BRITISH ASSOCIATION OF BIOLOGICAL ANTHROPOLOGY AND OSTEOARCHAEOLOGY
ANNUAL REVIEW

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WELCOME TO THE BABAO ANNUAL REVIEW

By Mary Lewis (Editor) University of Bradford

Firstly, I'd like to welcome you all to the first edition of the BABAO Annual Review, and to thank all those who provided me with their contributions. Unfortunately, there were many pieces that space and time did not allow me to include but I will endeavour to include them in the second issue.

The aim of this Review is to provide a forum for members of the Association to express their opinions about various issues within the disciplines represented by the Association. In addition, it aims to provide information on current research being carried out in human remains within British Universities, both at a staff and student level.

I am already collecting pieces to include in our second issue so please keep sending me your comments and ideas. It would be helpful if you could send me your pieces on disk, or copied on to an e-mail message, so that they can be pasted into the Review rather than being retyped. I would also be happy to receive any photographs and pictures to accompany the text. Remember, this is your Review and it can only survive with input from its members.

Finally, I hope you enjoy reading the first, of what I am sure will become many issues of this Review and I hope that, as Editors come and go, the Annual Review will remain a successful forum for the members of BABAO.

ASSOCIATION NEWS

British Association of Biological Anthropology and Osteoarchaeology Annual Report

By Megan Brickley (Chair), University of Birmingham

As you may know, the decision to form an association for people interested in all aspects of the study of the biological remains of past and present peoples was taken at the conference '*Human Osteology: A British Perspective*' hosted by Margaret Cox and Simon Mays, at the University of Bournemouth in 1998. At the conference a number of individuals volunteered to form an acting committee, and the first meeting of this committee was held in September 1998, at the University of Birmingham.

One of our first jobs was to find a name for the new Association, which would encompass all the areas our potential members might be interested in. A number of suggestions were made and ballot of those at the Bournemouth conference was held to make the final choice. The result of the ballot was that the Association should be called the British Association of Biological Anthropology and Osteoarchaeology (BABAO).

The acting committee managed to meet on two further occasions before the AGM, in order to agree and clarify a number of fundamental issues relating to the Association. One of the first tasks undertaken was to decide what the respective roles of the members of the acting committee should be. For example, it was felt that the committee should contain representatives from a museum, a government organisation, a university and a field unit, to ensure that a wide range of interests were represented. In addition, it was agreed that there should be up to four non-executive members on the committee, who could be from any background and need not necessarily be in employment. Provisions were also drawn up on the length of service, the number of committee members that could stand down in any one year, and electoral procedures. This was done to ensure that new members would regularly be elected, whilst maintaining a certain amount of continuity. It was decided that membership should be open to all those who were interested in any aspect of the subject area, and the level of membership fees was determined. A constitution was drawn up detailing the items above and other considerations necessary for the proper running of the organisation.

At the AGM, held at the University of Birmingham, the acting committee was elected to stand for the next twelve months with no change to its membership. This vote will ensure continuity at this early stage of the Association, but it is hoped that some new members will be elected at the BABAO Meeting at Bradford this

September. The constitution was also ratified, and this contains provision for the agenda of future AGMs to be circulated to members prior to the meeting. Within the constitution there is also provision for postal votes and voting by proxy, so, whilst we hope as many of you as possible will attend, those unable to be at an AGM will be able to participate in future decision making. A logo for the Association, which appears on the front of this Annual Review, was also voted for.

To date, much of the work of the committee has been concerned with the setting up of the Association. However, now that this work had been successfully completed we can move on to address more fundamental issues relating to the aims of the Association. For example, increasing the exchange of ideas and information between those interested in the areas the association encompasses and improving standards in those fields. To this end, the committee is currently investigating sources of funding to establish a database of all human skeletal material held in British Institutions.

Finally, I would like to take this opportunity to thank all our members for their continued support and encouragement over the past year, and to ask you to keep sending your views and comments to the committee.

(If you have any questions, or would like a copy of the constitution, please contact Megan at: The Department of Ancient History and Archaeology, University of Birmingham, Edgbaston, Birmingham, B15 2TT.)

British Association of Biological Anthropology and Osteoarchaeology Membership Report

By Linda O'Connell (Membership Secretary), University of Bournemouth

Since the inception of this association, back in the early part of this year, a total of 125 membership subscriptions have been received from individuals engaged in a diverse range of occupations and affiliations. A large proportion (34%) of membership is made up by undergraduate and postgraduate students, pursuing degrees in a variety of fields, such as archaeology, forensic archaeology, osteoarchaeology, anthropology, medicine and other life sciences. Approximately 22% of members describe themselves as human osteologists or osteoarchaeologists, while academics comprise a further 18% of subscribers. Archaeologists, researchers and individuals from medical, dental, forensic and anatomical disciplines together constitute 21% of the membership, while police officers, funeral directors and a palaeoenvironmentalist form an additional 5%.

The Association, when originally created, was aimed at all individuals, either interested in, or working in, any associated field at any level. It has been especially pleasing therefore, to receive subscriptions from private individuals, as well as those in archaeological units, universities, professional bodies and organisations.

Geographical distribution of members demonstrates quite marked demarcation. At present, almost 90% derive from England; with Scotland, Wales and Northern Ireland representing 10% of the remainder. Although some interest has been generated abroad, and has led to individuals requesting further information concerning the Association's activities, to date, only two subscriptions have been received from North America.

In future months, it will undoubtedly be one of the committee's main prerogatives to further increase awareness of the Association's aims, objectives and provisions. This will include expansion and improvement of advertising policies and subsequent targeting of potential recruits in areas of the UK and abroad, which are currently under-represented.

In the meantime, if anyone has any questions regarding membership, then please do not hesitate to contact me (*please see Linda's contact address on the cover*).

PEOPLE

DON BROTHWELL: has retired (see page 13) but can still be contacted at: The Department of Archaeology, King's Manor, University of York, YO1. Tel: 01904 433904; Fax: 01904 433902.

KEITH MANCHESTER: has retired (see page 12) but can still be contacted at the Department

of Archaeological Sciences, University of Bradford, Bradford, BD7 1DP. Tel: 01274 233538, Fax: 01274 235190.

SIMON MAYS: The Ancient Monuments Laboratory has moved to Portsmouth. Simon can now be contacted at the: Ancient Monuments Laboratory, English Heritage, Fort Cumberland, Fort Cumberland Road, Eastney, Portsmouth, Hampshire. PO4 9LD. Tel: 02392 856779; Fax: 02392 856701; E-mail: smays@eng-h.gov.uk

CHARLOTTE ROBERTS: has been appointed Reader in Biological Anthropology at the Department of Archaeology, University of Durham. Her new address is: Department of Archaeology, Science Site, University of Durham, South Road, Durham, DH1 3LE; Tel: 0191 3743625; Fax: 0191 3743619; E-mail: c.a.roberts@durham.ac.uk

HOLGER SCHUTKOWSKI: has been appointed Reader in Biological Anthropology at: The Department of Archaeological Sciences, University of Bradford, Bradford, BD7 1DP. Tel: 01274 233538; Fax: 01274 235190; E-mail: h.schutkowski@bradford.ac.uk

NEWS AND VIEWS

Be careful of your thyroids!

By Don Brothwell, University of York

Currently, I have an interest in calcified thyroid cartilages, and this is an appeal to my colleagues for information and examples of this in archaeological material. In particular, I would greatly appreciate sketches of the calcifications, plus age, sex and period of the case (or cases).

Why do I request such information? The problem loomed up before me some years age when examining a male Roman from St. Albans. The degree of thyroid cartilage calcification was not compatible with other age indicators. You will recall that Vlcek (1980) and Cerný (1983), as discussed by Loth and Iscan (1989) suggest that there is a steady increase in calcification over adult life. This amounts to a change in the pattern formed by the calcification. As with all calcified tissue ageing techniques it seems to be too good to be true. Since first noting this discrepancy, I have noted the same problem in a number of other archaeological cases.

A further development in my education occurred two years ago, while assisting in the study of mass grave bodies in Bosnia. To my surprise, it was not uncommon to find what appeared to be advanced calcification in young adult individuals. I urged my Peruvian colleague to investigate this in more detail, but there is no policy in the UN forensic service for research of this kind. So the problem remains and one thing we need is more archaeological evidence, in the hope that some clues to an explanation may emerge. Are there genetic factors and, if so, does the accelerated calcification occur in particular cemeteries? Alternatively, is it influenced by environmental factors? I have pondered whether it is linked to thyroid health and function? In particular, I'd like to know of cases in areas where there is evidence in the past of endemic hypothyroidism (from iodine deficiency in the environment). Are we more likely to find cases, for instance, where 'Derbyshire neck' previously occurred?

There is, of course, a taphonomic sting in the tale. Thyroid cartilage calcifications are fragile and break easily *in situ* into small pieces. There is certainly a need to warn field archaeologists who might find these skeletons that these calcifications may occur in the mid-neck region, either to the front of the cervicals or slumped to one side. Currently, they may be left unidentified in the burial matrix. Do please send me a brief note on any cases you have, with the associated details (even a sketch). I'd be pleased to initiate an index of cases.

References:

Loth, S. and Iscan, M (1989) Morphological assessment of age in the adult: the thoracic region. In M. Iscan (ed.) *Age Markers in the Human Skeleton*. Thomas: Springfield, pp 105-136.

Why do we need a human remains illustrator?

By Caroline Needham

I have been drawing human remains at the University of Bradford's Department of Archaeological Sciences for nearly a year now. Despite having been interested in 'scientific illustration' for many years, it wasn't until I visited the Unit of Art in Medicine at

Manchester University (Richard Neave's studio) that I realised I could take my interest further.

I am a full-time illustration student at Bradford College (BA Hon's Art and Design). This is my third and final year, and as such I can specialise in any area I choose. Over the last year, I have been gaining experience by working in the Calvin Wells Laboratory at Bradford. There, among other things, I have been illustrating the skulls of soldiers who died at the battle of Towton in 1461. Many of the crania exhibited wounds caused by several types of weapon including swords, daggers, arrows and battle-axes. I tend to begin with a measured pencil drawing, this is later worked up in pen on drafting film, possibly adding colour with gouache paint to the rear of the film. I was lucky enough to have two of my Towton illustrations featured on Channel Four's '*Secrets of the Dead - Blood Red Roses*.' This year, I will be continuing my work in human remains illustration as well as expanding into medical art.

As always with archaeological illustration, there are those who will ask "why can't you just take a photograph?" My response to this (shared by the archaeologists and osteologists I have been lucky enough to work with) is that photography, no matter how good, cannot choose to emphasise one area in preference to another. The desired result can only be achieved by a specialist illustrator working in conjunction with an osteologist. Despite this, I was interested to learn that no one, who attended this year's Association of Archaeological Illustrators and Surveyors AGM and Conference, specialised in illustrating human remains. It seems that, despite the inadequacies of photography, and the desire of osteologists to have their work properly illustrated, few illustrators have taken the initiative to break into this field.

(*Caroline designed the logo for BABAO and if anyone has any comments or any human remains you would like her to illustrate, she can be contacted at: carolineneedham@yahoo.co.uk*).

