

Institution: University of Cambridge
Unit of Assessment: 17a Archaeology
<p>a. Overview</p> <p>The University of Cambridge has a long and very distinguished record of archaeological research that has been sustained and strengthened in the current review period. The core academic staff in UoA17a, together with their large community of post-doctoral research fellows and PhD students, have undertaken work on all major periods of the past, in all continents, and across the full science/humanities spectrum of the discipline. Like the 2008 submission, this submission presents the work of researchers in Archaeology, the Cambridge Archaeological Unit (CAU), Continuing Education (CE), and the McDonald Institute for Archaeological Research. The total submission of 42.7 FTEs includes all 22 eligible UTOs (University Teaching Officers) as well as 17 Postdoctoral Research Fellows (PDRFs) engaged in independent research.</p> <p>Archaeology is located within the School of the Humanities and Social Sciences, one of the University's six academic resource units that support, respond to and scrutinise departmental priorities and provide strategic advice in key research areas. In 2011, following a University review of the School's constituent departments, the Faculty of Archaeology & Anthropology - composed of the Departments of Archaeology, Biological Anthropology (BA) and Social Anthropology (SA), the McDonald Institute, the Museum of Archaeology & Anthropology (MAA) and the Haddon Library - was restructured by the School as a single Department, with Archaeology, BA and SA becoming Divisions within it, in part to facilitate research and teaching collaborations between the disciplines. The Department is a member of a new amalgamated Faculty established at the same time, of Human, Social and Political Science, which also includes Sociology, Politics & International Studies (POLIS), and inter-disciplinary research centres (African Studies, Latin American Studies, South Asian Studies). The Faculty oversees its constituent graduate programmes through a single Degree Committee, and research-led teaching has been integrated by the introduction of a new common tripos (degree) structure. Most Archaeology UTOs are in the Division of Archaeology, PDRFs are attached to the McDonald Institute and graduate students to the Division. The McDonald Institute, with an annual endowment income of ~£400k, acts as the research arm of the Division of Archaeology but also supports all archaeological researchers of post-doctoral status in BA, CAU, CE, Classics, the Fitzwilliam Museum, the MAA and colleges: as Members of the Institute they can apply for grants for field/museum research and conference organisation, and for access to its laboratories, project space, and seminar facilities, and are encouraged to submit proposals for publication in the Institute's Monograph series. The Institute therefore plays a vital role in both supporting the activities of individual researchers and facilitating synergies across the Cambridge archaeological community as a whole.</p> <p>Research clusters</p> <p>The 2008 submission identified five established areas of activity: Cognitive Evolution & the Human Revolution; Human Palaeoecology; Human Landscapes; and Materiality, Art & Religion; and two developing areas: Politics, Identity, & the Body; Heritage: Archaeology & its Contexts. Our research foci have remained broadly similar, but in the context of the developing interests of the established staff and new appointments they have been refined into the following six themes: Human Behaviour & Evolution; Human Palaeoecology; Human Landscapes; Material Culture & the Body; Urban Society & the State; and Archaeology in the Contemporary World.</p>
<p>b. Research strategy</p> <p>2008-2013 strategic aims</p> <p>In our previous submission we wrote that "over the next five years the UoA has as its major strategic aim the continued fostering of its commitment to the study of the entirety of the human past as a global project, fostering a broad spectrum of theoretical approaches, integrating humanities- and science-based methodologies, nurturing staff research, and continuing to attract a vibrant post-doctoral and graduate community". The submitted publications by both the UTOs and the significant number of outstanding early career researchers working with us, reviewed briefly later in this section, demonstrate the clear achievement of this aim in terms of the breadth of the</p>

research - theoretical, methodological, chronological, and geographical - that has been published in the review period. The new appointments described under People are further evidence of our commitment to maintaining the breadth and diversity of the research community. In terms of “nurturing staff research”, the McDonald Institute has not only supported the UoA17a researchers in terms of the direct activities listed under Overview but also through the review period significantly increased its spend on research support staff (see Income, Infrastructure and Facilities). Overhead transfer to Archaeology provides the latter with funds for research investment in areas outside the remit of the Institute, used primarily for equipment funding, consumables support for graduates working in expensive areas such as isotope analysis and archaeogenetics, and conference and fieldwork support for PhD students. Two measures of the success of the strategy include the 100% submission of the Archaeology UTOs and the trajectory of peer-reviewed external research grants, the review period spend totalling £15.37 m compared with £5.3 m in 2002-2007. In terms of “continuing to attract a vibrant post-doctoral and graduate community”, the period has seen the steady growth of the PDRF community to ~40 (one of the largest in the discipline in the world) and the award of over 70 PhDs and 128 Research Masters.

2008-2013 objectives

Four specific objectives were identified in the REF 2008 submission: (1) to embed the archaeological, linguistic and historical research of the Ancient Near East (ANE) staff who had recently transferred into Archaeology from the Faculty of Asian and Middle Eastern Studies; (2) to strengthen work in Human Palaeoecology especially with new collaborations with BA’s Leverhulme Centre for Human Evolutionary Studies; (3) to confirm Cambridge’s historical commitment to African archaeology with a permanent appointment; and (4) to expand our coverage into post-medieval archaeology and the archaeology of European colonialism.

