

Institution: The University of Edinburgh
Unit of Assessment: 17 Archaeology
<p>a. Overview</p> <p>Dating from 1927, we are proud to be one of the earliest Archaeology units in a British university. Archaeology was not submitted as a unit to RAE 2008; its 10 members were instead presented within Classics, History or Geography. Through successful investment in facilities and staff during the REF period, Archaeology is now firmly established as one of three Subject Areas in the School of History, Classics & Archaeology (SHCA) and is located in a building whose £14m refurbishment (to 2010) included the provision of an exceptional suite of laboratories. This unit has expertise extending across the Old World, in particular Western Asia, the Mediterranean, and temperate Europe, from early prehistory to the first millennium AD. Osteoarchaeology, bioarchaeology, forensic anthropology, and environmental and artefact-based analytical aspects of archaeological science have been prioritized for development over the REF period and are fully integrated into the work of our vibrant community.</p> <p>Edinburgh Archaeology consists of 19 academic staff: 4 Professors, 2 Professorial Fellows, 1 Reader, 3 Senior Lecturers, 4 Lecturers, a tenure-track Chancellor's Fellow, 2 Early Career Fellows and 2 Career Development Fellows, plus technical and administrative staff. 18 (14.7 FTE) have been submitted in the present exercise. This sizeable research community is augmented by 7 research-active honorary staff (including 2 Fellows of the Royal Society of Edinburgh). Classical Archaeologists elsewhere in the School, returned within UoA31, as well as staff in affiliated institutions, e.g. National Museums Scotland (NMS) and the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) are directly involved in our research and other activities; staff within associated research organizations contribute significantly to the unit's intellectual life, e.g. providing specialist seminars and assisting with doctoral supervision.</p>
<p>b. Research strategy</p> <p>With a renewed and enlarged staff since 2008, Archaeology has focussed its research themes primarily on the western Old World, while extending them chronologically. We have deliberately developed beyond a primary concern with cultural archaeology to include high-quality provision for archaeological science, encouraging the integration of cultural and scientific approaches. This strategy is apparent in the nature and number of new appointments made, and was enhanced by our successful co-location with SHCA in its outstanding £14m refurbished accommodation. Strongly supporting collaboration as well as contributions arising from individual research, we have invested substantially in new facilities and staff with the intention of producing the highest-quality research, whether from individuals or from teams working in, or extending beyond, the School. A major ambition is to raise more external funding to add to these facilities and grow our staff.</p> <p>In the REF period, our notable achievements include:</p> <ul style="list-style-type: none"> • The development of expertise in osteoarchaeology and bioarchaeology, extending to forensic anthropology, matched by a notable increase in our doctoral and masters students; and active collaboration with external partners including both academics and field archaeologists producing primary archaeological data (Bartosiewicz; L Bonsall; Fibiger; Kranioti; and McSweeney). • The rapid development by Pickard and Shillito of cutting-edge archaeological science (biomolecular methods; microarchaeology; artefact characterisation). The range of expertise in archaeological science now extends across our chronological and geographic foci (C Bonsall; Pickard; Shillito), with links to Geography, and to artefact studies (e.g. Dinnis; Schoop) in which we have invested significantly (e.g. £30K in portable XRF equipment). Significant field applications of the latest techniques are carried out by Shillito in collaborative projects on UNESCO World Heritage sites from the UK to Turkey (Çatalhöyük; Malbork Castle; Ness of Brodgar). Our deployment of archaeological science to human-environment interactions extends beyond our Old World core, including into the Americas (Shillito). • The embedding of landscape archaeology as a significant research theme; the development of expertise in Geographic Information Systems applications and remote sensing; and the

Environment template (REF5)

strengthening of links with the Schools of Geosciences, with whom we share our taught MSc in GIS and Archaeology, and Civil Engineering (e.g. deployment of ground-penetrating radar).