The tale of the tea chests - an Isbister saga

By Daphne Home Lorimer, Orkney Archaeological Trust

The year 1999 was a period of great archaeological excitement in Orkney: memorable excavations took place, sites unique to Europe were discovered, finds of inestimable importance had been made but, alas, no bones - at least, no human ones - have raised a skeletal head! This has been very frustrating and necessitated a fall back on to what is turning into a life's work; an inventory of the bones from the Isbister Chambered Tomb (usually referred to as the Tomb of Eagles) the finest collection of Neolithic bones in Britain.

In 1987, access was given to the Isbister material, previously stored at the University of Sheffield. Judson Chesterman had kept immaculate notebooks which took the form of six 1976 desk diaries (which were indexed rather disconcertingly by data rather than by number). Most of the bones were identified by side and number within their series, age and sex (where possible), size, colour, non-metrical variation and diseases recorded. The bones themselves were stored in a collection of a dozen tea chests and therein lay the rub. The tea chests were labelled on the outside with the bone context (BC and a number), the stall, if any (ST and number) and/or the side chamber (SC and number) and the layer was given as a number within a triangle but, on the inside they were not! The bones had no form of identification whatever, but were stored higgledy-piggledy and had acquired, with the passage of time, the odd post-mortem fracture and abrasion. At some time in their history they had been stored in damp conditions and indeed, the report (Chesterman, 1983) indicated that many of the bones had arrived wet in plastic bags – a notorious way of producing breakage. Each bone had, therefore, to be measured and matched against its relevant description – no mean feat when the measurements were rarely an exact match! Each bone was marked with an arbitrary inventory number, which was entered into the notebook along with Chesterman's data and reference to the notebook page. All this before data could be collected for research!

There is a moral to this tale. Although the Scottish Museum Service and Historic Scotland have issued some guidelines as to the treatment of human skeletal material, and at long last, research is being undertaken both here (notably at the University of Bradford) and across the Atlantic, into its proper care, far too often bones are given a rough ride. Their excavation is not careful enough, they are not allowed to dry out properly before being bagged and they are not

labelled with the care of other artefacts. Their subsequent storage frequently leaves much to be desired and unmarked and mixed skeletons can cause headaches of monumental proportions! The problems inhibiting the study of human remains in the United States and Australia do not, fortunately, pertain to Britain, which makes it all the more important that respect for the skeletal subjects be shown at all times, since there is a certain degree of public sensitivity on the subject. It would be a pity if the study of human remains were stopped in the UK and this rich source of information about past societies be denied to us.

Reference:
Chesterman, J (1983) *The Human Skeletal Remains in Isbister, A Chambered Tomb in Orkney*. J.W. Hedges (ed.) BAR British Series 115: Oxford.

All trussed-up...with nowhere to go.

By Jackie McKinley, Wessex Archaeology

One ritual of the funerary rite, which is always considered by the archaeologist when studying inhumation burials, is the position in which the body was placed within the grave. Many things may be read into body posture, e.g. what place did this woman have in society?' One would think it important therefore, that everyone works to the same criteria for interpretation, and that the criteria is, as far as possible, based on a correct understanding of what is observed in the grave. I fear, however, that such is not always the case. The prime difficulties appear to lie with the interpretation of 'crouched/foetal/tightly flexed' burials, and the fact that what one sees at the time of excavation may not represent exactly the position of the body at the time of deposition – the formation process of the archaeological data do not necessarily cease with the deposition of the body into the grave.

The following example of an interpretation by the excavating archaeologist was taken from a recent publication (Chapman, 1998) – and similar interpretations of analogous burial positions have appeared in various other publications and on-site context sheets. However, here, the archaeologist's interpretation and the understanding I formulated from looking at the accompanying photograph far from matched.

The photograph showed the skull to have been upright (i.e. not curled down towards the chest) with the frontal resting close to the side of the pit, and the mandible resting on the base. The spine was relatively straight, i.e. not curved forwards as when the body is 'tucked-up', showing something close to 'normal' curvature. The left arm was acutely flexed at the elbow, with the bones of the hand lying below the mandible, the right arm was flexed at *c.* 145 degrees (but not up against the chest), the upper-most left foot resting *c.* 0.15-0.20m from the pelvis, the underlying right foot almost touching the right ischium, the knees (left over right) were *c.* 20m distant from one another.

In the article, the body was described as having been buried '*...face down...and trussed-up: the arms lay crossed beneath the chest, pulled-up so far towards the chest that they must have been bound in position...*' and '*...crouched, with its legs so tightly drawn up that they must have been bound...she was trussed arm and leg...*' (Chapman, 1998: 93). This did not equate with what I saw in the photograph and I would be inclined to take issue with two points:

1. **The basic body position.**
That the body had been laid on its right side was demonstrated by the position of the legs and pelvis. The obscuring of the right arm by the thorax, and the unequal proportions of the rib cage, considerably more the left than the right, also suggest that the body was placed on the right side, and that the upper body had slumped forwards, *after* deposition. The skull was not fully 'face-down', it also appears to have been resting on the mandible, the facial area being turned towards the side of the pit, again, suggestive of the upper body having slumped forwards into this position rather than having been deliberately deposited as such.

2. ***'...trussed hand and foot...'***
Would it be necessary to 'bind' a body in order to get it into the described position? (This is a genuine question – answers to the Editor please). The legs were not tight against the chest (and presumably any binding would have held them in position for some time so that they were not likely to have slumped down post-depositionally). The head was not tucked down onto the chest, nor was the spine curved – i.e. the body was not flexed in a tightly tucked crouched/fetal position.

To curl oneself into the flexed position described whilst conscious requires muscular effort, however, anyone who has handled an

unconscious individual will know how 'floppy' they are. In my, thankfully, limited experience, an unconscious or dead individual (the latter before or after *rigor mortis*) may be fitted into a surprisingly small space with relatively little effort. In other words, I see no reason why an individual found in the observed position would require binding in the way described; indeed, if bound, I would have expected the legs to have been tight up against the chest (around which they would have also have been bound?) and to have been more closely overlying – such appears to have been the position of the occasional ethnographic examples of body binding before burial, which I have seen - does anyone know otherwise?

In the view of the potential importance of such interpretations for funerary archaeology, it is time greater consideration was given, not only to the practicalities of the possible original attitude of the body in the grave, but the post-burial formation processes. A pooling of knowledge is required to at least ensure there is a basic understanding of the potential requirements for the adoption of a particular position, after which, the rituals and rites which may be reflected by a particular burial posture may be considered and debated on a more secure and consistent understanding of the basic data.

Reference:
Chapman, A (1998) Brackmills, Northampton: An early Iron Age torc. *Current Archaeology* 159: 92-95.

New work on an old site: the Gough's Cave human fossils

By Chris Stringer, The Natural History Museum

Gough's (New) Cave in Cheddar Gorge, Somerset, has been known as an archaeological and palaeontological site for over a century and has produced a wealth of late Pleistocene fauna and Upper Palaeolithic ('Creswellian') artefacts, mainly through incidental discoveries made during its continuing development as a Showcave. Through large numbers of direct radiocarbon dates on faunal material, it is known that most of these finds derive from the 'Lateglacial Interstadial', approximately 11,500 - 13,000 radiocarbon years ago (approximately 13,000-14,500 calendar years). The Late glacial fauna consists of species such as horse, red deer, aurochs, saiga antelope, arctic hare and mammoth, and many of the bones show evidence of human butchery or modification. The site has also produced terminal Pleistocene and early and late Holocene material. Gough's Cave has also produced a large, but disparate, sample of fossil human material, beginning with the discovery of the first elements of the 'Cheddar Man' skeleton, in 1903. Now termed Gough's Cave 1, this has been directly dated as early Holocene (inferred Mesolithic), and it remains the most complete ancient human skeleton known from the British Isles. Over the succeeding 90 years, numerous additional finds of human skeletal material have been made at the site, culminating in extensive finds of Late glacial material excavated by a team lead by Roger Jacobi, Andy Currant and myself, between 1986-1992. This latter material was almost all excavated from sediments wedged behind a large rock, between the cave entrance and the 'Cheddar Man fissure'. It achieved notoriety in 1987 when the media seized on evidence of possible cannibalism, since much of the human material had clearly been dismembered. There was further media attention in 1997 when it became known that a team led by Bryan Sykes had extracted mitochondrial DNA from some of the Cheddar human teeth (e.g. see Barham, *et al*., 1999). Short reviews of the finds have been published (e.g. see Currant, *et al.*, 1989; Stringer, 1990), but the whole assemblage has now been restudied for publication in future issues of the Geology series of the Bulletin of the British Museum (Natural History). The work includes taphonomic studies comparing butchery of the human and animal remains (P. Andrews and Y. Fernandez-Jalvo) and detailed descriptions of the different skeletal elements (L. Humphrey, C. Stringer, A. Rosas, D. Hawkey, E. Trinkaus, S. Churchill and others). The material clearly includes at least one young child, an adolescent, and several adults (including Cheddar Man).

Through these studies, it is hoped that this important material, which spans the Pleistocene-Holocene and Palaeolithic-Mesolithic transitions, will begin to receive the scientific attention it deserves, and can then be compared and integrated with the record from mainland Europe. All of the Gough's human material being described is now curated at The Natural History Museum, London, through the generosity of Lord Weymouth and the management of Cheddar Showcaves.

References:

Barham, L., Priestley, P. & Targett, A. 1999. *In Search of Cheddar Man*. Tempus: Stroud.

Currant, A., Jacobi, R. & Stringer, C. 1989. Excavations at Gough's Cave, Somerset 1986-7. *Antiquity* 63: 131-136.

Stringer, C.1990. Hominid remains - *An up-date: British Isles*. University Libre de Bruxelles: Bruxelles pp. 1-40.

Current work at Spitalfields, London

By Brian Connell, MoLAS

During 1999, there has been a large-scale archaeological excavation in the City of London involving both MoLSS and MoLAS. The excavation was of the larger part of the cemetery of the hospital and priory of St. Mary Spital. It was founded in 1197 by a group of wealthy London merchants, and it is generally thought that the hospital catered for the sick poor and wayfarers in need of a resting-place. By the late 13th century, the cemetery had moved to an area south of the church, although this area may already have been in use for the burial of canons and benefactors. Henry VIII dissolved the priory in 1538 so the majority of the assemblage is broadly dated 12th-16th century. About 60 Roman burials were also found in one part of the site. The excavation itself finally finished in November 1999 and a staggering total of 8591 skeletons have been recovered. Many of these skeletons (about 300) have been excavated from mass burial pits, containing anything between 20 and 50 individuals in each pit. Although the fieldwork has finished, the human bones processing continues on-site and a large team will be spending most of the next year completing the task of washing, marking and boxing all the bones. Osteological assessment is also taking place as each skeleton is finished, we have only completed 3500 skeletons so far (another 5000 to go!). Due to the fact that the cemetery was associated with London's largest medieval hospital, it comes as no surprise to find large numbers of skeletons with evidence of disease. Of course, the more common lesions abound, like spinal joint disease or dental disease however, because the sample is so large, there is a growing number of more unusual and rarely encountered pathologies.