- Objective 1. This has been achieved with signal success (see People: Staffing Strategy and Staff Development, and Research Students);
- Objective 2. Our work in human evolution and human palaeoecology more generally has been strengthened by collaboration with LCHES, as planned, but the 2011 restructuring is also facilitating collaborations with BA as a whole. Examples include: the appointment of five LCHES Research Fellows working in archaeology or archaeology-related fields as Fellows of the Institute (A.B.Marin: Palaeolithic zooarchaeology; K.Koops: primate culture; C. Philips: primate behaviour; R. Power: isotope studies of human skeletal remains; C. Shaw: skeletal 3D modelling), and investment in their research; **O’Connell’s** collaboration with Lahr (BA) on the latter’s ERC-funded study of Saharan migrations; a highly successful joint Archaeology/LCHES conference on Unravelling Human Origins (January 2013); and ongoing development of shared laboratory support for the constellation of archaeogenetics research on animal and plants (Archaeology: **Bower, Jones**) and humans (BA: Kivisild, Knapp).
- Objective 3. This has been achieved at the PDRF level with the Institute co-funding a Research Fellowship in African Archaeology with the British Institute in East Africa, the first post-holder (**Davies**) recently winning a Leverhulme Early Career Fellowship and BIEA and the Institute committed to the continuation of the Fellowship. Meanwhile we are working with the University’s Development Office and Magdalene College on seeking endowment for a Chair in African Archaeology as part of a proposed Mandela Memorial Trust attached to the College. Funding from a private donor secured by the Institute has enabled us to commission a short film on the past, present and future role of Cambridge in African archaeology to launch the campaign.
- Objective 4. **Davies** has brought expertise in this field, as has **Samson**, the British Academy PDRF (2012-2015) working on Caribbean archaeology, but in the longer term a permanent UTO position remains a strategic priority.

Whilst individual research is clearly valued and nurtured, the research clusters have been an important part of the underpinning research strategy. The boundaries between the six research clusters are deliberately permeable and many researchers contribute to more than one of them. As the publications show, they have promoted productive linkages across periods, regions, and approaches, resulting in many researchers who work in the more humanistic approaches to the

discipline and those working in areas of archaeological science addressing research questions of mutual interest, including in direct collaborations. These complementarities and collaborations are promoted especially by a dense matrix of ~25 seminar, project, and laboratory groups meeting weekly or fortnightly in term and involving staff, PDRFs, Visiting Scholars, PhDs and Masters students, with undergraduates developing research interests in a particular field also welcome. The Institute hosts ~200 such meetings each year and since 2008 the Institute has provided £250 per seminar group per year to help with travel expenses of external speakers.

2008-2013 achievements

In terms of the specific research plans set out in 2007 we can celebrate notable successes in terms of completed projects and significant work on new ones. Each of the research clusters has published innovative theoretical and methodological contributions and important syntheses. With over 40 submitted researchers it is impossible to comment on the entire portfolio, but we give some highlights in this and the next paragraph. In Human Behaviour & Evolution we have made significant contributions to present understanding of the dispersals of modern humans and their behavioural adaptations to new environments, and of Late Pleistocene/Early Holocene adaptations to climate change (**Barker**: SE Asia, North Africa; **Miracle, Nigst**: Europe; **Rabett**: SE Asia). In Human Palaeoecology we have greatly enhanced understanding of the complexity of cereal and horse domestications and subsequent dispersals across Eurasia (**Bower, Jones**) and made important methodological advances in archaeobotany (**Beresford-Jones, Jones**: charcoal and rapid climate change; burning wood/burning bone; **Veal**: the Roman forest economy), stable isotope analysis (**O'Connell**: diet-body offsets; **Stevens**: seasonality indicators), and zooarchaeology (**Miracle**: Pleistocene refugia; cave bear morphology), as well as the applications of these methods in studies of diet (**Lightfoot, O'Connell**), economy (**Barrett**), identity and mobility (**Hakenbeck, O'Connell**) and palaeoclimate (**Stevens, O'Connell**). Inter-disciplinary field studies of Human Landscapes have demonstrated the effects of aridification on agricultural sustainability in semi-arid environments (**French**), the complex relationships of climate versus social drivers in landscape change (**Petrie**: Indus Valley; **Davies**: Kenya; **Beresford-Jones**: Peru), and the interfingering of politics and landscape (**Stoddart**: Italy). Questions of identity, in the sense of the spatial expression of social differences or coherences, have been another important focus, whether in prehistoric rock engravings (**Robin**), Maltese island societies and Iron Age polities (**Stoddart**), Fenland landscapes (**Evans**), or the medieval countryside (**Oosthuizen**).