Research Themes: While ensuring that our research remains broad-based relative to our size, certain themes have been prioritized. These exploit our strong collaborative links, our co-location in SHCA and include the wide-ranging application of our expertise in archaeological sciences. These themes are:

- **Earlier prehistory**, primarily in western Eurasia and Europe south of the Danube to its western fringes (Bartosiewicz; C Bonsall; Dinnis; Mellars; Midgley; Pickard; Schoop; Shillito; Thomas), including e.g. projects undertaken by Schoop with the Deutsches Archäologisches Institut in Azerbaijan and Turkey; and work on the Mesolithic and Neolithic of the Iron Gates Gorge (Bartosiewicz, C Bonsall, Pickard, McSweeney).
- **Later prehistory**, with particular reference to settlement sites and their architecture (with developing links to Architecture and Fire Engineering) and landscapes (including GIS approaches in collaboration with Gittings and Mackaness, Geography), from the Mediterranean to the UK (Bintliff; Crow; Fernandez-Götz; Leighton; Ralston; and Romankiewicz) e.g. reassessing mid-first millennium BC 'princely seats' (Fernandez-Götz; Ralston).
- **Late Antiquity and the frontiers of the Roman world**, collaborating with colleagues in the School and beyond (Crow; with Sauer and others in Classics) e.g. the water supply of Byzantium (see our REF 3B).

Collaborative research and its outputs: Collaborative research work extending well beyond this institution is considered the norm. Research priorities have been underpinned by fieldwork comprising analytical survey and excavation at key locations including around Byzantium (Crow 2008), at the Danube Iron Gates (Bartosiewicz; C Bonsall; Pickard; McSweeney), and in collaboration with CNRS archaeologists on precocious urbanisation at Bourges (Ralston with others 2008, 2012) and the Heuneburg (Fernandez-Götz). A new focus is on early-cave occupations in Britain, from Neanderthal/early modern human sites in North Wales to Cresswell Crags (Dinnis) and Ulva off Mull (C Bonsall; Pickard). Significant projects in Europe have generated important osteoarchaeological data for research, such as Nessabur, Bulgaria (multi-period: L Bonsall; MacSweeney) and multiple sites in Ibiza (medieval: Kranioti).

The co-location within SHCA has significantly increased opportunities for collaboration, such as with Classics on and beyond imperial frontiers (e.g. our osteoarchaeologists' involvement in new fieldwork led by Sauer, Classics, in the Caucasus). Work on the Late Antique world by Crow complements that of Classics colleagues, and is reflected in team teaching, e.g. MSc in Late Antique, Islamic and Byzantine Studies. Osteoarchaeologists have studied (with Historic Scotland support) inhumations from early Scottish religious sites (e.g. Isle of May) with Scottish historians, while doctoral supervision has been shared with historians working on Late Roman/Byzantine, and British Early Medieval, topics.

External Funding: Beyond the UK, funding amounting to €70K has been provided by the Deutsches Archäologisches Institut for Schoop's research fieldwork in Turkey since 2008, including for post-excavation work towards publication; and €100K was awarded by TUBITAK (Scientific and Technological Research Council of Turkey) for Crow's collaborative research in Turkey (see our REF 3B) as part of a project with Istanbul Technical University. Much assistance for fieldwork and research overseas has been received in kind (C Bonsall and McSweeney, Balkans; Kranioti, Ibiza; Leighton, Italy), in C Bonsall's case supplementing NERC and Carnegie Trust grants for research on the Iron Gates/Lower Danube. Support from overseas funders was also received via links with partner overseas institutions (e.g. Ralston's extensive excavations with Buchsensschutz, CNRS, and local authority archaeologists, at Bourges: c. €800K). All new appointees have successful records in attracting external research funding, and are supported and mentored to develop this (e.g. Shillito's successful bid to NERC LSMSF), including focusing on European funding streams. With Higham (Oxford), Dinnis will co-direct from November 2013 a major Leverhulme Trust grant-funded project (£175K) to improve the radiocarbon chronology of the earliest modern human occupation of easternmost and westernmost Europe, and which will also require him to assess the levels of similarity of archaeological remains, especially artefacts, between these two regions.