There is plenty of evidence for joint disease (other than osteoarthritis); so far we have identified one case of rheumatoid arthritis, four cases of ankylosing spondylitis, one Reiter's disease and 49 cases of D.I.S.H. A variety of congenital defects have also been found, ranging from the relatively minor, e.g. spina bifida occulta, to more severe conditions such as congenital dislocation of the hip or absence of vertebral bodies resulting in congenital kyphosis. To date, well over 150 examples of trauma have been identified, including four cranial weapon injuries and one trepanation. The evidence for infectious disease is mounting, for example we currently have 27 cases of tuberculosis (based on the characteristic Pott's disease in the spine). There are also 13 cases of treponematosis, with a range of expressions varying from sclerosing osteitis with overlying gummas in the postcranial skeleton, to massive rhinomaxillary destruction with or without caries sicca.

Doubtless the number of pathological skeletons will grow in the coming months as the assessment programme continues. Hopefully, I will be in the position to report some provisional results of the assessment at the BABAO meeting in Bradford this year. There is every possibility that the bones from this cemetery will form a research collection of international importance, this sample has enormous potential in terms of examining patterns of health and disease in large urban populations.

More news from MoLAS

By Bill White

On the eve of the publication of the EASTERN CEMETERIES OF ROMAN LONDON (587 inhumations, 122 cremations) knowledge of the other great cemeteries that served the Roman City has been increasing. At the Spitalfields Market site itself the Roman burials represent a mere 1% of the skeletons excavated. Yet these, in combination with the inhumations from satellite suites to the north of the City, comprise 100 or so burials from the large and complex burial ground either side of Ermine Street, running north. The region south of the Thames is also noteworthy in that a gazetteer of burials in ROMAN SOUTHWARK is about to be published, along with the rich cemetery alongside Watling Street (26 inhumations, 5 cremations). A new display in the Roman gallery of the Museum of London again features human skeletons, maintaining a trend that has proved popular with visitors for more than a year.

Although the finds at Spitalfields Market are likely to dominate medieval London osteology for many years hence, the publication programme for the London monastic sites (which commenced with St Mary Spital) continues. The body count here may be in order of magnitude lower; nevertheless they are large sites. Forthcoming monographs include Bermondsey Abbey (Cluniac, 193 burials), Stratford Langthorne Abbey (Cistercian, 655 skeletons) and Merton Priory (Augustinian, c 700 graves).

Excavation of a mass grave from the Battle of Towton, AD 1461

By Anthea Boylston, University of Bradford

In July 1996 builders, who were in the process of constructing a garage extension to Towton Hall near York, uncovered a mass grave containing about 60 victims of the most ferocious battle ever fought on British soil. Twenty-five individuals unearthed in July 1996, were buried in the churchyard at Saxton without further investigation, but a further 37 were excavated that September with great skill, by a team from West Yorkshire Archaeology Service and the Department of Archaeological Sciences at the University of Bradford, under the auspices of the Heritage Unit at North Yorkshire County Council. The osteological analysis was carried out in the Calvin Wells Laboratory by Malin Holst, Jenny Coughlan and Shannon Novak, a forensic anthropologist from the University of Utah, with help from Christopher Knüsel and Anthea Boylston.

Initial publicity led to a most productive collaboration with Andrew Boardman, a local historian author of the book 'The Battle of Towton', and with a team of experts in weaponry, armour and medieval warfare from the Royal Armouries, which had coincidentally relocated to Leeds just before the discovery of the mass grave. A battle re-enactor from Warwick Castle, Kevin Hicks, was also enlisted in order to help us understand the effects of medieval weapons and the lifestyle of a medieval soldier. Heated discussions ensued and these resulted in an exhibition at the Royal Armouries featuring several of the victims from the Towton mass grave with the weapons that probably killed them. A seminar with papers given by Malin Holst, Jenny Coughlan, Tim Sutherland and Shannon Novak ended a very successful week, which engendered considerable public interest and brought the project to the notice of the Richard III Society and the Towton Battlefield Society.

As a result of collaboration with the Royal Armouries, it has been possible for Shannon Novak to match the profiles of some of the wounds with the weapons that probably did the damage by stabbing ceiling tiles with a variety of weapons. This technique was one of the aspects of the project discussed in 'Blood Red Roses' which was shown on Channel 4 at the end of June in the series 'Secrets of the Dead'. The programme also showed the computerized method devised by Tim Sutherland for recording the skeletons in the grave and a facial reconstruction by Richard Neave of Towton 16, a badly scarred battle victim. A monograph is currently in preparation under the editorship of Anthea Boylston, Veronica Fiorato and Christopher Knüsel, which will bring together contributions from a multidisciplinary team of weapons experts, archaeologists, osteologists, a historian, a forensic anthropologist and an archaeological geophysicist which have all added so much to a unique project. The monograph is due to be published later this year.

News from the Ancient Monuments Laboratory

By Simon Mays

In August last year, English Heritage's Ancient Monuments Laboratory (AML) relocated from central London to Fort Cumberland, Portsmouth. Fort Cumberland is a Napoleonic Fort, built on mudflats at the entrance to Langstone Harbour. Laboratory staff join those from English Heritage's Central Archaeology Service (who were already located at Fort Cumberland) to form a new 'Centre for Archaeology', with a combined staff of over 70. An advantage of the AML move is increased laboratory space over that which was available at our old London location. The main disadvantages stem from the rather isolated location of Fort Cumberland, on the edge of Portsmouth.

My chief project at the moment as regards site based work is the large collection of skeletons

from the deserted medieval village of Wharram Percy. It is anticipated that the report on this material will be published within the next 2-3 years. Among the sites currently under excavation by English heritage staff is the early Christian cemetery at Whitby. Excavations here are still in progress, but nearly 150 graves have been excavated so far, with the expectation that more will come. Bone preservation is poor but the instigation of a systematic sieving programme should ensure that the information potential of the burials is maximised. Other English Heritage excavated sites yielding human remains include the Neolithic site at Longstone Edge, Derbyshire, and the large Ronan cemetery at Stanwick, Northamptonshire. Both of these are in the post-excavation phase.

Detecting cooked bone in the archaeological record.

By Sam Roberts, University of Durham.

Bones are among the most common finds on archaeological sites, and over the past few decades their information potential has increased dramatically with the development of advanced analytical techniques, both chemical and statistical. A corollary to this vast amount of available information is the need to know how reliable it is. Investigations in recent years have often focused therefore on problems of diagenesis and taphonomy, for without a thorough understanding of these processes interpretation can be severely limited. Our investigations are concentrating on the problems of cooked bone. The ability to distinguish between cooked and uncooked bone would be of great help to archaeologists, allowing assessment of some of the biases, which are involved in bone assemblage retrieval, as well as having the potential to help elucidate certain key archaeological questions.

Utilising both experimental field burials and archaeological material to compare with laboratory experiments, our approach comprises an holistic overview of the bone as a composite material, as well as looking separately at specific components. We are attempting to discern how organic-inorganic interactions within the bone translate into diagenetic processes, and which of these processes cooking accelerates or retards. We examine a number of established diagenetic indicators including histology, porosity and crystallinity as well as investigating the key biomolecules; looking in detail at how the collagen helix is affected and at the changes in lipid distributions. We hope that through examination of the changes that occur in such a specific case, not only will we determine the parameters necessary for evaluation of bone as cooked or uncooked, but also that we will gain some valuable insights into the nature of bone and how diagenesis proceeds.

REQUEST FOR INFORMATION:

The ILA Global Project on the History of Leprosy

This project is interested in the impact and experience of leprosy on a global scale, from all periods and aims to:

- identify existing historical resources and creating linkages between them
- locate existing libraries, museums and collections of material whether written or visual, artefacts or special items such as commemorative stamps.
- devise a directory of such places and their contents
- Collect verbal testimonies of people affected by and active in leprosy
- provide advice on the selection, cataloging and storage of historical materials
- compile information on discriminatory legislation and customs.

If you have any information regarding any aspect of leprosy (i.e. location of skeletal collections, unusual references) please contact Paul Sommerfeld (ILA Project Coordinator*) at: 22 Tiverton Road, London NW10 3HL. Tel: 0181 9694830; Fax: 0181 9600069; E-mail:* history@somhealy.demon.co.uk

REQUEST FOR INFORMATION:

National Human Skeletal Database (NHSD)

The BABAO committee is currently investigating sources of funding to establish a database of all human skeletal material held in British Institutions. To this end we would

appreciate suggestions from our members as to the type of format this database should take. What questions would you want to ask of the database? For example, where is the material stored, who do you write to for access, the numbers of adults or non-adults etc. More advanced questions such as types of pathology present may also be incorporated. Any suggestions/requests should be sent to: Jackie McKinley, 12 Victoria Road, Warminster, Wilts, BA12 8HE. E-mail: McK@archaeology.demon.co.uk

CALL FOR PAPERS:

Bones, Bodies and Burials in Medieval Britain: Current Approaches

Symposium at the Current Approaches to Medieval Archaeology Conference 15-17th of April 2000

Session abstract:
It is clear that a substantial proportion of the archaeological evidence relating to the medieval period, in particular the earlier portion, is derived from burial contexts. It is, therefore, surprising that the richest source of data - the skeletal remains themselves - have tended to play a marginal role in the understanding of social structure during this period. That all aspects of burial context contribute valuable information to the interpretation of social identity and organisation has been well attested. Unfortunately, in the UK, there has been a failure to fully integrate bio-cultural information from the skeleton, the body itself, to investigations of social structure from burial contexts.

This session invites all those whose research involves an examination of burial evidence from the Medieval period, but in contrast to previous burial sessions, would also welcome contributions from human bone specialists whose research may have broader theoretical implications concerning social identity in medieval Britain.

If you wish to contribute to this session then please contact Rebecca Gowland at: The Department of Archaeology, University of Durham, Science Site, University of Durham, South Road, Durham, DH1 3LE. The details of the conference and other sessions can be found via the Durham Archaeology Department website.

CALL FOR PAPERS:

Constructing Childhood in the Roman World

Theoretical Roman Archaeology Conference (TRAC) 6th April, 2000. UCL London.

Session Organisers: John Pearce and Rebecca Gowland

Session abstract:
The latter half of this century has seen a radical overhaul in our understanding of the concept of childhood. Initiated by developments in history, it is now largely accepted that the concept of childhood has not remained static over time, but has shifted in relation to different historical and cultural contexts. Only recently, however, have archaeologists become aware that childhood is a culturally specific construct.

Over the last decade feminist and gender inspired approaches in archaeology have provided an impetus for the investigation of childhood in the past. It has been argued that the neglect of children within archaeological discourse is the result of the same androcentric biases that had previously served to marginalise women. Until recently archaeological interest has gone little further than noting the probability of high mortality rates among children and their under-representation at cemetery sites, or drawing attention to the more sensationalist practices of sacrifice and infanticide. Children are portrayed as dependent and passive, not thought to play any role in the formulation of their own identities. Current research has now however emphasised the importance of children both socially and economically in the structuring and functioning of other societies in the past. Historians of the Roman world have profitably used documentary and epigraphic evidence to explore the changing construction of the child but archaeological evidence has been little exploited in this regard.

This session aims to explore the ways in which we might identify children in the archaeological record of the Roman period and to draw

together strands of evidence relating to infants and children, both documentary and material, so that the social identities of the child and its roles within the cultural setting of the Roman world may be investigated.

If you wish to contribute to this session then please contact Rebecca Gowland at: The Department of Archaeology, University of Durham, Science Site, University of Durham, South Road, Durham, DH1 3LE.

T-SHIRTS FOR SALE
Pretend you were there!