The Leverhulme-funded "Changing Beliefs of the Human Body" project has driven much of our work on Material Culture & the Body through the review period, bringing together colleagues in archaeology (**Miracle, Robb, Sørensen, Stoddart**) and anthropology (Herle, McDonald) in new synergies, and promoting the case for the Material Culture Laboratory established jointly by the Institute and Archaeology in 2011 (see Infrastructure). The rich diversity of work published includes, for example, on the variable conceptualisation of the body by different societies (**DeMarrais, Hakenbeck, Hills, Kohring, Lucy, Robb, Sørensen, Stoddart**); the materialisation of households in the Bronze Age (**Sørensen**) and pre-Columbian Caribbean (**Samson**); Andean art (**DeMarrais**); and African and Andean forms of heterarchy (**Davies, DeMarrais**). In the Urban Society & the State cluster Tell Brak in Syria has yielded spectacular insights into the role of conflict in north Mesopotamian urbanism (**McMahon**). Innovative studies of Egyptian architecture provide new insights about the ancient Egyptian built environment (**Spence**). *Spong Hill* (**Hill, Lucy**) is a landmark publication in Anglo-Saxon archaeology, and **Barrett's** lauded study of the Quoygrew island community is a novel elucidation of the rural dimension of Viking-age state formation. **Nyord's** work on Egyptian embodiment and art, **Postgate's** and **Papazian's** studies of, respectively, Assyrian and Egyptian state apparatus, **Ray's** insights into Egyptian language and culture, and **Worthington's** pioneering work on Akkadian literature, orthography and textual criticism, show the range and depth of insights into different facets of ancient societies which can be recovered by painstaking and theoretically-informed examination of written sources, many published for the first time (e.g. **MacGuinness, Ray**). A strong focus of our work on Archaeology in the Contemporary World has been on the role of the material culture of past conflicts in memory and post-conflict reconstruction (**Carr, Filippucci, Sørensen, Viejo-Rose**). A notable feature of this work is its exploration of new forms of dissemination (YouTube, videos, podcasts etc) in addition to formal academic publication.

Future objectives

The overarching strategic goal is to maintain and expand Cambridge's commitment to world archaeology, employing approaches drawn from across the discipline's methodological spectrum, augmented where appropriate by text-based studies. The in-progress appointment of the new Disney Professor of Archaeology and Director of the McDonald Institute to succeed **Barker** in October 2014 is intended to ensure the continuation of this commitment so successfully promoted by him and his predecessor **Renfrew**. In the medium term, significant changes are not envisaged to the shape of the present research clusters in that each of them includes major publication tasks relating to recently-completed, in-progress, or recently-awarded research grants (see Income, Infrastructure and Facilities). However, important emerging areas of shared interest include sustainability, whether in terms of the effects of land use and resource extraction on landscape stability and political structures or the use of heritage in sustainable development (e.g. the Cape Verde World Heritage Site nomination, one of our Impact Case Studies), and palaeoecological studies of the past distributions, dispersals and resilience to human exploitation of plants and animals, the latter an area where we are contributing to the University's Strategic Initiative on Global Food Security. The School will continue to monitor the evolution of research synergies within the Department of Archaeology & Anthropology to ensure the flourishing of disciplinary identities as well as opportunities for new synergies.

c. People, including:

i. Staffing strategy and staff development

The review period has been marked by the retirement of **Mellars** and other retirements of senior staff are scheduled (**Postgate, Ray** 2013; **Barker, Hills** 2014), though the latter will continue to contribute to the research environment as Senior Fellows of the Institute. Apart from the Disney Professorship, all the other posts (including the Herbert Thompson position in Egyptology which is endowed to Readership level) have been replaced as permanent lectureships by early career researchers in a deliberate policy of stretching the age profile of the core staff. The success of the policy has been evident in the extremely strong fields attracted to the positions advertised in Palaeolithic archaeology (*vice* **Mellars**, 2010), Assyriology (*vice* **Postgate**, 2012), Medieval archaeology (*vice* **Hill**, 2013), and Egyptology (*vice* **Ray**, 2013) and the outstanding appointments made in these fields, respectively **Nigst, Worthington, Hakenbeck** and **Papazian**. Three equally promising early career researchers have been appointed to temporary lectureships using teaching buy-out funds in research grants and fellowships obtained by core staff; one (**Kohring**) is in post and is on our submission, the other two have secured permanent lectureships (Brisch: Copenhagen; de Cesari: Utrecht). Research-led promotions during the review period include **French** to a Personal Chair in Geoarchaeology; **Barrett, Robb, Sørensen** and **Stoddart** to Readerships; **Carr** and **DeMarrais** to Senior Lectureships; **O'Connell** and **Petrie** to full Lectureships from their (respectively) Wellcome and RCUK Fellowships; and **Bower** and **Rabett** as Senior Research Associates.

The University has a generous system of sabbatical provision (one term after every six) and during the review period all staff made full use of this provision, in some cases further augmented by external research funding (e.g. **Barker, French, Jones, Miracle, Postgate, Robb, Sørensen, Stoddart**) or by funding from CRASSH, the University's Centre for Research in the Arts, Humanities and Social Sciences (**Spence**).