Environment template (REF5)

The Future: Future priorities include recruitment of further academic staff to extend our chronological scope within the most recent millennia, further to develop existing synergies in the School and beyond. Interests in landscape, inevitably represented by chronologically-diverse palimpsests, in long-term environmental change and in the archaeology of buildings, provide welcome drivers to extend well beyond the prehistoric scope of the subject, for long Edinburgh's focus. Opportunities to undertake diachronic research in landscape archaeologies now arise from using accessible resources to extend our chronological range into medieval/pre-recent archaeology. Our wider intention is to continue to research as a coherent multi-period unit operating at local and international levels, consistent with the University's mission and our expertise. In particular, we intend to foster the further development of the dynamic grouping across forensic anthropology, osteoarchaeology and violence, both in terms of pure research and in its applied aspects to create impact and attract external funding. We will continue to invest in the development of archaeological science and the deployment of new equipment such as pXRF, to underpin high quality research, including microarchaeological approaches, dating strategies in particular in relation to human remains, and materials and artefact characterisation.

c. People, including:

Staffing strategy and staff development: The significant investment reflected in the increase in Archaeology's staff in the REF period from 10 to 19 comprises:

- i) strategic appointments of high-calibre early career staff to open-ended contracts to augment existing expertise (Kranioti in forensic anthropology, 2010; and Pickard to develop archaeological science, 2012). The creation of this Lectureship in Archaeological Science is to spearhead research both in osteoarchaeology and forensic anthropology and in e.g. artefact studies;
- ii) the appointment of Fibiger to a lectureship in human osteology (2012) to deepen our engagement in this field (e.g. through studies of inter-personal violence);
- iii) the appointment of a tenure-track Chancellor's Fellow (part of a University programme of such appointments) in European later prehistory (Fernandez-Götz 2013) to enhance our involvement in theoretically-informed major field research and new approaches to the continental Iron Age;
- iv) the filling (2012) of 2 Early Career Fellowships specifically created for highly-qualified new entrants to the profession with outstanding research records, to extend our cover in key fields. We have added expertise in various analytical approaches (micromorphology, analytical chemistry, environmental science: Shillito) and in earlier prehistory, dating applications and artefact studies (Dinnis);
- v) the appointment of two 0.2 FTE professorial fellowships held by world-ranking scholars who are actively engaged in our research community, and contribute to teaching and postgraduate support. Mellars and Bintliff have significantly bolstered (with C Bonsall and Dinnis) our in-depth involvement in early prehistory, and (with Crow, Schoop and Shillito) our focus on the eastern Mediterranean world from later prehistory to the Ottomans respectively.
- vi) Two appointments in 2013 to Career Development Fellowships to allow L Bonsall (osteology / childhood) and Romankiewicz (field / buildings archaeology) both to publish results and to develop new research projects inside the University.

Staff Development: Staff are supported throughout their research careers. There is an induction programme for all new staff, organized at School and University levels. New lecturers have a reduced teaching/administrative load; postdoctoral researchers, especially the Chancellor's Fellow, may have teaching loads as low as 5% at the outset of their careers. All new staff are assigned academic mentors and are required to attend relevant courses (e.g. PGCAP) in the University's > 30 FTE Institute for Academic Development (IAD), which also provides specialist support for academic staff at all levels. Equipment needs of early career staff are accorded priority, and all staff can apply for internally-funded leave at a rate of 1 semester for 5 taught; they are also encouraged to apply for externally-funded research leave. Coaching, and Workload Model credits, are given to staff applying for large-scale external grants, whether singly or collaboratively, and in support of field, analytical or synthetic projects pertinent to our research foci. Research leave and/or financial support has enabled staff to pursue new opportunities and to access new research areas consistent with our wider research objectives (e.g. Azerbaijan, Russia and non-Balkan

eastern Europe, the United States), this including both cultural and scientific approaches. Staff progress towards fulfilling research objectives is underpinned by our Annual Review process, overseen by School Research Committee and reported to School Management. Information on career-progression policies, as well as promotions, increments and lump-sum awards, is communicated regularly to all unit members. The importance of research achievements was recognised in the promotions in the REF period of C Bonsall and Midgley to Personal Chairs; and McSweeney to a Senior Lectureship. The appointment of Ralston in 2012 to the Abercromby Chair of Archaeology, vacant since 2007, reflected the strong support to Archaeology given by SCHA, the College and the University. Since mid-2007 the age and gender mix of the academic staff has been rebalanced, consistent with academic merit and priorities, following three senior retirements and new appointments, radically adjusting the gender balance within Archaeology from 20% to c. 45% female on an increased return of 18 headcount.