If anyone would like to be the proud owner of a Leprosy Congress T-shirt (white with colour logo, see page..) please contact Mary Lewis at Bradford: 01274 233531x5427; E-mail: m.e.lewis@bradford.ac.uk.

T-shirts cost £8.00 and are available in large and x-large, hurry while stocks last!

BOOK REVIEWS

The Cambridge Encyclopedia of Human Paleopathology

Aufderheide, A and Rodriguez-Martin, C. Cambridge University Press (1998) £75.00.

By Charlotte Roberts, University of Durham

An encyclopaedia can be defined as : '*a book, often in many volumes, containing articles on various topics, often arranged in alphabetical order, with dealing with the whole range of human knowledge or with one particular subject*.' (Hanks, 1979). As such this book deals with one subject, that of palaeopathology (or the study of disease in past populations). On the first page the book itself is described as a '*major reference work for all those interested in the history of disease in human remains*', and it fulfils that description. It also, unusually, covers diseases affecting soft tissues, an area not generally discussed in other palaeopathology texts. This text is therefore very welcomed.

The authors are highly regarded in the field of palaeopathology, having contributed to the discipline for many years, and this book undoubtedly shows years of dedicated work. The text is divided into fifteen parts: history of palaeopathology, pseudopathology, trauma, congenital anomalies, circulatory disorders, diseases of the joints, infectious diseases, diseases of the viscera, metabolic diseases, endocrine and haematological disorders, skeletal dysplasias, neoplastic conditions, with 36 of the 478 pages devoted to the very useful bibliography. Within each section devoted to a condition, the disorders are discusses in clinical context (covering facts such as aetiology, epidemiology and pathogenesis, clinical features and diagnostic criteria), followed by palaeopathological evidence.

The distinctive feature of the text is the inclusion of features of disease processes with explanations of how and why lesions occur on the skeleton. The emphasis is on the need to consider variation in severity of expression of a disease, and the morphology and frequency of palaeopathological abnormalities. It should be remembered that lesion expression may have changed through time, and some disease manifestations may not be represented in the clinical record because changes may be so subtle as to be invisible to a practising doctor. The other point of emphasis is that palaeopathological data must be considered within its cultural context, thereby linking biology and culture; as such, it is recognised that multiple factors are at play in the appearance, transmission and maintenance of disease in a population.

This book will appeal to anthropologists (biological and medical), archaeologists, doctors, dentists, medical and social historians. It is written in such a way that it is accessible to people with little or no knowledge of the subject but also to those who have been working in the discipline for a long time. It will undoubtedly become a key text in many courses and will grace the bookshelves of people working both with patients today and in reconstructing the history of disease in the past.

CONFERENCE REPORTS

Third International Congress on the Evolution and Palaeoepidemiology of Infectious Disease (ICEPID): the Past and Present of Leprosy

University of Bradford, England,
July 26th-31st 1999.

By Charlotte Roberts, University of Durham.

Under the overall ICEPID Presidency of Professor Yves Coppens, and the Presidency of this congress, Dr Keith Manchester, the Third International Congress on the Evolution and Palaeoepidemiology of Infectious diseases (The past and Present of leprosy) was hosted by the Department of Archaeological Science between July 26th and 31st 1999. It followed the previous two very successful Congresses on syphilis (1993) and tuberculosis (1997) in France and Hungary, respectively. Whist we promised the delegates good Asian food and Yorkshire hospitality, we dared not promise good weather, but we got it!

Bradford has had a long association with research in leprosy, stemming back to the late 1970's when Keith Manchester staked a claim to 'his disease'! Since then the Calvin Wells Laboratory has maintained that tradition and collected together quite an archive of relevant material, ranging from clinical leprosy radiographs to skeletal material with evidence of leprosy. When the 3rd ICEPID Congress on leprosy was initially discussed, we knew it had to be at Bradford!

Despite the specialist nature, the organisers were surprised to see such an enthusiastic participation from delegates from diverse disciplines and countries. Over 70 delegates from 22 countries made the journey to Bradford, proving that leprosy as a diseases is just as much a problem today in some parts of the world as it was in the past. Many participants were leaders in their field of leprosy, but particularly the residents of the Scientific Committee: Dr John Cule, (UK), Professor Mirko Grmek (France), Professor Michel Lechat (Belgium), Dr Jal Mehta (India), Professor Don Ortner (USA) and Professor John Stanford (UK). In addition, many of the 25 members of the Scientific committee were leaders in biological anthropology and palaeopathology research.

The Congress was mainly devoted to paper presentations on clinical aspects of leprosy, including the stigma and ostracism seen even today, immunology, medical history, palaeopathology and biomolecular work. The latter seeing some potentially exciting times ahead. There were also displays of skeletal material from the Calvin Wells Collection, but particularly from Chichester the later medieval leprosy hospital cemetery. There were, of course, social occasions where most of the business got done, as usual! One afternoon was devoted to a visit to the Thackray Medical Museum in Leeds which is a relatively new venture with rather innovative displays, and one evening reception was held at the National Museum of Photography, Film and television in their newly refurbished Kodak Gallery (with a chance to see an Imax film). The Congress dinner was held at a local Asian restaurant where presentation was made to Keith Manchester for his contributions to palaeopathology.

The Congress was a great success and much cross-discipline discussions took place, which suggests that the size of the Congress provided the opportunity to develop. However, the overall success of this meeting was attributed to the organisation team behind

(Anthea Boylston, Lynda Isaac, Mary Lewis, Jason Maher, John McIlwaine, Kim Paley, Tanya Smith and Francis Thornton), the delegates for supporting it, and also the generous financial backing of the Biological Anthropology Foundation, The British Academy, The University of Bradford and The Wellcome Trust. Without the latter, many of the delegates from Eastern European countries particularly, could not have attended or contributed to the congress.

The proceedings of the congress will be published just as those form the previous two Congresses have been. The next ICEPID Congress will be on the plague and will be in Marseilles, France, 2002!

York Research Forum on Bioarchaeology in honour of Don Brothwell on his retirement.

University of York, 4-6th September, 1999.

By Megan Brickley

After a wine reception at Alcuin College, at which the real purpose of the meeting was made known to Don Brothwell, Tony Legge presented a paper *Reflections on a bone idol*. The paper covered Don's career, his contribution to many subject areas and, of course, many humorous anecdotes about Don.

Papers on the Saturday and Sunday fell into two broad categories. Papers presented on Saturday covered the study of animal bone and other areas of environmental archaeology to which Don had contributed. Papers included the wider role of animals in the lives of past communities (Roel Lauwerier, The Netherlands), biometry (Umberto Albarella, Birmingham), enamel hypoplasia in orang-utans (Mark Skinner, Canada), ethnohistory and archeobotany and the Scottish thatched house (Tim Holden, Edinburgh), Greek horse burials (Theo Antikas & Laura Wynn Antikas, read by Keith Dobney), the black rat (Anton Ervynck, Belgium), faunal studies in western Ecuador (Peter Stahl, New York), seasonality (Annie Grant, Leicester), and the future of faunal studies (Mark Maltby, Bournemouth).

On Sunday, papers focused on various aspects of human skeletal remains, including palaeopathology in the twenty-first century (Don Ortner, Washington D.C.), occupational skeletal change (Ann Stirland, Devon), integrating skeletal, historical and archaeological evidence (Jane Buikstra, New Mexico), dental anthropology (Simon Hillson, London), digital electron microscopy and other techniques applied to archaeological bone (Alan Boyde, London), dating evidence from Boxgrove (Simon Parfitt, London) modern human origins (Chris Stringer, London), and science in archaeology (Mark Pollard, Bradford).

Summing up the full range of topics covered by these papers is difficult within the space constraints of this review, as during his career Don has contributed to so many areas of research. However, all the papers were of a high standard, focusing not only on Don's contribution to the subject area, but also future directions for research. Many of the speakers arrived clutching very tattered copies of Don's book 'Digging up Bones' and also briefly spoke of how they came to meet Don, and their friendship with him. The papers from the conference will form the basis of a conference monograph to be published this year.

An equally important part of any conference is the biscuits, food and drink on offer (in my opinion anyway) and Don was not let down on the catering front. After a champagne reception, which Don was presented with a watercolour of Orkney (by the artist Jane Glue), a splendid dinner held for him in Bedern Hall. Don was also presented with a book of messages from friends and colleagues around the world who were unable to attend the conference.

The high standard of papers presented and the warm and friendly atmosphere at this international conference were a fitting tribute of everyone's appreciation of Don's work during his long and as yet, continuing career.

Review of the British Association for Biological Anthropology and Osteoarchaeology Meeting

Birmingham, September 10-12, 1999

By Christopher Knüsel, University of Bradford

This year's meeting, organised and convened by Dr. Megan Brickley, demonstrated that the enthusiasm that encouraged the founders to establish an association at last year's 'prototype' meeting in Bournemouth was not misplaced. Margaret Cox and Simon Mays' edited and fully refereed volume of papers from the Bournemouth meeting, published by Greenwich Medical Media, will appear this year. This

volume presents detailed reviews of the discipline's many and varied topics.

The papers presented, like those at the meeting in 1998, were scholarly, wide-ranging, and multi-disciplinary in their scope. They provided not only considerable discussion but also revealed a number of important trends in the discipline. The papers in the first two sessions demonstrated that finds managers, conservators, archaeologists, anthropologists and the heads of cultural heritage units can communicate about shared interests when brought together in the same forum, and to the mutual benefit of all concerned. Everything from the legal, ethical, and logistical positions of archaeological and forensic work to excavation strategies, conservation of human remains, their sites, and display were addressed in a stimulating series of papers that opened the conference and carried into the following morning's proceedings. The over-riding theme was that methods and standards are as much an ethical concern as are the results and dissemination of research. Britain is in the unique position of possessing many well-excavated and curated collections of human remains, the study of which receives good public support and backing. It is more and more clear that the presence of a trained osteologist or two, within archaeological units, many of whom are also capable field archaeologists or finds assistants, anticipates a more thorough public understanding and a considerably more meaningful research outcome.

A second group of papers presented results of the study of human populations that monitor both changing funerary practices and biological variation and health through time and under different cultural circumstances (e.g. urban versus rural, sex and age-based comparisons). These papers benefited greatly from the application of the biocultural approach, defined by Simon Mays in his summary of the session as consisting of three elements: 1) population-level analysis; 2) osteological information studied within its cultural context; and 3) a problem-oriented approach. Participants were treated to biocultural studies of the adult vertebral column to reveal differential labor practices and disability (a modern scourge that accounts for many lost days of work and, I suspect, of pleasure, as well), congenital malformations and the influence of the urban environment on their prevalence, and changing health patterns in the remains of children, perhaps the best indicator of a population's adaptation to its environment. In the discussion that followed these papers, participants brought attention to the need for the teaching of more population-oriented components in university archaeology and anthropology courses.

The final session of the conference continued the population and problem-oriented approach, while emphasising the evolutionary importance of the mother and infant bond, and childhood growth and development. Although treated as two separate biological organisms, prior to birth and for a variable time thereafter, the mother and infant form a single individual biochemically. Because the infant is dependent on the mother's dietary habits and intake, its skeletal isotopic constituents reflect the mother's during this vital period. The origins of modern, rotational childbirth and the modern pattern of childhood growth and development, as well as the relationship between birth and the development of brain size within the Order Primates provided coverage of a series of related topics in the early part of the last session. The effect of early developmental disorders and their influence on later adult health, as well as the identification of such episodic disorders in dental enamel hypoplasia in 80 individuals of known age-at-death from the Spitalfields collection, London, provided insights into compromised development. These studies benefited greatly from using more recent documented skeletal populations. If the number of youthful contributors to sessions is also a testament to the health and vitality of a new organisation, then BABAO will be an enjoyable and useful forum for the exchange of ideas and concepts for years to come.