The University's strong commitment to equality and diversity is evident in an array of policies, structures and processes (eg Diversity Networks, the Disability Resource Centre, the Athena SWAN and WISETI schemes for women in science, the Gender Equality Group overseeing equal pay, a Returning Carers Scheme), its ranking 11th (the highest for a UK HEI) on the Stonewall list (2012 and 2013), and its winning the inaugural Employee Engagement award from the Employers' Network for Equality and Inclusion (2011/2012). Archaeology at Cambridge has a good gender balance, currently 57:43% M:F in its core academic and support staff, 46:54% in its post-doctoral community, and 35:65% in its doctoral students; each research category is extremely international in composition. The University has considerably more generous maternity/paternity/adoption leave provision than required by law, and offers a graduated return to work plan and flexible working arrangements. In Archaeology **O'Connell, Ballantine** (PDRF on Barrett's Ecological Correlates of

Viking-age State Formation project), S. Jones (PDRF on Barker's TRANS-NAP project), Motuzaitė-Matuzevičė (PDRF on Jones' Pioneers of Pan Asian Contact project) and **Stevens** (Royal Society Dorothy Hodgkin Fellow) have benefited from this provision during the review period.

Strong encouragement is given to both the permanent staff and PDRFs to make effective use of the University's extensive programme of staff development, such as the Pathways in Higher Education Practice programme for newly-appointed staff, and Archaeology has a very good take-up, as also for the University-wide society for PDRFs, PostDocs of Cambridge (PdOC). The Institute also arranges and funds dedicated training sessions for staff and PDRFs for topics central to archaeology research and graduate training such as first aid in remote fieldwork, or the use of shared items of lab or field equipment. PIs are charged with providing good career advice for individual PDRFs employed on staff projects and PDRFs with independently-funded projects are assigned a UTO as an advisor for the same reason, but a central responsibility of the Director and Deputy Director is to advise and support every PDRF in the Institute on how best to make use of their time with us in terms of onward progression: they meet individuals regularly to review their progress and plans, comment on grant and job applications etc. We run a termly Post-Doctoral Forum to provide an opportunity to raise any matters of common concern and to discuss key issues such as the REF, research ethics, authorship policies, opportunities for funding represented by forthcoming RC research themes etc.

During the review period the post-doctoral research community has grown steadily to a strength of ~40. Roughly half of the current roster are on UTO research grants and half hold competitively awarded research fellowships funded variously by the British Academy (2) and Royal Society (1), the Leverhulme Trust (2), the EU (Marie-Curie) (5), Cambridge colleges (2), and national research grant schemes (e.g. from Austria, Belgium, Canada, China, Georgia, Germany, India, Italy, Pakistan, and Spain). As part of the celebrations of its twentieth anniversary in 2010, the Institute decided to fund a series of five Anniversary Fellowships within the broad research fields of human-environment interaction, social change, symbols, material culture, and heritage, the successful candidates being provided with salary, generous project funding, and funds for an inter-disciplinary conference. The pool of applicants has been large and extremely high quality, and election fiercely competitive. The first Anniversary Fellowship (2011) was awarded to **Hakenbeck** (the Huns and the Archaeology of Frontiers), the second (2012) to **Veal** (Fuel and Forest Management in the Roman Economy), and the third (2013) to recent PhD Y. Heffron (Religion and Assyrian Expatriate Identity in Anatolia). Another exciting addition to the community will be Dr M. Gleba, who is transferring her ERC-funded project on Mediterranean Iron Age textile economies from UCL to the Institute in January 2014 so that she can strengthen the isotope and archaeogenetics components of the project in collaboration with, respectively, **O'Connell** and **Jones**.

The effectiveness of our researcher development strategy is evident in the 100% submission of the eligible UTOs along with a significant number of outstanding early career PDRFs. The quality of the early career post-doctoral researchers attracted to our research environment, and the effectiveness of our support structures in providing the springboard for their career advancement, are evident in the onward progression of the PDRFs who have worked in the Institute during the review period: 37 have been awarded further competitively-awarded postdoctoral positions (Aarhus, ANU Canberra, Barcelona [2], Birmingham Museums, Cambridge [14], Harvard, Las Palmas, Leicester [2], Lund, Max-Planck Leipzig, Newcastle, Open University, Porto, Pretoria, Rome, Santander, Seoul, SOAS, Southampton [2], Vilnius and UCL), and 21 to university lectureships (Berkeley, Bournemouth, Brno, Cambridge [3], Cardiff, Leicester [2], Michigan, Newcastle [2], Oxford [2], OU, Seoul, Stanford, St Louis, UCL, UCL Qatar, and Vienna).

ii. Research students

A large international graduate community is a critical strength of our research environment. In 2012-2013 there were 24 MPhil and 79 PhD students registered, from 28 countries, with an average 40/60 split between home/EU and overseas for the MPhil and 50/50 for the PhD.

Over the assessment period 128 students have completed our four research MPhils (two in Archaeology, and the new Assyriology and Egyptology degrees flagged under Research Strategy

and Future Plans in the 2008 submission) and over 70 students have completed PhDs. Selection at both levels is highly competitive. Annual applications for the MPhil, averaging 54 in the previous review period and 75 in the present review period, have risen to over 100 in 2012-2013, but we have held down enrolments to maintain quality and ensure good supervision levels: they have grown from an average of 24 to 27.