Along with the rest of SCHA, we have now embarked on the task of benchmarking our gender equity procedures / processes *via* the Equality Challenge Unit (ECU)'s scheme for Arts, Humanities and Social Sciences, matching the precepts of the Athena SWAN initiative in STEMM subjects. In 2014, SCHA will apply for a Bronze award and thereafter will implement an action plan for development over a three year period. Recent arrivals have also contributed to the internationalisation of our staff, with 50% (5 of 10) staff appointed since 2010 having an international background.

Research students: Increasing high-quality PGR recruitment, both home and international, continues as a core objective made explicit in the SHCA Graduate School Strategic Plan 2010-15. The Plan specifies key related activities (ongoing review of graduate training; identifying increased funding (including earmarked internal support); and enhancing career-development skills). Our successes in winning external funding for studentships in the REF period include: 1 from Carnegie Trust; 1 AHRC CDA studentship; 4 other AHRC awards, and 2 from Historic Scotland for osteoarchaeological research. Other research students have been funded by BAA Ochs, Lemon Memorial, Leventis Foundation, Santander and British School at Athens Catling Bursary scholarships as well as by College and University funds (e.g. £64k in 2012/13; and £60k of external funding); studentships of the latter types (notably the Principal's Career Development Studentships) extend beyond fees and subsistence to include support, training and the monitored delivery of teaching by the postholders. The School itself also provides studentships for postgraduate work, including McMillan Scholarships which reward outstanding achievement by non-funded first year doctoral students by offering financial support in their 2nd and 3rd years. 61 current doctoral students, our biggest doctoral group ever (43 in 2008), include 17 from North America, 3 from the Middle East and Africa; and non-UK Europeans of 10 different nationalities. Over the REF period, 18 PhDs have been successfully completed.

In Archaeology, the main formal PGR training is the mandatory *Sources and Strategies* course, presented over one semester and which ranges from developing research proposals, through writing, presentational and research skills to aspects of graphic/digital communication. It also covers research ethics, career development, and professional aspects of archaeological practice. Our Graduate Support Fund (£16k pa) assists with conference attendance, organisation and other research costs. Further doctoral training possibilities in the University include the sessions provided by the professionally-staffed Institute for Academic Development. All doctoral supervision involves two colleagues, with new supervisors given training and subsequently mentored; and experienced supervisors are required to attend refresher training every five years. Students are also encouraged to develop ancillary projects that enhance their employability. Moussa, for example, both presented outside the UK as a Marie Curie European Doctoral Fellow (2009-10) and won support for a project on music, archaeology and the politics of representation from the AHRC *Beyond Text* initiative (2011). Publications of doctoral research include Merkl's PhD on Beakers (BAR, 2011) and the e-book from Aitchison's thesis on British archaeological employment (2012). Other publications from doctoral work range from experimental work on bronze spears to papers on early musical instruments and XIXth/XXth century antiquaries (Anderson; Sanders).

