to the digital evidence for treatment of the dead and (if I remember rightly) a request was made for recruits for a working group on digital standards. The final paper before the break moved to the Bronze Age and the Netherlands in a paper focussing on cremation weights and their use in reconstructing social roles. Someone in this session (mentioning no names) faced the gun of over-run shame (as I christened it), but finished their talk unscathed.

After the morning break, the momentum continued in to the fourth session of the conference, 'Reading the Bones', which aimed to investigate how bone development, degeneration and variability can inform us of lifestyle and social context. The first talk of this session discussed issues of health in Roman York from which Lauren McIntyre stressed to a seemingly agreeable audience the importance of collaboration and the sharing of data. We heard of the effects of body size on

age estimation and this session was rounded up with a paper intriguingly entitled '*Marriage à la mode*' given by Jo Buckberry, which discussed the prevalence of developmental conditions in high status burials at Stirling castle.

With a full schedule prior to lunch, the afternoon did not disappoint. The first afternoon session called 'Health and Healing', chaired by Jo Buckberry and Martin Smith, started with a paper from Yeh Hui-Yuan. Which gave us intestinal parasites (not literally), discussing intestinal parasites in a Chinese latrine dating to 111 BC-AD 109. This disease-laden session also highlighted the need to separate differing joint disease from osteoarthritis, and, in a conference where references to modern popular culture were seeping in to a number of papers, there was even a Coronation Street reference. Anthony Columbo eloquently showed us how microarchitecture can reveal the healing process and the session was neatly wrapped up with a paper on the survival of antibodies in bone and dentine by Ross Kendall.

The second session of Saturday afternoon moved to 'Health and Diet' and was chaired by Malin Holst and Ceri Boston. The breadth of research spanning the world was evident with studies on sites in London, Latvia, Belize, China and Hungary. We heard about mass graves in Latvia, the Mayan people and their treatment of children and cultural transition in the Ding Si Shan site. Plus, a fascinating paper looking at the molecular evidence of tuberculosis by Helen D. Donaghue. The gun of over-run shame again made an appearance in this session, which I childishly enjoyed.

After a full day of talks, the annual meeting took place followed by an evening of revelry at the Sheffield winter gardens and Millennium gallery. Delegates were able to view the botanical gardens and the galleries with wine (or soft drinks) a plenty. This was followed by the conference dinner, for which we definitely worked up an appetite. It was then time for the hotly anticipated annual quiz. Team 'Molar Bears' (great name) stole

victory from the remaining delegates. I shouldn't but I am going to mention somewhat smugly that I was a member of the 'Molar Bears' and have one of the prizes, a skull bracelet, to prove it.

Sunday morning saw the final sessions of the conference, the first was the Open Session, chaired by Jelena Bekvalac and Holger Schutkowski. The first presentation set the day off beautifully with a talk on pastoralism and stress markers by Michelle E. Cameron. We heard about a biomarker used to trace TB and heard a paper on African dental modification. We were also shown images of Lukas Waltenberger's scary looking stabbing machine / guillotine used in his study looking at the reliability of cut marks during burning.

The last session of the conference, chaired by Patrick Mahoney and Catriona McKenzie, examined the 'Effects of Conflict'. Megan Brickley gave a paper looking at musket trauma in the war of 1812. She discussed what is reported to be the first case of buckshot on archaeological bone and demonstrated (with the aid of a fantastic pair of replica buttocks) the importance of experimental work. This point was furthered by the next speaker, Martin Smith, who gave us food for thought regarding the benefits and pitfalls of synthetic bone substitutes in simulating skeletal injuries.

I think it's safe to say that the research presented at BABAO 2015 was extremely high quality and covered a vast array of intriguing topics. The 69 posters presented throughout the conference treated us to more exciting research spanning multiple time periods and many sites worldwide. Topics ranged from hypoplasia of the canine in Roman Lancaster to environmental lead pollution and its effects on juvenile health, and from curatorial issues in Dorset, to cross sectional studies on primates and degenerative joint disease in medieval Europe. We were able to see research utilising a plethora of methodologies; 3D printing and casting, CT scanning and histotaphanomy, and research undertaken on living patients, as well as fleshed and defleshed remains. Pathological

cases ranged from a case of multiple sclerosis, geostatistical analyses of dental caries, osteological evidence of achondroplasia, fracture patterns in the medieval period and trauma analysis in a mass grave in Denmark, to name but a few.