Annual PhD applications have also risen from an average of 27 in the last cycle to over 40 in the current cycle, but enrolments have again been held down to ensure quality, rising from an average of 14 to 16. Virtually all our graduate students are full-time. We have been consistently successful in promoting outstanding overseas applicants for prestigious Cambridge Trusts awards such as Gates Fellowships in institution-wide competitions. AHRC studentships assigned to Archaeology under the Block Grant Partnership (normally 3-4 a year) are openly advertised and all short-listed candidates are interviewed and ranked. The same quality control applies to studentships attached to staff research grants. The latter are an increasing and welcome component of the PhD cohort as we see clear benefits in students being part of research teams and seeing how their research contributes to larger research endeavours.

Archaeology is a member of the successful University bids for NERC and AHRC Doctoral Training Partnerships, both of which will be considerably strengthened by significant University investment in additional studentships. In the AHRC DTP Archaeology is identified as the lead discipline to coordinate a new training programme for PhD students working in material culture studies, combining research expertise in the Schools of Arts and Humanities, and Humanities and Social Sciences, with relevant staff expertise and collections in the University's eight world-class museums.

The MPhil programme is specifically designed to prepare students for doctoral research, the 15,000-word dissertation counting for at least half the degree. The student proposes an outline research topic at the time of application (normally in consultation with a potential supervisor) and then works with the appointed supervisor through the year to develop and execute the topic, which is normally designed to be a preparatory study for the PhD. In addition to core training in generic research skills delivered by senior Archaeology staff, the Archaeology programme combines archaeological theory and practice with the opportunity to develop special expertise in the archaeology of a particular period (Palaeolithic to medieval), region (the Americas, China, Europe, Egypt, Europe, India, Mesopotamia) and/or approach (e.g. all aspects of archaeological science; historical archaeology; heritage and museums, the latter in conjunction with the MAA). The Assyriology and Egyptology programmes combine training in the archaeology, history and culture of Mesopotamia or Egypt with specialist skills in the appropriate ancient language. MPhil students have to achieve a High Pass or Distinction to be considered for entry into the PhD programme.

Doctoral student training and supervision follow RCUK guidelines and each student is supported by at least one supervisor as well as an advisor, the latter if appropriate drawn from another Department or Faculty. All students participate in research preparation workshops led by senior Archaeology staff covering topics such as research design, research ethics, academic writing, fieldwork planning and safety, publication strategy, obtaining research grants etc. In addition they are provided with tailor-made training appropriate to their topic and many select an appropriate course from those that we provide in archaeological computing and GIS, the School's ESRC-validated course in Social Science Research Methods, and the University's comprehensive programme of transferable skills training. All students have to defend progress reports before panels of ~6 staff halfway through the first and early in the second years of their research and, if appropriate, early in the third year as well.

Our graduate students contribute strongly to all of our research clusters and are strongly embedded in Archaeology's research culture, especially through their participation in the ~25 seminar, project, and laboratory groups described under Research Strategy. Third-year PhD students contribute presentations to these programmes alongside those of staff, PDRFs, McDonald Visiting Fellows and external speakers, and regularly contribute to the ~15 workshops and international conferences held at the Institute each year as well (see Section d). They take the

lead in the production and editing of the *Archaeological Review from Cambridge* (ISSN 0261 4332). They are strongly encouraged to give papers at external conferences, for which they can apply for a range of University, College and Department funds for travel costs (as PhD students also can for fieldwork costs). Our graduate students have regularly participated in inter-disciplinary meetings organised by CRASSH, and taken the lead in organising several. With encouragement and advice on embarking on academic publication embedded in our research training, most of our doctoral students have published in journals or edited volumes by the time of thesis submission (these are listed in the McDonald Institute's annual survey of research activity, *Archaeology at Cambridge*).

The combination of high acceptance standards, structured training and review, joint supervision, full participation in the UoAs research culture, and encouragement to make full use of Cambridge's formidable opportunities for research development beyond the discipline (from the University's excellent training programmes to the diverse opportunities for workshop and conference organisation in CRASSH and in colleges), supports individual students in timely thesis completion rates. It makes for a research student community in Archaeology of notable intellectual diversity and energy. A significant measure of their quality is their career progression: of the 2008-2013 cohorts, over 30 have gone on to funded post-doctoral research positions, twelve have obtained permanent university lectureships (Bournemouth, Gabarone, Glasgow, Leicester, Michigan, Newcastle, Seoul [2], Southampton, St Louis, UCL Qatar, University of Western Australia), seven work in CRM including one in the Portable Antiquities Scheme, four are museum curators, and two are in national antiquities agencies.

d. Income, infrastructure and facilities

The proactive culture of seeking grants to facilitate research activity and, in the process, sustain and grow the post-doctoral and doctoral community has resulted in the 2008-2012 external peer-reviewed grant income for Archaeology totalling £15.37 million, compared with £5.3 million for 2001-2007. (Archaeology, a relatively small unit, has the largest research grant income in the School.). All UTOs have secured competitive peer-reviewed external grants in the review period, two-thirds of them awards over £100k and well distributed across the six research clusters.