We equip PhD students for archaeological workplaces extending beyond the academy. Sanders directed the major exercise which produced the well-received Scottish Archaeological Research Framework (2012); Aitchison heads his own company, and acts as a consultant to organisations

such as the International Council of Museums (ICOM), English Heritage and the Institute for Archaeologists; Merkl is a researcher at the Landesamt für Denkmalpflege in Stuttgart; while McLaren (artefacts) and Werner (GIS) play key roles in the applied archaeological sector in Scotland and Brown has now joined Historic Scotland.

d. Income, infrastructure and facilities

Archaeology has outstanding new laboratory facilities, configured within the redesign of the Old Medical Building for SHCA. We deploy School funds, as well as seeking financial support elsewhere (e.g. Innovation Initiative Grants), to enhance these facilities, which are supported by a specialist technician. Some £95k has been spent over the REF period on enhancing our laboratory and related equipment provision. The laboratories comprise:

i) a **Finds processing & thin section laboratory** for the initial post-excavation processing of artefacts, osteological material, and environmental sediments. This is equipped for wet and dry sieving, with drying ovens, muffle furnace and fume cupboard. Cutting, mounting and grinding equipment to prepare thin-sections for microscopy is available.

ii) a **Chemistry laboratory** for the pre-treatment and collagen extraction of bone for stable isotope analysis, and preparation of environmental samples and artefacts for geochemical and organic residue analysis. This includes a programmable furnace, fume cupboards, drying ovens, an autoclave, centrifuges, freeze drier, precision electronic balances, Millipore water purification system, Endecott sieves and pH meters, and Soxhlet extraction.

iii) a **Microscopy laboratory which** holds stereomicroscopes, compound incident, transmitted and polarizing light microscopes, and Dino-Lite digital microscopes, enabling the analysis of artefacts, microfossils, land snails, sediments, and ceramic and histological thin-sections. We hold reference collections of plant microfossil and macrofossils, and an extensive collection of petrographic and archaeological thin section slides. Portable XRF equipment is also available.

iv) an **Osteology laboratory** is located beside dedicated storage for the human and animal bone reference collections. Archaeology has facilities for 3D scanning of artefacts and osteological remains, and specialist software including AMIRA for virtual analysis and geometric morphometrics.

v) a **Histology laboratory** now supports forensic anthropological work on recent and ancient human remains. It was set up in association with the Medical School and is based there.

These exceptional facilities, supported by a technician, underpin research by C Bonsall, Kranioti, McSweeney, Pickard and Schoop and are directly pertinent to the research of new appointees (L Bonsall, Dinnis, Fibiger and Shillito) and numbers of our postgraduate community.

Infrastructure: Staff and PGR students have access to a suite of newly designed and equipped work spaces with appropriate computing facilities (including specialist graphic and GIS software). The VG Childe artefact collection is housed within our building, as is reference literature. The principal literature collections in the Main University library are enhanced by easy access to the National Library of Scotland and the former library of the Society of Antiquaries of Scotland (now National Museums Scotland), both sited nearby. Significant additional facilities including materials analysis through XRD, EPMA and scanning electron and confocal microscopy are available elsewhere in the University. Colleagues are also able to draw on locally-based NERC facilities including the Tephra Analysis, Field Spectroscopy and Geophysical Equipment, and Ion Microprobe Facilities in our School of Geosciences. Archaeology benefits moreover from strong links to the Scottish Universities Environmental Research Centre (SUERC) which provides access to isotope and OSL analysis (e.g. for Crow's Naxos project), radiocarbon and mass spectrometry facilities, analytical support and expertise. We also benefit considerably from ready access to the expertise of NMS's archaeological curators and to the proximity of its artefact and osteological collections for research.

Income: during the REF period, helped by the School Research Office (SRO) and the University's highly efficient service Edinburgh Research and Innovation (ERI), our applications have increased substantially and our success rate in winning awards has averaged 41%. SRO manages a peer review process which ensures staff submit only high quality applications for funding. A notable

success was (as co-PI, with Lock, Oxford) Ralston's £950k AHRC award for the *Atlas of the Hillforts of Britain and Ireland* project, for the period 2012-16. Kranioti won internal College Challenge Investment Fund seedcorn funding of £10k in support of a study of morphological and historical analysis of sharp force trauma patterns using high resolution casts and virtual tools. In addition, across the REF period, SHCA has provided c £30k to support staff participation in high profile academic conferences within the UK and internationally. Further School funds (c. £10k) have been allocated in direct support of staff research, both for travel and other initial expenses. The School budget to fund such research, conference, seed-corn and pump-priming projects was increased in 2013 from £29K to £57K annually, with a view that this should encourage subsequent applications for more substantial external funding.