The conference came to a close with the annual awarding of the Jane Moore prize for best student podium presentation and Bill White prize for best student poster. Congratulations to the 2015 winners. The Jane Moore prize went to Lukas Waltenberger (Bournemouth University) and the Bill White prize went to Eoin Parkinson (Queens University Belfast) with Ruth O'Donoghue (University of Bradford) named as the runner up. Thank you to The University of Sheffield for hosting a wonderful conference. The baton (the toy gun of over-run shame) has now been ceremonially passed to the next hosts, the University of Kent. I look forward to seeing and hearing from you all at BABAO 2016.

OTHER CONFERENCE REVIEWS

Workshop: Paleodiet meets Paleopathology: using skeletal biochemistry to link ancient health, food and mobility

*Olalla López-Costas
Department of Geography
Universidade de Santiago de Compostela/
Archaeological Research Laboratory,
Stockholm University*

The workshop took place at the Faculty of Biology of the University of Santiago de Compostela, Spain, between the 15th and 16th of October 2015; bringing together 100 attendees from 12 European (Spain, Italy, United Kingdom, Poland, Portugal, Sweden, Belgium, Finland, Denmark and the Netherlands) and North American (Canada and Mexico) countries in order to bridge efforts for finding synergies between the two disciplines.

The workshop was organized under the scope of the research network Rede Consiliencia (R2014-001, Xunta de Galicia) and

coordinated by Gundula Müldner (Reading), Aurora Grandal D'Anglade (Coruña) and myself (Santiago de Compostela) with the help of an organising committee of eleven people from the last institution.

The objective of this first edition of *Paleodiet meets Paleopathology* was to explore the connections between diet and health in the past, with special focus on the stable isotope and bone chemistry applications. Both areas, paleopathology and paleodiet, are widely included in bioarchaeological and physical anthropology studies but they have shown little interaction between them until the last few years. To achieve this, six topics were discussed by well-recognized keynote speakers: Tamsin O'Connell from the University of Cambridge, Andrea Waters-Rist from Leiden, Kerstin Lidén from Stockholm, Julia Beaumont from Bradford and Marie Louise S. Jørkov from Copenhagen. In addition, a total of 20 contributions - 11 podium and 9 poster - were presented along one poster session and two session of talks: (1) human diet, mobility and pathology; (2) Trace elements, aDNA and stable isotopes to approach human and animal diet and pathology.

A final discussion and summary was done by my co-organizer Gundula Müldner. The high quality of the presentations as well as the important role played young researchers and, above all, women were resembled. We both agreed on highlighting the large number of questions and debates arising, which was one of the main aims of this workshop. Gundula reflected on the importance of new methods, new approaches and multiproxy studies to address increasingly complex questions, specifically when they are related to human health in the past. But also to not forget the value of using modern analogues and understanding the methodological problems which may lead to new research lines: an obstacle can be turned into an advantage.

The proceedings of the workshop along with the programme are available on the webpage <http://paleodietmeetspaleopathology.com/> and in the Facebook page with the same name.

The web will continue to provide interested readers with the latest news and coming events, such as a second edition of *Paleodiet Paleopathology* that will be held in 2017 at the University of Leiden.

Spanish Palaeopathology Association (AEP)

*Marta Díaz-Zorita, Inmaculada López
Nicholas Márquez-Grant*

A number of BBAO members from the UK, the Netherlands and elsewhere participated in the 13th National Palaeopathology Congress of the Spanish Palaeopathology Association (Asociación Española de Paleopatología), 1st-4th October 2015. This was held in the lovely town of Écija (Seville) and organised by the Professional Bioarchaeological Association and Écija Town Hall. Over 80 delegates attended this interesting and exciting conference and from a number of countries: UK, USA, France, Germany, Netherlands, Italy, Portugal, Brazil, Chile, Mexico and El Salvador.