The Veterinary Palaeopathological Working Group (VPWG)

University of Birmingham, June 1999

By Richard Thomas

The relegation of pathological observations in zooarchaeological literature to little more than a brief description, which is typically lacking in integration with the rest of the evidence, is unfortunately a frequent occurrence. To compound this problem there has been a general lack of consistency, and no guidelines, in the recording of pathological information for animal bone assemblages. Consequently despite the recognition of congenital anomalies

and pathology in animals a shortage of comparable data has restricted many analyses to little more than case studies. Additionally there are still many aspects of palaeopathology that are poorly understood.

The VPWG was consequently set up in order to try and address these problems as well as providing a forum for a multi-disciplinary discussion of the methodological and practical issues regarding the study of animal palaeopathology. The aim of the first meeting, which took the form of a round-table discussion, and was held at the University of Birmingham in June 1999, was to discuss a number of questions central to the study of palaeopathology:

Why study palaeopathology?
What should we record?
How should we record?

A hands-on session was also organised to provide an arena in which pathologies could be highlighted, discussed or diagnosed. The meeting was well attended with the participants deriving from a broad range of disciplines, including zooarchaeology, human osteology, veterinary science and field archaeology. The breadth of disciplines represented by the attendees reflecting in part the depth of fields covered under the umbrella of palaeopathology.

As with most discussion groups more questions were generated than answered, however a number of useful points were raised. For example the question of whether research should be question-led or based on case studies; how do we quantify pathology or should we record on a present/absence basis; should we have minimum requirements or recommended standards; description versus diagnosis; the question of normality and the need for definition. During the meeting it was also agreed that a checklist, highlighting the different areas of bone and the pathologies that might be found on them, would be an extremely useful tool and this is currently being prepared.

The group, whose membership currently stands at over 60, has now been formally recognised by the International Council for Archaeozoology (ICAZ) and includes members from across Europe and America.

Future meetings for the VPWG are planned. Dr. Sue Stallibrass (University of Liverpool) is currently in the process of organising a meeting for this year. In addition, the University of Cheiti are hosting the Thirteenth European Meeting of the Palaeopathology Association this September, within which a session on animal palaeopathology has been planned.

For any one interested in becoming a member of the VPWG or for further details of future meetings and the conference in Cheiti please contact Richard Thomas at: The Department of Ancient History and Archaeology, University of Birmingham, Edgbaston, Birmingham,B15 2TT. E-mail:r.m.thomas@bham.ac.uk

UNIVERSITY RESEARCH AND TRAINING

Research and training at the University of Birmingham

By Megan Brickley

The study of forensic archaeology and biological anthropology are relatively new at Birmingham. These areas of study were initiated with the appointment of Professor John Hunter (Chair of the Forensic Search Advisory Group) in 1996 and Dr Megan Brickley in 1997. The commitment of the University to these areas of study has enabled funds to be secured to bring teaching and library facilities to the required standard for successful teaching and research in these areas.

Marika Henneberg has just completed an M.Phil. in Forensic Evidence of Torture: Investigations into Human Rights Violations. This month two new Ph.D. students in the area of forensic anthropology, Gail McKinnon and Walter Calaghan, have joined the Department. Helena Berry has just completed her first field season in Greece for her Ph.D., funded by the British Academy, on social interpretations of Greek skeletal material.

In September 1999 the Department introduced a new course, M.Phil. (B) in Environmental Archaeology, in which the study of human skeletal remains is taught alongside other areas of environmental archaeology such as; archaeobotany, entomology and faunal remains. Human skeletal remains are taught in this way for two reasons. Firstly, the consideration of a broad range of evidence enables students to

adopt a biocultural approach. Secondly, it is increasingly difficult to gain employment as 'just' a human bone specialist either with a unit or academic institution. (For more details of this course please contact Megan Brickley, Department of Ancient History and Archaeology, University of Birmingham;E-mail:m.b.brickley@bham.ac.uk).

Megan Brickley is currently collaborating with Dr Andrew Millard, Durham University, on a NERC funded research project 'A test of nitrogen isotopes for detecting weaning in past populations'. Preliminary results of this project will be presented at Chieti in August 2000. Her research into osteoporosis is also continuing, with the help of her research assistant Richard Thomas. The two main areas currently being investigated are, the development of a 'standard' for measuring bone density, funded by NERC, and investigations of bone loss in 19th century skeletal material from Prague, funded by the British Academy.

Since the appointment of John Hunter the Department at Birmingham has established links with colleagues at the University of Amsterdam, particularly in the areas of forensic archaeology and anthropology. The British Council has recently agreed to fund a number of visits by John Hunter and Megan Brickley to The Netherlands in order that links with Amsterdam University and the Dutch Police force might be further strengthened. These meetings will undoubtedly lead to further collaborative research projects in these fields.

Training at the University of Bournemouth, School of Conservation Sciences

By Linda O'Connell

MSc, PG DIP, PG CERT Osteoarchaeology
Postgraduate Diploma (2 Terms Full-time course)
MSc (1 year Full-time course)

This course provides the opportunity for students to study both human skeletal remains and the remains of other animals found on archaeological sites. This vocationally orientated course aims to provide its graduates with advanced and applied knowledge and understanding of anatomical and bone science, human skeletal anatomy, taphonomic processes, disease processes in past human populations and the cultural responses to such processes. The course also includes modules in secular trends in biological anthropology, processes of analysis and recording, and the identification of the major species of animals found on European archaeological sites. The course objectives are to provide students with a sound and detailed knowledge and critical understanding of the principles and methods of science based archaeological post excavation analysis, related to both the theoretical and practical aspects of examining osteological materials from archaeological contexts.

MSC, PG DIP, PG CERT Forensic Archaeology
Postgraduate Diploma (8 months Full-time course)
Postgraduate Diploma (18 months Part-time course)
MSc (1 year Full-time course)
MSc (2 years Part-time course)

It is being increasingly recognised that a wide range of specialist skills is required for effective scene of crime investigation. These include significant archaeological, anthropological and legal and management capabilities. This programme seeks to integrate these themes drawing on the expertise in both teaching and research of the School of Conservation Sciences and the School of Finance and Law. This is further enhanced by the involvement of a wide range of visiting lecturers who are pre-eminent in their fields. Forensic archaeology may be defined as the application of archaeological methods and principles within the constraints and framework of the criminal justice system. This is a relatively recent coalescence of disciplines in the UK, and is increasingly accepted by both law enforcement officers and human rights investigators across the world. Forensic archaeology is also increasingly playing an important role in the investigation of human rights violations.

This unique programme aims to provide students with a solid multidisciplinary framework for enhancing the effectiveness of scene of crime investigations and in particular how the application of proven archaeological methods can usefully improve both the quantity and quality of the information recovered. Practical, theoretical and vocational skills to increase their effectiveness at the archaeology/police/scene of crime interface. An ability to integrate the core knowledge related to the criminal justice system, archaeology and

management, permitting them to cope more readily with demands of, for example, media attention and the need to act as an expert witness together with the problems of post-traumatic stress syndrome. An involvement with leading practitioners in the field of forensic archaeology through a visiting speaker programme that allows access to current practice and knowledge.

MSC, PG DIP, PG CERT Forensic Anthropology
Offered from October 2000 Subject to Validation

This course will draw upon existing units delivered in the MSc Forensic Archaeology and Osteoarchaeology programmes in addition to incorporating specific units tailored to the study of Forensic Anthropology.

Please contact Postgraduate Course Administrator for further information, when available, at: School of Conservation Sciences, Bournemouth University, Talbot Campus Poole, Dorset, England, United Kingdom, BH12 5BB. Tel +44 (0) 1202 595277; Fax +44 (0) 1202 595255 consci@bournemouth.ac.uk

Research and training in biological anthropology and forensic anthropology at the University of Bradford

By Mary Lewis

The University of Bradford runs two Master's courses relating to the study of human remains. The first, the *MSc in Human Osteology and Palaeopathology,* begins in September and emphasises the study of archaeological remains within their funerary context. This course provides graduates with advanced skills in the analysis and interpretation of human remains from archaeological sites, with particular emphasis on ancient diseases, and the integration of biological and archaeological evidence. This course replaces the MSc in Osteology, Palaeopathology and Funerary Archaeology, which was run jointly with the University of Sheffield.

The second postgraduate programme, the *MSc in Forensic Anthropology,* involves crime scene, mass disaster, and other types of casualty investigations directed towards the analysis and personal identification of human remains. The degree enables students to study topics in depth relating to the human skeletal system in a medico-legal framework.

As well as running both undergraduate and postgraduate modules in biological anthropology, the Calvin Wells Laboratory has several research students, working on a wide range of themes from gender and health (Dianne Keeping), dental pathology (Chrissie Freeth), urbanisation and changing patterns of disease (Mary Lewis), the isotopic composition of dental tissue and population dynamics (Janet Montgomery), and the deterioration of archaeological bone (Vera de la Cruz).

In addition, current research projects include the palaeopathology of medieval warfare (Anthea Boylston), the taphonomy of inhumation burials and the conservation of archaeological bone (Rob Janaway), biomechanics and the interpretation of occupationally related skeletal change (Chris Knüsel), leprosy and other infectious diseases in antiquity (Keith Manchester), gender and health in antiquity (Don Ortner), dental anthropology and ageing methods in forensic anthropology (Robert Pastor), the chemical study of bone (Mark Pollard), trace element analysis in the reconstruction of diet and subsistence, and human ecology (Holger Schutkowski).

Bradford's already internationally renowned collection of palaeopathological specimens is continually improved with material from our busy contract service. At present, Anthea Boylston, Malin Holst and Lynda Isaac are completing a report on c.250 skeletons from Hull Magistrates Court, a medieval monastery, and a monograph on the study of soldiers from the Battle of Towton mass grave is being finalised. Work is now about to begin on Warrington Priory, Lancashire and Workington Church, Cumbria.

The University of Bristol study groups for ancient human remains

By Kate Robson Brown

The University of Bristol has three centres for research and teaching in the field of ancient human remains. These are: *The Centre for Human Evolution Research* (contact Dr Kate Robson Brown, Dept of Archaeology), *The Palaeopathology Study Group* (contact Dr Juliet Rogers, Dept of Rheumatology) and *The Archaeological Chemistry Study Group* (contact Dr Richard Evershed, Dept of Chemistry).

The Centre for Human Evolution Research (CHERUB):
Research Interests include:

- Biomechanical implications of trabecular architecture in hominids
- Hominid phylogenetics
- Behavioural implications of the Pleistocene archaeological record
- Cave site survey
- Early human dispersals in South East Asia

Postgraduate Studies include an M.Phil (by research) in Human Origins and PhD.