e. Collaboration or contribution to the discipline or research base

Collaborations: Collaboration within the UK and internationally, and across and beyond the academic sector, is a feature of our research activity and can be divided into the following categories: Archaeology encourages visits from externally-funded short-term post-doctoral researchers including Kealhofer (US) and Grave (Australia), collaborators of Schoop researching Anatolian ceramics, including archaeometric work; Schoop also hosted a visiting Turkish colleague with ESRC support; Boroneant (Romania) came to work with C Bonsall in 2013; and Page (Texas Technical University) is developing histological approaches within forensic anthropology with Kranioti as part of the Edinburgh Unit for Forensic Anthropology. Explicit objectives are not only to facilitate international collaborations enabling the production of high-quality research outputs from projects already in-hand, but to promote bids for significant future joint research funding.

Universities and Museums: Leighton's Pantalica project is undertaken with Procelli (University of Catania, Sicily), and McSweeney's osteological research benefits from long-term direct association with the French Mission (CNRS Nanterre) in the United Arab Emirates, the Abu Dhabi Authority for Culture and Heritage, Academia Romania, and a range of museums there (including Muzeiul Unirii) and in Bulgaria (Nessabur), as well as with National Museums Scotland. Crow's Naxos fieldwork is partnered by Oslo University. Other examples include Midgley's collaborations with the University of Kiel, Germany, and Ralston within UMR 8546 on later Eurasian prehistory based at ENS, Paris. Dinnis, also a British Museum Hon Research Fellow, is co-PI of a Leverhulme project with Higham, Oxford, investigating Palaeolithic linkages between Russia and Western Europe with colleagues from Russia, France, Spain and Belgium. He is also field archaeologist and lithic specialist for excavations at Albanian caves where, with local and Southampton colleagues, an area almost completely undocumented for the Middle and Early Upper Palaeolithic is being examined. Fernandez-Götz was Senior Researcher for the DFG-funded project at the Heuneburg before joining us, and will continue to work there, while developing a major new research project with Roymans (Amsterdam).

The nature and technical underpinnings of Kranioti's forensic anthropological research make that avowedly collaborative. Colleagues from Columbia, Tübingen, Crete at Heraklion, Vienna (Anthropology) and Texas Technical Universities are involved as are others including National Museums Scotland and, locally, UoE's Clinical Research and Imaging Centre. Beyond universities and museums (e.g. Natural History Museum, Madrid), she collaborates with the Hologix holography company, Toshiba and Fobia, notably in work on mummies in the NMS collection.

National and International Research Centres: Bartosiewicz worked on an international project on the Danube sturgeon, which may help that species' reintroduction. Bonsall's project funded by NERC (£24k to Edinburgh) on developing radiocarbon dating of bone amino acids is undertaken with Oxford colleagues, whereas other cognate aspects of his dating research are pursued with Cook of SUERC. His ongoing fieldwork at Schela Cladovei, Romania, is a joint venture with Boroneant (Institute of Archaeology, Romanian Academy); McSweeney, Bonsall and Pickard are involved in INTERACT, the International Collaboration in Thrace Project (with the National Institute of Archaeology of the Bulgarian Academy of Sciences and University of Münster). Bintliff has a range of partnerships as part of the European programme of digital technologies (CCEDS).

Applied sector: Collaborations with archaeologists working in the applied sector are also important, in developing links with industry. These include C Bonsall and Pickard with Benjamin (Wessex Archaeology; now Flinders U, Adelaide) and Fischer (Heritage Agency of Denmark)

exploring new developments in submerged prehistoric landscape research, and its applicability in renewable energy and offshore development planning (Benjamin et al 2011); Crow on RCAHMS' Inveresk GPR project (with Civil Engineering); and Ralston with Romankiewicz, then of Simpson and Brown architects, Edinburgh, on broch architecture, and on e.g. the management of cropmark archaeology with Dunwell (CFA Archaeology); Ralston is non-executive Chair of the latter company, enabling him to participate in the research dimensions of ongoing applied work.