The conference opened with a keynote lecture by Prof. Jane E. Buikstra entitled "21st Century Paleopathology: Challenges and Opportunities". Another important keynote lecture was delivered by Prof. Francisco Exteberría on the recent search of the remains of Don Quixote writer, Miguel de Cervantes. BBAO member Dr Nicholas Márquez-Grant, gave a keynote lecture on the ethics surrounding excavation, analysis, storage and display of human remains. Sessions were divided according to infectious disease, ethics, forensic anthropology, metabolic conditions, trauma and Egyptian material. Apart from lectures, a number of workshops (working groups) were devoted to forensic odontology, isotope analysis and DNA, palaeopathological terminology, zooarchaeology and mummy studies. In addition, the delegates were able to examine a number of pathological cases from a variety of skeletal assemblages from Spain.

In between lectures and workshops, delegates enjoyed the picturesque town, the food and

the conference on the last night as well as a trip to nearby archaeological sites.

All the information with regard to this conference, including the programme and photographs is available on the following website:

<http://www.bioarqueologia.es/congresopaleoatologia2015/> The society's website is: <http://www.uam.es/otros/sepal/> and we would encourage further international speakers to attend our conferences. The next conference will be in 2017 in the town of Alicante.

FORTHCOMING CONFERENCES, COURSES AND WORKSHOPS

Working Your Fingers to the Bone. An Interdisciplinary Conference on Identifying Occupation from the Skeleton – July 6th-8th 2016 – Coimbra, Portugal

The aim of this interdisciplinary conference is to bring together researchers interested in disease, injury and other effects of occupations (in the broadest sense) on the human skeleton to improve the interpretation of these changes in archaeological and forensic contexts. Alongside this a workshop on the new Coimbra method for recording entheses will be run.

Identifying occupation, task division and activity-patterns from skeletal remains of past populations and using this to assist forensic identification, has been an alluring prospect in bioarchaeology from its earliest inceptions. Some occupational identifications can be made by pathognomonic changes, e.g. "phossy jaw" which was characteristic of those working with white phosphorous in the matchstick industry, however, the majority of skeletal changes cannot be ascribed to a single task or occupation, e.g. enthesal changes or cross-sectional geometry. Recent research has highlighted that the multifactorial aetiology of many skeletal changes previously used to identify activity-patterns cannot be applied simplistically.

This conference will build on recent advances in related fields to provide a direction for future research on using skeletal changes to identify occupations (and activity-patterns) based on what is currently known. Abstracts are invited on a diverse range of approaches including: palaeopathology, biomechanics, ethnography, modern medicine, forensic science, archaeology, socio-cultural anthropology, and experimental archaeology.

Abstract deadline: 29th of February.

Conference organisers: Charlotte Henderson (CIAS - Research Centre for Anthropology and Health, University of Coimbra), Ana Luisa Santos (CIAS and Department of Life Sciences, University of Coimbra), Sandra Assis (CIAS), Francisca Alves Cardoso (CIA - Centre for Research in Anthropology, FCSH Universidade NOVA de Lisboa) and Maria Alejandra Acosta (Laboratory of Forensic Anthropology, Department of Life Sciences, University of Coimbra). Further information is available at: http://www.uc.pt/en/cia/events/Occupation_Conference_2016/

20th Congress of the European Anthropological Association 'European Anthropology in a Changing World: From Culture to Global Biology' – August 24th-28th 2016 – Zagreb, Croatia

It is our great pleasure to invite you to attend the European Anthropological Association (EAA) Congress *European Anthropology in a Changing World: From Culture to Global Biology* that will be held in Zagreb, from 24th to 28th August 2016.

In 2016 we are going to celebrate the 20th congress of EAA with notion that the first one was held in the same place. On behalf of the Organizing & Scientific Committee we wish you a very warm welcome to Zagreb in 2016!