Research students:
Zuki Jakavula: 'Decorated rockshelters in the Western Cape: a GIS approach.' (Supervisors: Kate Robson Brown, Alan Chalmers, John Parkington)
Alice Roberts: 'Evolution of the shoulder in humans and apes.' (Supervisors: Kate Robson Brown, Jeremy Burn)
Maria Martinón-Torres: 'Biomechanics of the hominid pelvis.' (Supervisor: Kate Robson Brown).

Forthcoming publications:
Robson Brown, K., Chalmers, A., Saigol, T., Green, C. and d'Errico, F. An automated laser scan survey of the Upper Palaeolithic rock shelter of Cap Blanc. *Journal of Archaeological Science* (in press).

McNally, DS, Elwin, R, & Robson Brown, KA The angular distribution of vertebral trabeculae. *Radiology* (in press)

Robson Brown, KA, McNally, DS & Ogilvie, M (Trabecular architecture and biomechanical environment: A comparison of vertebral architecture in the Neanderthal Shanidar 3 and modern humans. For the Journal of Human Evolution (in prep).

C.Higham, R.Thosarat, W.Boyd, N. Chang, K. Domett, T. Higham, G Mason, D. O'Reilly, C.Pailles, A. Reay, K Robson Brown and N.G. Tayles. *The Excavation of the Prehistoric Site of Ban Lum Khao* (in prep)

The Palaeopathology Study Group:
Research interests include:

- Health in past populations
- Joint disease

Research students:
Susan Jim: 'Palaeodietary Research: development of bone cholesterol as a new carrier of palaeodietary information.' (Supervisors: Richard Evershed and Juliet Rogers)
Louise Loe: 'Health and Status in Medieval Wales.' (Supervisors: Kate Robson Brown, Juliet Rogers)

Forthcoming publications:
Rogers, J. The palaeopathology of joint disease. In Mays and Cox (Eds.) *Osteoarchaeology* (in press).

Rogers, J. The human skeletal material. In Rodwell, EH (Ed.) *The Archaeology of Wells Cathedral* (in press).

The Archaeological Chemistry Research Group:
Research Interests include:

- Studies of biological materials of archaeological significance in order to improve understanding of human activities in the past, including diet, use of artefacts, processing of natural products
- Soil chemistry and element cycling
- Biomolecular palaeontology

Postgraduate Studies include MSc by Research and PhD programme.

Research and training at the University of Durham.

By Charlotte Roberts.

The Department of Archaeology, University of Durham announces two new MSc courses starting in October 2000. They are, as follows:

1. *MSc in Palaeopathology*
Rationale:
Disease is very much part of our lives today and affects how we function. This must have been true for the past and therefore, this course focuses on health and disease in past

populations in much more depth than any other Masters course.

Aims and objectives:
The course aims to equip students with the theoretical and practical knowledge of how to study disease in past populations, with the emphasis being on linking both biological and cultural contextual data together, thereby encompassing a multidisciplinary approach. Using lecture, laboratory and tutorial sessions, and various types of assessment, the course will provide students with a range of skills necessary for the world of work, or future research in palaeopathology. This course will take a worldview of the study of palaeopathology.

The course can be studied full or part-time.

For further details please contact: Sheila Brown (sheila.brown@durham.ac.uk) or telephone 0191-3743629, or to discuss the course with the course director Dr Charlotte Roberts (C.A.Roberts@durham.ac.uk) or telephone 0191-374-1124.

2. *MSc in Ancient Diet and Health*
Aims and objectives:
The course aims to train students in postgraduate research skills in a group of related areas in archaeological science so that they are prepared to go on to further research in these areas, and to understand and integrate methods and results from complementary research. Students will be taught methods and strategies for research and the methodologies of faunal analysis, botanical analysis, palaeopathology and the chemical reconstruction of palaeodiet.
The course can be studied full or part-time

For further details please contact Sheila Brown (sheila.brown@durham.ac.uk) or telephone 0191-374-3629, or to discuss the course in more detail please contact Dr Andrew Millard (a.r.millard@durham.ac.uk) or telephone 0191-374-4757

Research and training in human osteoarchaeology and biological anthropology at the University of Sheffield.

By Andrew Chamberlain

Human Osteology Training and Research:

From September the Department will offer a one-year *MSc in Human Osteology and Funerary Archaeology*, in place of the pre-existing MSc in Osteology, Palaeopathology and Funerary Archaeology which was taught in collaboration with the Department of Archaeological Sciences, University of Bradford. The new course of study is based entirely at Sheffield and will run annually, with the teaching divided into two semesters followed by dissertation research during the summer vacation. Details of the new course are available on the Department's website, or by contacting Kathryn Goldsack, Department of Archaeology and Prehistory, University of Sheffield (email: k.goldsack@sheffield.ac.uk).

Several Ph.D. students are currently undertaking research in human osteoarchaeology. New Ph.D. students include Jen Hiller, whose research is on A Systematic Approach to the Recovery of DNA from Hominid Remains in Upper Pleistocene Caves, and Jo Buckberry, whose topic is A Social Anthropological Analysis of Conversion Period and Later Anglo-Saxon Cemeteries. Both Jen and Jo are recent graduates of the Bradford/Sheffield MSc Osteology course, and their research is funded by studentships from The Wellcome Trust and The University of Sheffield. Current Ph.D. students are Ziggy Parras, who is researching the skeletal biology of eastern Mediterranean prehistoric human populations, and Costas Eliopoulos who is testing the accuracy of ageing and sexing methods as applied to known-age southern European populations. A group of Ph.D. students have recently submitted their Ph.Ds: Malcolm Lillie has studied Mesolithic and Neolithic human skeletons from the Ukraine; Sevy Triantaphyllou analysed prehistoric human skeletons from Northern Greece, focusing on diet, pathology and skeletal indicators of stress, while Andrew Tyrrell has completed his Ph.D. on the population affinities of southern British Anglo-Saxon populations using non-metric traits. Andrew Chamberlain is writing a textbook on demography in archaeology, and he is conducting research into human skeletal remains from prehistoric burials in caves, fissures and rock shelters in the British Isles. He is also managing contract human osteological analyses of human remains from Whitwell Long Cairn, Derbyshire, and from Cloghermore Cave, Co. Kerry, Ireland.

Ancient Human Biomolecules Training and Research:

In September 1997, the Department introduced a new *MSc in Biomolecular Archaeology* in collaboration with the Department of Biochemistry and Applied Molecular Biology at UMIST, Manchester. The course, which is directed by Terry Brown at UMIST and Glynis Jones at Sheffield, provides training in current techniques in molecular biology as well as a broad understanding of the principles and methods of bioarchaeology. The course attracts between six and eight students each year, and several students have undertaken dissertations on the analysis of human bone using biomolecular methods. The Department of Archaeology and Prehistory also has collaborative research links with the University of Newcastle and Trinity College Dublin, where analyses of DNA, proteins and lipids from human and faunal remains are being undertaken.

SHORT COURSES

Forensic Anthropology Short Course at the University of Bradford

The Department of Archaeological Sciences, at the University of Bradford will hold its 4th Annual short course on "Forensic Anthropology" in early July 2000. This five-day course is organised jointly with the National Museum of Health & Medicine, Armed Forces Institute of Pathology, Washington, DC. The course is designed for dentists, doctors, pathologists, forensic scientists, police officers and other medico-legal investigators, and undergraduate and postgraduate students, and consists of a series of lectures covering topics in the field followed by laboratory sessions emphasising hands-on analysis of skeletal remains. There is a reduced course fee for students.

The course provides a survey of the basic principles of forensic anthropology and archaeology, and provides updates on new techniques in the field. Topics to be covered include: the practice of forensic anthropology and pathology in the US and UK; taphonomic processes; modern methods and techniques for the assessment/estimation of sex, race, age and stature in skeletonised human remains; evaluation of trauma and manner of death; forensic entomology, forensic odontology; facial reconstruction and DNA analysis, identification and individualisation of human remains and mass disaster management. Forensic anthropology case studies will be presented as examples and to illustrate the use of analytical techniques. The course will also include a half-day field exercise covering search and recovery techniques involving forensic archaeology and scene of crime management.

For further details and information, and a brochure (forthcoming) please contact: Mr. John McIlwaine, Co-ordinator of Continuing & Professional Education, at 01274-235428, e-mail: j.j.mcilwaine@bradford.ac.uk; or Dr. Robert Pastor, Lecturer in Biological and Forensic Anthropology, at 01274-236051, e-mail: r.f.pastor@bradford.ac.uk.

PHD TITLES

HELENA BERRY: Osteological Evidence and Funerary Interpretation: An Exploration of the Interrelationship between the Two In-building Social Structures from the Grave-A Multidimensional Approach to Social Structure in Hellenistic Greece. *Department of Ancient History and Archaeology, University of Birmingham.*

Contextual funerary data are the staple of social interpretation in archaeology. What part could or should osteological data play in this reconstruction? Osteological data has been used to confirm or deny social evaluations based on funerary evidence. This thesis proposes to demonstrate that the expectation of linear relationships between such classes of evidence precludes, rather than enables, a multidimensional approach to examining social structure. This study explores the ways in which osteological data relating to age, sex, pathological and nutritional status of the individual interact with traditional contextual data, in two Hellenistic cemeteries in Epirus. This thesis will examine the limitations and potentials that a multidimensional approach has on both a theoretical and practical level in exploring facets of ancient social structure.

STEVEN BUCKLEY: Characterisation of Embalming Resins from Ancient Egyptian mummies.' *Department of Organic Chemistry, University of Bristol.*

The aim of my research is to elucidate the nature of the organic embalming materials used

in the practice of mummification in ancient Egypt. By identifying the specific sources of these substances and putting them into context (date, provenance, etc.) we can gain a better understanding of embalming practices during the 3000 years in which mummification was practised in ancient Egypt. This is being achieved through a careful and systematic choice of (extremely small) samples, providing insights into areas of ancient Egyptian culture such as prevailing trade routes, ritual significance, etc. Analyses are being performed by means of thermal desorption/pyrolysis-gas chromatography-mass spectrometry (TD/Py-GC-MS), conventional 'wet' chemical procedures followed by gas chromatography-mass spectrometry (GC-MS), and isotope ratio monitoring-gas chromatography-mass spectrometry (irm-GC-MS). Application of these approaches provides us with the options for rapid screening of minute samples, i.e. sub-milligram quantities (<0.1 mg for TD/Py) or undertaking very detailed molecular analyses of somewhat larger samples but still only of milligram size. These approaches yield molecular structures and distributions which can be matched to likely embalming agents, taking account of course of compositional alteration due to long term degradation during interment. In this way we hope to address some of the many questions which still remain unanswered

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STANLEY CHAPMAN: Disease and Trauma of the Spine in Communities in Medieval England. *Department of Archaeology, University of Leicester.*

The vertebral column is a unique structure in the human skeleton. It keeps the body upright, whether standing or sitting, while affording protection to major nerves and blood vessels. It articulates with other bones; the sacrum with the pelvic bones and with the ribs in the thoracic region. The vertebrae of the sacrum are fused, while those above, 24 in total, are movable. It is because of these factors that the human spine is worthy of in-depth study.

The aim of this research is to examine the spines of individuals from English urban, rural and monastic communities, and to compare the results between different sexes and age groups. This study will encompass cultural evidence of various human work and social activities, in order to provide a context for the material evidence. Finally, an attempt will be made to assess the types of work and lifestyle conditions of people living during the periods under study.