Conference and workshop organisation: major international conference and workshop organisation includes: 'Computer Applications' in Hungary (2008: Bartosiewicz), the International Conference on Roman Frontier Studies (Newcastle 2009: Crow), the Association Française pour l'Etude de l'Age du Fer conference in Bourges (2008: Ralston) and the Society of Antiquaries of Scotland's conference in Edinburgh on the Scottish Iron Age in wider context (2008: Ralston). Crow organised, with Istanbul Technical University, a conference on 'Water for a Great City' (2012). Pickard and C Bonsall co-organised a session on submerged prehistory for the European Association of Archaeologists Meeting (EAA) at Riva del Garda, 2009; Shillito, Fernandez-Götz and Ralston contributed elements to EAA 2013 (Pizen). At UoE, conferences organised include the Annual Byzantine Symposium (Crow: 2008), on Experimental Archaeology (Thomas: 2009), on the Lake Dwellings of Europe and on Robert Munro (Midgley: 2011) and on the Cities of the long Late Antiquity and an interdisciplinary conference on the 7th century AD (Crow: 2012, 2013). The British Association for Biological Anthropology and Osteoarchaeology (BABAO) conference was hosted by McSweeney here in 2011; Fibiger is now its Secretary. Staff have also supported other research communities (e.g. the First Millennium Studies Group) which access our facilities. Ralston and Jones (RCAHMS, now HS) co-organised an RSE-funded collaborative workshop, thereafter edited by them as *Scottish Archaeological Journal* 32 (2011). Kranjoti has led on developing CPD sessions, including 6 workshops on Amira training, surface histology, surface scanning and statistics since 2010. Ralston now organises the Teaching and Training research programme of the Association of European Archaeologists with Lodewijckx (Catholic U, Leuven).

Contributions to the discipline: Staff have given 202 lectures and invited presentations including keynotes given to academic audiences during the review period, as well as a smaller number of public lectures, including the prestigious Dalrymple Lectures at Glasgow University (Ralston: 2011). Totals include 91 lectures to UK audiences (including 4 invited plenaries), 109 within Europe (including 6 invited plenaries), 16 in the Americas and 11 in Asia (of which 1 invited plenary). Other dimensions of this engagement are presented in our REF3A.

Support for the wider infrastructure of the discipline includes Bartosiewicz' presidency (since 2006) of the International Council for Archaeozoology, while C Bonsall and McSweeney were elected Hon Members of the Bulgarian Academy of Sciences National Institute of Archaeology (2010 and 2011 respectively). C Bonsall was also elected an Honorary Member of the Institute of Archaeology in Romania in 2011. Ralston was vice-President of the Society of Antiquaries of Scotland (2007-10), chaired the Scottish Archaeological Finds Allocation Panel for the Scottish government – including authoring with Saville, National Museums Scotland, its 2008 Code (2004-11); and chaired the Subject Committee for Archaeology (2007-10). In 2009 he was made an OBE for services to archaeology in Scotland.

Staff in Archaeology were involved in the widely-acclaimed ScARF (Scottish Archaeological Research Framework), developed by the Society of Antiquaries of Scotland and funded by Historic Scotland. Ralston was a steering group member. C Bonsall and Pickard served on the Palaeolithic and Mesolithic Panel, McSweeney on that for Science, and Crow for Roman Scotland. Colleagues also regularly review grant proposals for AHRC and other UK, as well as European, funders, while Midgley is a consultant to a Deutsche Forschungsgemeinschaft-funded project at Kiel University.

In May 2011, Schoop was an invited visiting Professor (University of Verona); Crow's academic interest in water management led to an invitation to advise Arnavutköy Council, Istanbul. Crow is on the Historic Scotland Antonine Wall World Heritage Site Research Agenda Committee. Colleagues (e.g. Bonsall, Bartosiewicz, Crow) serve on editorial boards of journals, while Bartosiewicz is associate editor of the *Internat Journal of Palaeopathology*, as Crow is for *Medieval Archaeology*.