<http://eaa2016.com/>

MEMBERS' PUBLICATIONS

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BABAO RESEARCH PROJECT GRANTS
2016 – GUIDANCE NOTES
Karina Gerdau-Radonić
Bournemouth University

In October 2004 the BABAO committee approved funding for a series of project grants that are available, by competition, to all members of the association. A copy of the application form is found upon the association website (<http://www.babao.org.uk/index/awards>). All applications must be typed.

Two grant application forms are available. One is for research in the contract sector, up to £1,500 (commercial), the other is for the academic sector, up to £1,000. The higher sum available for the commercial sector is to cover the cost of buying out time from their company, to allow sufficient free time to conduct the research. Applications for more than these sums will not be considered. The two types of applications will be ranked alongside each other. BABAO will fund one or more grants a year depending on the association's finances.

These grants may be used to support research in biological anthropology and

oste archaeology (defined as research relating to humans and non-human primates), both to undertake the research directly, and to commission specialist services required in the course of the research project. They may not be used to fund conference attendance. Specialist equipment required to undertake a project is unlikely to be funded unless it is highly specific to the research project, and, if this is the case, the applicant must also demonstrate that the funds could not reasonably be obtained from other sources (such as the developer). The grant should be for a discrete piece of research or distinct component of a wider research project, and not just a contribution towards general living expenses during a PhD.

If the proposed research includes access to material from a different institution, or destructive analysis, the application should be accompanied with a letter of permission from the appropriate Museum/holding institution. It is the applicant's responsibility to request access and supporting letters in a timely manner. It is also the applicant's responsibility to gain ethical and H&S approval (where needed) from their own institution.

If students apply they should specifically state how this grant application relates to other sources of funding for their course. If their PhD is unfunded applying for a grant to support discrete, freestanding components of their PhD is reasonable. However, if their PhD is funded, they must specifically state why extra money in the form of this grant is required. If the proposal is not clear on this point it is likely to count against the application.

Applicants must be paid-up members of BABAO by 1st April 2016. It is the applicant's responsibility to ensure that they have paid their subscription, and applications from lapsed members will not be considered.

It is appreciated that an applicant may apply to other funding bodies to fund the same topic as their BABAO grant application. However, it is imperative that they inform the BABAO

committee immediately if they receive sufficient funding from another source before the BABAO grant competition is decided. It is unethical and unjust to accept a grant for a research project that has already been fully funded from other sources.

The closing date for receipt of applications for the current year is 9th May 2016, at 5pm. Applications, complete with a 2 page summary CV of the main applicant, and a letter of support where required (i.e. for access to external material; destructive analysis) must be sent electronically to the Grants Secretary (Karina Gerda-Radonić, kgradonic@bmath.ac.uk). All documents must be submitted as pdfs; other file types will not be accepted. Please save the files under your surname (e.g. JonesApplication.pdf and JonesCV.pdf) and not as BABAOapplication.pdf. Please insert electronic signatures, or scan paper copies to a single pdf. A maximum of three files (application form, CV and letter(s) of support if required) should be submitted for each application. Please do not include the guidance notes in your submitted application.

Grant proposals will be reviewed by the committee. Notification will be given to the applicants, the BABAO e-mail list and the BABAO webpage. Successful grants will also be announced at the AGM.

Grant winners are expected to present their research at the BABAO conference within two years of receipt of the award (so 2016 grant winners are expected to give either a paper or a poster at the 2017 or 2018 conference). Grant winners are required to complete a feedback form, giving a clear abstract of the research completed, a summary report of what was achieved and a summary of dissemination and publication by the first of September in the year following the award. BABAO should be acknowledged in all outputs. If the research is not completed within the expected time frame without due cause, applicants may be required to return the grant money.

Specific Guidance Notes

Please note the maximum word counts where specified. The boxes on the form can be expanded as necessary.

Section 1: To be completed by the applicant. Please give full and complete postal address, and, where applicable, affiliation. You must include your BABAO membership number, to facilitate checking that you are a member of good standing. Your membership number was included in the letter sent to you when you joined BABAO. If you cannot find your number, please contact the membership secretary (membership@babao.org.uk) well in advance of the deadline.