Scanning and X-ray techniques will be employed to measure bone density and it is envisaged that, once the current work is complete, studies of sub-adult vertebrae will continue.

REBECCA GOWLAND: Examining Age as an Aspect of Social Identity from an Analysis of Mortuary Evidence from the Fourth to Sixth Centuries in England. *Department of Archaeology, University of Durham.*

Age is an integral part of social identity; governing self-perception, societal interactions and organisation. How different societies conceptualise and symbolise the life course is far from uniform, it is specific to both history and locality. Yet in comparison to other identities such as gender, ethnicity, status and so forth, it has received comparatively little attention within archaeological discourse and in fact the social sciences in general. When exploring age in the past, it is of course skeletal material that provides the most direct evidence. This research, therefore, focuses on both biological and cultural variables from mortuary contexts of the fourth to sixth centuries in England in order to investigate possible age constructs during this period. The estimation of age at death of adult skeletons is, however, a process fraught with difficulty and I will be addressing the biases involved, together with an understanding of the relevance of chronological age to a study of past age relations.

Essentially this research involves two levels of analysis, firstly examining the biological age of the skeleton and trying to go some way to improve upon current ageing methods on a statistical level. Secondly attempting to relate biological age to social realities through an examination of burial and archaeological context. Finally I hope to explore the fluidity and inter-relatedness of age identity with other aspects of the social persona such as gender and status, at both the individual and societal levels.

JENNIE E. HAWCROFT: Mind over Matter: Cognition, Material Culture and Ontogeny in Middle Palaeolithic Europe. *Department*

of Archaeology and Prehistory, University of Sheffield (September 1999).

This thesis examined the characteristics of the Mousterian stone tool assemblage of the European Middle Palaeolithic. Specifically, its intent was to address a key question about the Mousterian, using concepts of cognitive science, which has not previously been utilised in Middle Palaeolithic archaeology: Could the conservative nature of the Mousterian be a result of differential ontogenetic patterns in Neanderthals?

Skeletal work on the small amount of surviving Neanderthal juvenile material indicates that there may have been a tendency towards shorter physiological childhood in Neanderthal people, with skeletal maturity reaching completion at a relatively earlier time. This thesis sought to complement, and support, these trends from skeletal studies with a model of mental development, which argued that the Neanderthal material record showed cognitive markers, which could support a shorter mental childhood for Neanderthals. While mental and physical maturation in modern humans are not entirely co-occurrent, there is a broad correlation.

A model of how these concepts could be applied to the Mousterian was constructed, and a series of practical experiments was devised, in accordance with precedents in child psychology. These experiments were carried out over a period of three months at a Sheffield primary school, and were later repeated on an adult control group from Sheffield University.

This thesis concludes that Mousterian conservatism could feasibly have been caused by shorter precocious periods of cognitive maturation in Neanderthals, and that developmental factors may be more important in discussions of the nature of material culture than has previously been considered.

MARK HOWLAND: Dietary Tracing of Amino Acids in Pig Tissues: A Nutritional Model for Humans.
Department of Organic Chemistry, University of Bristol.

This project involves dietary tracing of amino acids in pig tissues. I have access to samples from a feeding experiment conducted by Alva Mitchell at the USDA in Maryland. Two generations of pigs were fed on controlled diets containing casein, fish meal, soy beans, maize and wheat in varying proportions. I intend to extract individual amino acids from several pig tissues and from dietary components for isotopic analysis ($\delta^{13}C$ & $\delta^{15}N$) to model themetabolic pathways involved in amino acid metabolism. The major applications of this research area are: a) to compare rats and pigs as nutritional models for humans, b) improved palaeodietary reconstruction through isotopic analysis of human skeletons.

SUSAN JIM: Palaeodietary Research: Development of Bone Cholesterol as a New Carrier of Palaeodietary Information.
Department of organic chemistry, University of Bristol.

The aim of my research is to develop bone cholesterol as a new palaeodietary indicator that could be used in conjunction with existing stable isotope techniques such as bone collagen ($\delta^{13}C$ and $\delta^{15}N$) and apatite ($\delta^{13}C$) analyses to elucidate information on past dietary behaviour. Cholesterol is a single compound, which can be unambiguously characterised, therefore ensuring its isotopic integrity. Studies to date have demonstrated that the $\delta^{13}C$ value of cholesterol is essentially homogenous within one skeletal type and highly consistent between different skeletal members. It has also been used successfully to distinguish subtle dietary differences between an English inland (Medieval, Abingdon Vineyard, Oxfordshire) and a coastal population (Saxon-Medieval, Barton-on-Humber, N. Lincolnshire).

Current research in our laboratory is concentrating on determining the effects of differing nutritional inputs, metabolism and turnover rate on the isotopic composition of bone cholesterol. Rats (Professor Stanley H. Ambrose, University of Illinois) and pigs (Professor Nikolaas van der Merwe and Dr Suzanne M.M. Young, Harvard University) were raised on a variety of isotopically controlled diets consisting of differing combinations and proportions of C3, C4 and marine protein, and C3 and C4 energy components (sucrose, starch and oil for the rats, and starch for the pigs).

The aim of this work is to measure the $\delta^{13}C$ values of the animals' bone cholesterol and individual fatty acids as a function of each

different diet with a view to determining how, and which specific biochemical fraction (protein and/or energy), present in their formulated diets, most influences their lipid isotopic composition. Preliminary results from the rat study have shown that the dietary signal derived from cholesterol is different from that derived from collagen and apatite, and so its use in conjunction with these existing methods should give a fuller insight into palaeodiet.

DIANNE KEEPING: Life and Death in English Nunneries: A Biocultural Study of Variations in the Health of Women During the Later Medieval Period, 1066-1540. *Department of Archaeological Sciences, University of Bradford.*

This dissertation assesses sex/gender, class and regional variations in health at female and male monastic institutions, with the primary objective of providing a general perspective on the status of nunneries, nuns and women in medieval English society. Palaeopathological, archaeological and historical data were collected through direct observation of skeletal material and a review of published and unpublished reports for two nunneries: Elstow Abbey (N=134) and Clementhorpe Priory (N=127); two monasteries: Dunstable Friary (N=65) and St Andrew's Priory (N=54); and a sample of females from the parish cemetery at Fishergate (N=64). A wide range of health indicators, including mortality and palaeodemographic data, stature, and all of the major skeletal and dental disease categories, were utilised. Chi-square tests were applied to determine the presence of statistically significant differences in mortality and morbidity within and between the skeletal populations.

MARY LEWIS: The Impact of Urbanisation and Industrialisation in Medieval and Post-Medieval Britain. *Department of Archaeological Sciences, University of Bradford (October 1999).*

This study compares the morbidity and mortality of non-adults interred in urban and rural cemeteries between 850-1859 AD. It was hypothesised that the development of urbanisation and industrialisation, with subsequent overcrowding and environmental pollution, would result in a decline in human health in the urban groups. This would be evident in lower mean ages at death, retarded growth and higher rates of childhood stress and chronic infections in the children living in the urbanised environments.

Non-adult skeletons were examined from Raunds Furnells in Northamptonshire (rural), Wharram Percy in Yorkshire (rural), St. Helen-on-the-Walls in later medieval York (urban) and Christ Church Spitalfields in London (industrial). The results showed that it was industrialisation, rather than urbanisation that had the greatest impact on child health, with a decline in weaning ages, growth retardation and greater rates of rickets and scurvy in the children from Spitalfields. In addition, evidence for respiratory diseases (rib lesions and maxillary sinusitis) was more common in the rural samples.

LOUISE LOE: Health and Socio-economic Status in Early Medieval Wales. *Department of Archaeology, University of Bristol.*

There are numerous examples in Britain where socio-economic status has been investigated in the archaeological record through mortuary analysis. This has included the analysis of grave goods, burial types, age and gender, and grave organisation within a cemetery. There are comparatively few examples where health through the examination of skeletal remains has been used in such studies and it is only recently that Bio-archaeologists have begun to address this.

The excavation of 858 skeletons from Llandough, South Glamorgan presents the unique opportunity to carry out such investigations. Llandough is the largest 4th to 12th century cemetery excavated to date in Wales. The examination of this material will be used to assess the reliability and potential of the range of skeletal markers of socio-economic status, by cross-referencing it against the archaeological site record. Archaeological themes of poverty and wealth in early medieval Wales will be explored and compared to other contemporary assemblages in England, Ireland and Wales. It is hoped that these findings will add considerably to our understanding and knowledge of the health and physical attributes of early medieval British populations.

JANET MONTGOMERY: Pb- and Sr-isotope compositions of Human Dental Enamel as

an Indicator of Ancient Population Dynamics. *Department of Archaeological Sciences, University of Bradford.*

The aim of the project is to evaluate the potential of combined Sr- and Pb-isotope and concentration measurements to identify individuals from "exotic" locations among sedentary populations in the archaeological record and compare them with the traditional archaeological methods. It is anticipated that the project may also yield insights into sources of prehistoric lead exposure and diagenetic change in the burial environment.

As tooth enamel appears to offer the greatest resistance to post-mortem change the study will focus upon this tissue, with other skeletal elements analysed for comparison. A sampling protocol will be developed for the separation of individual tooth tissues and material will be analysed by Laser-Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS), Isotope Dilution Thermal Ionisation Mass Spectrometry (ID-TIMS) and Magnetic Sector LA-ICP-MS. Analytical facilities are being used at NERC Isotope Geosciences Laboratory in collaboration with Dr. Jane Evans and Carolyn Chenery and at the Centre for Analytical Sciences, University of Sheffield in collaboration with Dr. Petra Krause and Alan Cox.

Pilot studies currently underway involve skeletal material from a range of carefully selected sites and periods with particular emphasis being placed on burial environment and soil types. Results to date, which have also involved the use of oxygen isotope analysis to give some indication of latitude inhabited during childhood, look promising.

LINDA O'CONNELL: An Evaluation of the Relationship between Pelvic Size and Shape and the Distribution, Type and Severity of Vertebral Degenerative Disease in Archaeological Material. *Department of Conservation Sciences, University of Bournemouth.*

This research aims to determine if there is any association between human pelvic size and shape and the distribution, type and severity of vertebral degenerative disease (osteophytosis, osteoarthrosis and intervertebral disc degeneration) in archaeological material of known age, sex and parity status. In order to adopt an efficient bipedal posture and method of locomotion, the human skeleton has evolved a curved vertebral column and a stable, compact male pelvic girdle. A compromise has obviously been reached between such efficient upright posture and the size and shape of the female pelvis in relation to its role in parturition, a difference between the rates of degenerative disease is expected between the two sexes. Very little research has been conducted on the pelvic girdle and its relationship with other anthropological and palaeopathological parameters, so it is hoped that this study will help establish whether the actual size and shape of the pelvis alone bears any relation to the distribution of degenerative disease in the vertebral column.

JUDITH STURE: Birth Defects and the Environment: an Archaeological Approach. *Department of Archaeology, University of Durham.*

Congenital diseases are long overdue for analytical assessment. Taking a biocultural approach, archaeological samples of human remains from differing environments - rural and urban - are being examined for the prevalence of birth defects of the axial skeleton. Not only are the results informative in themselves (urban populations appear to have a higher rate of defects) but the implications for the identification of related soft-tissue anomalies are significant. By applying clinical data to the observed defects it is possible to suggest rates of conditions such as low back pain syndrome, congenital deafness and certain neurological and other disorders which would otherwise remain invisible to biological anthropologists. In addition, the relationship between birth defects and the environment appears to stand even in pre-industrial societies today, hence the work offers insights into modern epidemiology.