The most significant (£200k+) grants include: (within Human Behaviour and Evolution) "TRANS-NAP: Cultural Transformations and Environmental Transitions in North African Prehistory" (**Barker**, ERC £1.6 m, 2009-2014) and, starting in January 2014, "How Resilient were Neanderthals and Modern Humans in Southwest Asia to Climate Change? Reinvestigating Shanidar Cave, Iraqi Kurdistan" (**Barker**, Leverhulme 471k, 2014-2016); (within Human Palaeoecology) "From Chariotry to Equestrian Pastoral Nomadism" (**Barker, Bower**, Leverhulme £470k, 2007-2010), "Ancient DNA, Cod, and the Origins of Commercial Trade in Medieval Europe" (**Barrett**, Leverhulme £209k, 2010-2013), "Food Globalization in Prehistory" (**Jones**, ERC £1.7 m, 2010-2015), "Pioneers of Pan-Asian Contact" (**Jones**, Leverhulme £230k, 2010-2013), "Changing Levels of Protein Intake" (**O'Connell**, Wellcome £335k, 2004-2012), "Trans-Sahara" (**O'Connell**, £200k share of ERC €2.42 m grant to D. Mattingly, Leicester 2011-2016), "Cultural Innovation in the Palaeolithic" (**Stevens**, Royal Society £345k, 2008-2013); (within Human Landscapes) "The Cultured Rainforest" (**Barker**, AHRC £461k 2007-2011), "Changes in Ancient Land and Water Use along the Rio Ica, South-Central Andes" (**Beresford-Jones**, private donation, £376k, 2013-2017, and **French**, Leverhulme £376k 2012-2015), "Fragility and Sustainability in Restricted Island Environments" (**Stoddart, O'Connell**, £337k share of €2.46 m ERC grant to C. Malone, Queens University Belfast 2013-2018); (within Material Culture & the Body) "Changing Beliefs of the Human Body" (**Robb**, Leverhulme £1.18 m 2004-2009), "Forging Identities: the Mobility of Culture in the Bronze Age" (**Sørensen**, EC FP7 £273k, 2009-2013), "The Materiality of Early Creolization in the Caribbean, AD 1000-1550" (**Samson**, BA £291k, 2013-2015); (within Urban Society & the State) "Kilise Tepe" (**Postgate**, AHRC £440k, 2010-2013); (within Archaeology in the Contemporary World) "Identity and Conflict, Cultural Heritage and the Reconstruction of Identities after Conflict" (**Sørensen**, EC FP7, £453k, 2008-2012), "Violence against Culture" (**Viejo-Rose**, BA £228k, 2012-2014).

Over the review period the Institute has steadily increased the investment of its endowment income

in research support, alongside the School's investment in two Research Facilitators. The position of Personal Assistant to the Director has been developed into that of a Research Administrator (S. Harrop) acting for the community as a whole. She is supported by Dr K. Boyle (.5 FTE), who collects information on upcoming grant opportunities, identifies deadlines in good time, and advises staff, PDRFs, and prospective external applicants on the grant application process to particular research sponsors. With the steady increase in funding the Institute's grants finance administrator (1 FTE) has been further supported by a strengthened School and Faculty finance team in particular to manage ERC and other EC grants, ensuring that PIs are well supported in the management of grants once obtained. The Institute's research support structure, well integrated with School and University structures, has been recognised as a model of best practice by the School's Research Committee.

The Institute has disbursed ~£120k a year from its D.M. McDonald Grants & Awards Fund to support the research of Cambridge-contracted archaeologists (both outside as well as within UoA17), mainly for fieldwork (including museum work), the priority being to pump-prime activities that will lead to significant external grant applications. Staff can also bid for separate funding, on an external match-funding basis, for costs of conferences or workshops to be held in the Institute. Cambridge's Isaac Newton Trust has provided the institutional match-funding required for Leverhulme Early Career Fellowships (e.g. **Davies, Vaccaro**). UTOs can also apply to the Trust for ancillary activities in support of externally-funded projects and in total the Trust has invested £463k in UoA17a archaeology projects in the review period (all applications being externally peer-reviewed). In addition the University has invested some £50k p.a. in the CAU monograph publication programme (e.g. **Evans, Lucy**).

Our research in archaeological science is supported by dedicated laboratories (in total c.450 m²) in archaeobotany, archaeogenetics, archaeozoology, geoarchaeology, GIS, and stable isotope analysis, with four laboratory managers and two computer officers, the Institute providing funding for 2.5 of these 6 FTE. Equipment includes high-quality optical microscopes; thin-sectioning, magnetic susceptibility, XRF and SEM facilities; central and distributed computing facilities; and comprehensive facilities for soil embedding, skeleton preparation, sieving and flotation. The expanding work in material culture studies, integrating science and humanities approaches, underpinned our decision in 2011 to establish a Material Culture Laboratory, which has provided an important forum for Cambridge researchers working in different periods and with different approaches to explore material culture theory and practice and the effective integration of the two. The University's investment of £167k CIF funding in 2009-2010 and £197k Capital Funding in 2012-2013 enabled the equipment base of the whole suite of Archaeology laboratories to be enhanced (e.g. petrographic and palynological microscopes with digital image capture kit, upgrading of computing facilities and reference collections, additional freezers, centrifuges, and balances), provision for Masters research training in archaeological science to be expanded (a separate laboratory equipped with digital visual facilities, microscopes for bioarchaeological and pedological studies with appropriate cameras and teaching screens), and fieldwork support to be enhanced with a portable XRF, GPS surveying system, and 3-D laser scanner. Co-management of three cross-departmental facilities gives Archaeology access to palynology facilities and aerial photographic collections and facilities (Geography); mass spectrometric analytical facilities for a range of key light and heavy isotopes on principal archaeological materials (organic and inorganic), and mass spectrometer facilities (with the Godwin Laboratory, Earth Sciences); and scanning and transmission electron microscope and confocal microscopy (Multi-Imaging Centre, Physiology, Development and Neuroscience), whilst our archaeogenetics researchers have access to DNA extraction facilities in Biochemistry for their archaeological samples and DNA genotyping facilities in NIAB, the National Institute for Agricultural Botany.