Section 2: Please give brief details of current appointment (e.g. postgraduate student, lecturer, contract osteologist with XXXX company, freelance osteologist). If the applicant is a student, please provide details of the degree being taken, the name of supervisor (who does not need to be an association member), and the name of the institution.

Section 3 (maximum 15 words): The brief name for the project may be placed upon the BABAO website.

Section 4 (maximum 100 words): Please provide brief outline details of the research project. These details should be suitable for a non-expert audience, and the grant winner should be aware that these details may be placed upon the association's website.

Section 5 (maximum 500 words in each box): This section requires more detailed description and information about the research project being proposed / undertaken. Do not exceed the word limit for each box. The timetable for research is particularly important as the committee requires the projects being funded to be completed within one year. Where possible, sample sizes etc. should be included. A maximum of 3 images may be included as part of the proposal if required, but must be included within the appropriate box in section 5.

Section 6: Some institutions / organisation (e.g. some universities) require ethical permissions for research involving human remains or modern populations. Please complete this section only if this is applicable to the proposed research project. It is the applicant's responsibility to gain ethical (and H&S approval), where required, from their own institution.

Section 7: Please provide a breakdown of the budget required from the association. Travel should use the cheapest possible suitable mode. Accommodation may be requested where appropriate. All costs should be included in the application.

Section 8: Students must obtain a signature from their supervisor. Applications without a signature from the students' supervisor cannot be accepted. If you are unable to insert electronic signatures, scan in the signed form and submit it via e-mail. Only pdfs will be accepted.

References: Up to one side of A4, appended to the end of the form, may be used for bibliographic references. Each should relate directly to a citation made during the proposal.

CV: The 2-page CV must be of the applicant named in section 1. This should be submitted as a separate document.



BABAO c/o Karina Gerdau-Radonić
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Grant Award Application 2016

Compliance with the Data Protection Act 1998
In accordance with the Data Protection Act 1998, the personal data provided on this form will be processed by
BABAO and may be held in a computerised database or in manual files.

RESEARCH PROPOSAL (Academic)

1. Name of applicant

Address for correspondence

Title:	Address:
First name:	
Surname:	
Tel no:	Postcode:
Email:	Country:
BABAO membership number:	

2. Present position

Present appointment and employer (If student, please indicate degree in progress, name of supervisor and institution)

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3. Details of grant requested

Title of project (not more than 15 words)

Sum requested
(max £1000)

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4. Project summary

Information on your research project may be placed upon the BABAQ website. Please use this space to provide a description of your research in a way that could be used for a general – i.e. non-expert - readership. (Maximum 100 words)

--

5. Project information

Please provide concise details of your planned research project in the following boxes in order that the research validity and potential of your project can be assessed. (Maximum 500 words in **each** box)

Research question(s) or problem
Aims & objectives

Materials**Research methods****How will your results be disseminated to the public at large?****Other Planned Outputs from this Research**

Timetable

(Research is expected to be presented at the BABAO conference [either paper or poster] in the year following the award.)

6. Ethical aspects of the proposal

a) Are there any ethical implications arising from the proposed research?

Yes No

If yes, please give details below of what they are and how you intend to address them.

--

7. Budget summary

a) Give a summary of the total costs that will be incurred; then complete the detailed breakdown below.

Summary	Cost (£)
Travel	
Accommodation and subsistence	
Equipment	
Analysis	
Services of external specialists	
Other (please specify in section 7b)	
TOTAL COST	

b) Please itemise and justify expenditure requested for travel and subsistence, and equipment and materials.

Description	Justification	Cost (£)

c) State whether you already have any funding for your project, and why extra funding is necessary. For example, if you are a PhD student, please explain how this is funded.

d) If you are requesting PARTIAL funding please specify the difference between the total project costs (given in section 7a) and the total amount requested from BABAO (section 3). Please explain how any additional costs will be met.