ANDREW J TYRRELL: Human Skeletal Variation and the Assessment of Population Diversity: An Analysis of the Relationships and Dynamics among Early Medieval Populations from the Southern British Isles. *Department of Archaeology and Prehistory, University of Sheffield, (July 1999).*

The aim of this study was to investigate the usefulness of genetic distance measures based

on skeletal and dental morphological variation in order to investigate possible changes in the population structure and constitution of the southern British Isles during the early medieval period (from the 4th to the 10th century AD). The study was based on eleven skeletal samples totalling 553 individuals (of which there were 264 males, 263 females and 26 unsexed individuals). Data from 29 cranial and 4 post-cranial non-metric traits, from 14 dental crown non-metric traits (giving 37 tooth/trait combinations) and 64 maximum mesiodistal and buccolingual crown diameter measurements collected from 4026 teeth were recorded from the same 553 individuals. The eleven samples came from Roman, sub-Roman and early medieval cemetery populations provenanced from the south of the British Isles. In the course of the study a new method of establishing an analogue of the diversity coefficient FST was developed. Measures of phenotypic diversity, such as the FST analogue, especially when based on dental crown morphology, appear to differentiate the expected pattern of temporal variation between past populations more effectively than the MMD. It appears that the eleven population samples used in this study can be sub-divided into three temporal groups, early (4th-6th century AD), middle (6th-8th century AD) and late (post 8th century AD).

Two of the four Kentish populations, Polhill and Eastry, appear to be consistently distinctive across all the analyses and this may well be related to the arrival of continental migrant groups during the 5th century AD. However, to conclude that all the variation between the samples noted in the course of this analysis is originally attributable to large scale population change across the entire region is likely to be unfounded, given the many potential causes for such groupings.

FORTHCOMING CONFERENCES

Cranial Trepanations in Human History. International Colloquium

Date: 1-9th April 2000.
Venue: Department of Ancient History and Archaeology and the History of Medicine Research Group, University of Birmingham. In conjunction with the Institute of Archaeology, University of Salzburg.

An international colloquium bringing together a group of specialists - human palaeopathologists, clinical neurologists, neurosurgeons, archaeologists and medical historians with the aim of examining the extent and history of cranial trepanation, its impact on the development of surgery, and the future direction of study.

Will include papers on the following themes:

- The pathological identification of trepanation
- The evolution of techniques
- The interpretation of cranial trepanation - medicine or surgery?
- The future direction of study.

For further information please contact: Robert Arnott, Department of Ancient History and Archaeology, University of Birmingham, Birmingham B15 2TT. E-mail: R.G.Arnott@bham.ac.uk

Twenty-seventh Paleopathology Association Meeting

Date: 11th-12th April 2000.
Venue: San Antonio, Texas.
Adam's Mark San Antonio Riverwalk Hotel.

This year the *Cockburn Student Award* will be presented and you will need to contact Charles Merbs if you intend to compete. In order to present a paper/poster you will need to be a member of the PPA. The deadline for papers/posters is the 31st December each year.

For further information please contact: Charles F. Merbs, Department of Anthropology, Arizona State University, Box 872402,Tempe, AZ 85287-2402 E-mail: charles.merbs@asu.edu

Sixty-ninth Meeting of the American Association of Physical Anthropologists

Date: 12-15th April 2000
Venue: San Antonio, Texas
Adam's Mark San Antonio Riverwalk Hotel

If you wish to present a poster/paper you need to be a member of the AAPA. As usual the meeting will be held in conjunction with the Human Biology Association, Paleopathology Association, American Association of Anthropological Genetics, American Dermatoglyphics Association, Dental Anthropology Association and the Primate Biology and Behaviour Interest Group. The deadline for papers/posters is in September each year.

For further information please contact: Charles Merbs, Department of Anthropology, Arizona State University, Box 872402, Tempe, AZ 82587-240, USA. E-mail: charles.merbs@asu.edu, Fax: 480-965-7671.

Symposium on Malaria in the Ancient World

Date: Friday 19th May 2000.
Venue: Green College, University of Oxford.

There is a great deal of on-going debate amongst archaeologists, ancient historians and epidemiologists concerning when malaria, particularly *falciparum* malaria, first appeared in the Near East and the Eastern Mediterranean. This debate has, at its basis, disagreements over the inferred identification of the disease from the skeletal record, as well as differing interpretations of the aspects of the environment and ecology of the regions, and the behaviour of the disease itself.

The purpose of this symposium is to bring together medical and non-medical specialists and the interested non-specialist in order to examine these problems from many different perspectives, and to take the debate one step nearer its finale. Included in the programme are speakers whose viewpoints and approaches to these problems are very different. Symposium will also go beyond this debate and examine other areas of malaria in the ancient world, how the mosquitoes themselves behaved and some of the treatments that were available at the time.

For further information please contact: Robert Arnott, Department of Ancient History and Archaeology, University of Birmingham, Birmingham B15 2TT. E-mail: R.G.Arnott@bham.ac.uk

XII Congress of the European Anthropology Association 'Millennial Perspectives-Past, Present and Future'

Date: 8-11th September 2000.
Venue: University of Cambridge.

For further information please contact: Prof. Nick Mascie-Taylor, University of Cambridge, Department of Biological Anthropology, Downing Street, Cambridge CB2 3DZ, Tel: 01223 335456; Fax: 01223 335460; E-mail: bioanth-eaa2000@lists.cam.ac.uk

This Congress will be run in conjunction with the Society for Human Biology:

Annual Symposium of the SSHB on 'Hominid Evolution'

For further information please contact: Dr Robert Foley, Department of Biological Anthropology, Downing Street, Cambridge CB2 3DZ. Tel: 01223 335452; Fax: 01223 335460; E-mail:raf10@cus.cam.ac.uk

XIII Biennial European Meeting of the Paleopathology Association

Date: 18th-23rd September 2000.
Venue: Chieti-Italy. The Serena Majestic Hotel/Congress centre (with private beach!)

The Biological Anthropology Association has provided limited funding for travel and accommodation grants (max. US $500 per person). Applicants should contact Dr Luigi Capasso on mssb@unich.it, or write to him at the address below as soon as possible, specifying amount requested and, either including a letter of reference from a your

supervisor or member of the PPA (student) or, stating your academic affiliation (staff). There will also be a prize for the best poster at the meeting (US $1,000) – *The Bioanthropology Foundation Prize in Paleopathology*.

For further information please contact: Mirella La Verghetta, Laboratorio di Antropologia, Via Arniense, 162, 66100 Chieti.

IV Meeting of the Latin American Association of Biological Anthropology

Date: 23-27th October 2000.
Venue: Piriápolis, Uruguay.

For further information please contact: Dr Mónica Sans, ALAB Secretary, Directora, Sección Antropología Biológica, FHCE - Universidad de la Republica Magallanes, 1577-11200 Montevideo, Uruguay.

4th World Congress on Mummy Studies

Date: 4-10th September 2001.
Venue: Nuuk, Greenland.

Congress sessions will include:

- Greenlandic and Arctic archaeology and cultural history
- Greenland Arctic mummies
- Palaeopathology
- Conservation museology
- Applied technology/analytical methods
- Mortuary archaeology
- Mummification methods
- Bog bodies.

Deadline for registration, abstracts and payment is the 1st March, 2001.

For further information please contact: Mette-Astrid Jessen, Archivist E-mail: majnatmus@greennet.gl or Niels Lynnerup, Laboratory of Biological Anthropology, The Panum Institute, Blegdamsvej 3, DK - 2200 N, Copenhagen, Denmark. E-mail: N.Lynnerup@anthrolab.ku.dk

NEW BOOKS (1998-9)

ANTHROPOLOGY AND ARCHAEOLOGY.
Gosden, C. Routledge (1999). £15.99.

BIOARCHAEOLOGY: INTERPRETING BEHAVIOR FROM THE HUMAN SKELETON.
Larsen, C.S. Cambridge University Press: Cambridge (1998).

BORN TO DIE: DISEASE AND NEW WORLD CONQUEST. 1492-1650.
Cook, N.D. Cambridge University Press: Cambridge (1998).

CONSUMING PASSIONS & PATTERNS OF CONSUMPTION.
Miracle, P. and Milner, N. (Eds). Macdonald Institute Monographs, Oxbow Monographs: Oxford (1999). Hb £40.00.

CURRENT AND RECENT RESEARCH IN OSTEOARCHAEOLOGY 1.
Anderson, S. (Ed.). Proceedings of the Third meeting of the Osteoarchaeology Research Group. Oxbow Books: Oxford (1998).

CURRENT AND RECENT RESEARCH IN OSTEOARCHAEOLOGY 2.
Anderson, S. (Ed.). Proceedings of the Fourth, Fifth and Sixth Meetings of the Osteoarchaeology Research Group. Oxbow Books: Oxford (1999).

HUMAN DEMOGRAPHY AND DISEASE.
Scott, S. and Duncan C.J. Cambridge University Press: Cambridge (1998).

HUMAN GROWTH IN THE PAST: STUDIES FROM BONES AND TEETH.
Hoppa, R.D. and FitzGerald, C.M. Cambridge Studies in Biological and Evolutionary Anthropology. Cambridge University Press: Cambridge (1999).

MAKING FACES: USING FORENSIC AND ARCHAEOLOGICAL EVIDENCE.
Prag, J. and Neave, R. British Museum Press (1999). £9.99.

MICROBES AND MAN. FOURTH EDITION.
Postgate, J.R. Cambridge University Press: Cambridge (1999), $19.95.

MUMMIES, DISEASE AND ANCIENT CULTURES. SECOND EDITION.
Cockburn, A., Cockburn, E. and Reymand, T.A. (Eds) Cambridge University Press: Cambridge (1998). £24.95.

PRINCIPLES AND TECHNIQUES OF ELECTRON MICROSCOPY: BIOLOGICAL APPLICATIONS. FOURTH EDITION.
Hayat, M.A. Cambridge University Press: Cambridge (1999). £95.00.

PRINCIPLES AND TECHNIQUES OF PRACTICAL BIOCHEMISTRY. FIFTH EDITION.
Wilson, K and Walker, J. (Eds) Cambridge University Press: Cambridge (1999). £90.00.

SEX, GENDER AND HEALTH.
Pollard, T. and Hyatt, S.B. Cambridge University Press: Cambridge (1999).

SEX AND GENDER IN PALEOPATHOLOGICAL PERSPECTIVE.
Grauer, A.L. and Stuart-Macadam, P. (Eds). Cambridge University Press: Cambridge (1998).

THE ARCHAEOLOGY OF DEATH AND BURIAL.
Parker-Pearson, M. Sutton Publishing Ltd: Gloucestershire (1999). £25.00.

THE ARCHAEOLOGY OF DISEASE. SECOND EDITION.
Roberts, C.A. and Manchester, K. Sutton Publishing Ltd: Gloucestershire (1995 & 1997). £17.95.

THE ARCHAEOLOGY OF HUMAN BONES.
Mays, S. Routledge: English Heritage: London (1998). £19.99.

THE CAMBRIDGE ENCYCLOPEDIA OF HUNTERS AND GATHERERS.
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