Our research is further supported by Cambridge's formidable library resources and world-class archaeological collections (notably the Fitzwilliam Museum and the MAA) and, for bioarchaeology, major collections for pollen, plant macrofossils, herbarium specimens, vertebrate and invertebrate groups, and (the BA Duckworth Collection) human remains. Grants totalling £1.8 million (CIF, Li Ka Shing Foundation, Wolfson Foundation) have enabled the MAA to transform its exhibition spaces and embark on upgrading its archaeological displays, a process that is greatly enhancing its study

facilities for Cambridge and visiting researchers. The University's investment of £16 million in the Alison Richard Building has similarly enhanced the facilities available to CRASSH and the interdisciplinary research centres, providing an outstanding venue for inter-disciplinary events in which Archaeology staff, PDRFs and graduates have participated and it is committing £300 million to the first phase of the North West Cambridge development in particular to provide housing for postdoctoral researchers and families and postgraduates.

Ongoing investment for research by the Institute includes a dedicated publication team (2 FTE) that supports the production of the peer-reviewed *Cambridge Archaeological Journal* (edited by **Robb**) and the flagship Monograph series edited by **Barrett**. Over the review period the CAJ has seen steadily increasing numbers of high quality papers being submitted and an expanding global authorship, and fifteen Monographs have been published, nine of them included in the UoA17a submission. The expanding demands on space from the ~25 seminar and laboratory groups, and the expanding workshop and conference programme in the Institute (see next section) led to the decision, as part of the 20th anniversary celebrations, to invest ~£450k of the endowment in a major refurbishment of the ground floor of its Courtyard Building in summer 2013 to enlarge and upgrade the seminar room and associated social space.

e. Collaboration or contribution to the discipline or research base

Individual researchers of course have extensive networks of external collaborators, national and international, as well as formal links with national antiquities agencies and/or universities/museums within the terms of fieldwork permits, but in addition, the Institute has established formal MoUs with several research institutions (e.g. in Bosnia, China, Kazakhstan, India, Pakistan and Poland) in particular where these facilitate, or are essential for, staff and/or graduate student fieldwork, the export of laboratory samples etc.

The Visiting Fellows hosted by the Institute are a vital addition to the research environment: over 120 in the review period, coming from all continents, across the full spectrum of the discipline, and contributing to the research vitality of all six research clusters. Virtually all of these study visits have stemmed from existing research collaborations by Cambridge staff, and in most cases have strengthened the research links with the individuals and/or with their institutions, as well as attracting graduate students.

The Institute has used its flagship Annual McDonald Lecture, and biannual Inskeep Lecture in African Archaeology, to bring to Cambridge major figures in the discipline, across all branches of the discipline, speakers in the review period including Mary Beaudry, Nicholas David, Christine Hastorf, Christopher Henshilwood, Charles Higham, Jürgen Richter, Ruth Whitehouse, and Henry Wright. The Personal Histories project organised by Pamela Smith, likewise supported by the Institute, has also proved an extremely successful annual event attracting numerous colleagues and students from outside as well as within Cambridge, external speakers in the review period including Mick Aston, David Attenborough, Martin Carver, Meg Conkey, Jane Goodall, Tony Robinson, Mike Shanks, and Richard Wrangham. To strengthen links with, and support research in, British archaeology beyond academe, the Institute launched a Field Archaeologist in Residence scheme in 2010 to bring a professional archaeologist to Cambridge for a term to initiate or complete a research project, the successful candidates being Mark Knight (2011), Jim Leary (2012), and Dominic Powlesland (2013).

An important component of the Institute's academic programme has been the organisation and part-funding of ~80 conferences and workshops that have attracted numerous international researchers as well as providing opportunities to foreground Cambridge researchers of all career levels. Examples include: (2008) 'Archaeology and Linguistics of the Andes', 'Cultural Heritage and Identity Reconstruction after Conflict', 'Maritime Societies of the Viking World', 'Prelude to Urbanism in the Ancient Near East'; (2009) 'Africa's Fragile Heritage', 'Ancient Iran and its Neighbours', 'Crisis What Crisis? Collapses and Dark Ages in Comparative Perspective', 'The Material Body'; (2010) 'Africa Stages 6-2', 'Palaeodiet Advanced Seminar'; (2011) 'Child Labour in the Past', 'Fingerprinting the Iron Age', 'Heritage of Memorials'; (2012) 'Africa's Later Holocene Archaeology in Global Perspective', 'Art Through Millennia', "'Forgotten" War and Occupation

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Heritage', 'Integrating Zooarchaeology and Stable Isotope Analysis', 'Wildlife Conservation and Archaeological Evidence'; (2013) 'Creativity: an Exploration Through the Bronze Age and Contemporary Responses to the Bronze Age', 'Frontiers of the European Iron Age', 'Islands of War, Islands of Memory', 'Unravelling Human Origins'.