8. Declaration, signature and date

I have enclosed a letter of support from each of the institutions curating material I intend to study / I confirm that all of the material to be investigated is curated by my institution*

*Please delete as appropriate

I agree to complete the intended research within the BABAO timeframe, and will provide a breakdown of my spending and a brief report to the BABAO committee.

Signature of applicant

--

Date

--

Signature of supervisor

(for student applicants)

--

Date

--

All applicants must be members of BABAO by 1st April in year of submission.

Closing date for applications: 9th May 2016.

Please attach a 2 page summary CV (of the main applicant) to this application, and e-mail to Karina Gerdau-Radonić (kgradonic@bmath.ac.uk).



BABAO c/o Karina Gerdau-Radonić
Bournemouth University
Faculty Science and Technology
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Dorset, BH12 5BB
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Grant Award Application 2016

Compliance with the Data Protection Act 1998

In accordance with the Data Protection Act 1998, the personal data provided on this form will be processed by BABAO and may be held in a computerised database or in manual files.

RESEARCH PROPOSAL (Commercial)

We welcome proposals from individuals working in the commercial sector. Preference will be given to those projects which enable scientific research, such as isotopic analyses, or synthetic site studies beyond the remit of developer funded work. Grants to cover staff time and the subsequent costs to the employer incurred during research or involvement in external projects will also be considered.

1. Name of applicant

Address for correspondence

Title:	Address:
First name:	
Surname:	
Tel no:	Postcode:
Email:	Country:
BABAO membership number:	

Please contact the membership secretary (membership@babao.org.uk) well in advance of the deadline if you do not have your BABAO membership number

2. Present position

Present appointment and employer (if funding is requested to cover costs incurred to any commercial organisation that is not your present employer, please give details)

--

4. Details of grant requested

Title of project (not more than 15 words)

Sum requested
(max £1500)

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4. Project summary

Information on your project may be placed upon the BBAO website. Please use this space to provide a description of your research in a way that could be used for a general – i.e. non-expert - readership. (Maximum 100 words)

--

5. Project information

Please provide concise details of your planned research project in the following boxes in order that the research validity and potential of your project can be assessed.

(Maximum 500 words in **each** box)

Research question(s), non-commercial archaeological / osteological project details or problem
Aims & objectives
Materials: please give dates of excavation and stage of any associated commercial project (e.g. assessment). Please indicate where material is currently curated

Research methods

Please state why this project cannot be covered by developer funding.

How will this project assist in your personal and professional development?

How will this project achieve the objective of bridging the gap between commercial work and that of academia?

How will your results be disseminated to the public at large?

Other Planned Outputs from this Research

Timetable

(Research is expected to be presented at the BABAQ conference [either paper or poster] in the year following the award.)

6. Ethical aspects of the proposal

a) Are there any ethical implications arising from the proposed research? Please include issues of client confidentiality which may prove problematic to the dissemination of your results.

Yes No

If yes, please give details below of what they are and how you intend to address them.

7. Budget summary

a) Give a summary of the total costs that will be incurred; then complete the detailed breakdown below.

Summary	Cost (£)
Travel	
Accommodation and subsistence	
Equipment	
Analysis	
Staff buy-out	
Services of external specialists	
Other (please specify in section 7b)	
TOTAL COST	

b) Please itemise and justify expenditure requested and explain why this cannot be covered by developer funding.

Description	Justification	Cost (£)

c) If you are requesting PARTIAL funding please specify the difference between the total project costs (given in section 7a) and the total amount requested from BABAO (section 3). Please explain how any additional costs will be met.

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8. Declaration, signature and date

*I have enclosed a letter of support from each of the institutions curating material I intend to study / I confirm that all of the material to be investigated is curated by my institution**

*Please delete as appropriate

I agree to complete the intended research within the BABAO timeframe, and will provide a break-down of my spending to the BABAO committee.

Signature of applicant

Date

All applicants must be members of BABAO by 1st April in year of submission.

Closing date for applications: 9th May 2016.

Please attach a 2 page summary CV (of the main applicant) to this application, and e-mail to Karina Gerdau-Radonić (kgradonic@bmath.ac.uk).