Cambridge archaeologists in UoA17a have made a significant contribution to the wider health of the discipline. Editorships and co-editorships include: *Azania* (**Davies**), British Institute of Persian Studies Archaeological Monographs (**Petrie**), Cambridge Manuals in Archaeology (**Barker**), *CAJ* (**Robb**), *Iran* (**Petrie**), *Reallexikon der Assyriologie* (**Postgate**), and *World Archaeology* (**DeMarrais**). Sixteen UTOs are members of the editorial boards of 36 journals and monograph series including *Antiquity*, *Archaeometry*, *CAJ*, *Danish Journal of Archaeology*, *European Journal of Archaeology*, *The Holocene*, *Internet Archaeology*, *Journal of Anthropological Archaeology*, *Journal of Cultural Heritage*, *Journal of Mediterranean Archaeology*, *Journal of the Royal Asiatic Society*, *Medieval Archaeology*, *Norwegian Archaeological Review*, *Papers of the British School at Rome*, *Proceedings of the Prehistoric Society*, *Quaternary Science Reviews*, and *World Archaeology*. Eighteen of us have served on the councils and/or sub-committees of e.g. the Ancient India and Iran Trust, Association of Southeast Asianists, British Academy, British Institute in East Africa, British Institute of Persian Studies, British Institute for the Study of Iraq, British School at Athens (including Fitch Laboratory), British School at Rome, Council for British Research in the Levant, Pan-African Archaeological Association, Prehistoric Society, Society of Antiquaries, Society for Libyan Studies, Society for Medieval Archaeology, and UISPP, and on the councils, managing committees, award committees etc of other research organisations including: AHRC (Council), Archaeology Data Service, Census of Marine Life, Danish PhD School in Archaeology, Deutsche Forschungsgemeinschaft, Dutch Research Council, EC FP7 (Marie Curie Actions, Networks of Excellence), ERC (History and Archaeology Advanced Investigator and Starter/Consolidator panels), Hungarian Research Council, Mediterranean Archaeology Trust, NERC (Radiocarbon Facility chair, Services Review Group member), Nordic Research Schools, Norwegian Research Council, Swedish National Agency for Higher Education, Technical Committee for the Study of Archaeological Affairs of the Sultanate of Oman, Treasure Valuation Committee, and the Wenner-Gren Foundation for Anthropological Research. We have served on numerous overseas institutional research review and chair appointment panels and have examined over 60 PhDs outside Cambridge, a third of them overseas.

Prestigious lectures and invited keynote conference papers given by Cambridge UTOs include the Inaugural Lecture of the Institute for European and Mediterranean Archaeology (**Barker**: Buffalo 2009), Dorestad in an International Framework (**Barrett**: Leiden 2009), Representing the Prisoner of War Experience (**Carr**: Warwick 2013), Heritage, Commemoration and Experience (**Filippucci**: Brussels 2011), International Geoarchaeological Workshop (**French**: Tübingen 2012), New Research on Medieval Cemeteries (**Hakenbeck**: Padova 2012), Old English Runes Workshop (**Hills**: Eichstätt 2012), Past Global Changes 4th Open Science Meeting (**Jones**: Goa 2013), National Geographic Dialogue of Civilisations (**McMahon**: Guatemala City 2013), Darwin 2009 (**Miracle**: Zagreb 2009), Fonds de la Recherche Scientifique Groupe Préhistoire (**Nigst**: Namur 2009), Inaugural Lecture of MRC Integrative Epidemiology Unit (**O'Connell**: Bristol 2013), Ancient Egyptian Forts (**Papazian**: Charleston 2010), Tyranny of the Tell (**Petrie**: Durham 2011), Rosenthal Lecture (**Postgate**: Yale, 2010), Centenary Address Oriental Museum (**Ray**: Durham 2011), Albert Reckitt Lecture (**Renfrew**: British Academy 2013), Embodied Identities (**Robb**: Cyprus 2012), Inaugural Chair lecture (**Sørensen**: Leiden 2012), Inaugural Lecture of the Austrian Archaeological Institute (**Spence**: Cairo 2011), Munro Lecture (**Stoddart**: Edinburgh 2009), Smatterings: Why Languages Matter (**Worthington**: British Academy/Cumberland Lodge 2012).

Prestigious awards in the review period include the elections of **Barker** and **Jones** to the Academia Europaea (2013) and a Visiting Professorship for **Sørensen** at Leiden (2011). Notable recognition of the continuing contributions to the discipline played by senior members of the Cambridge archaeological community include the CBE to Kemp for his contributions to Egyptology (2010), the Knighthood to Mellars for his services to Palaeolithic archaeology (2009), and honorary doctorates (London 2008, Lima 2009) to **Renfrew**.