

Environment template (REF5)

<p>Institution: University of Liverpool</p>
<p>Unit of Assessment: 17B – Archaeology</p>
<p>a. Overview</p> <p>Archaeology is returning 16 research staff in 4 primary research groups: <i>Archaeology of Human Origins</i> (Barham, Gowlett, Grove); <i>Early Village Societies</i> (Asouti, Baird, Mytum, Pearson, Pope); <i>Egyptology</i> (Collier, Enmarch, Eyre, Shaw); and <i>Mediterranean Archaeology</i> (Fitzjohn, Ponting, Routledge, Widell). A number of staff participate in more than one group: Grove in <i>Early Village Societies</i>; Pearson in <i>Archaeology of Human Origins</i>; and Asouti, Baird, Pearson and Shaw in <i>Mediterranean Archaeology</i>. As part of the Department of Archaeology, Classics and Egyptology (ACE), Archaeology benefits from close research links with Ancient History and Classics staff. ACE is part of the School of Histories Languages and Cultures (HLC), offering new opportunities for research collaboration, especially with History.</p>
<p>b. Research strategy</p> <p>The primary foci of our research strategy are 1) the development of our research groups and 2) the fostering of cross-disciplinary interaction that will (better) allow us to address major issues of past human biological and social development and provide dynamic and nurturing sustainable environments for staff research.</p> <p>1. The strengths of our four research groups were acknowledged by the RAE2008 panel, especially in Human Origins and Early Civilisations i.e. Egyptology and Mediterranean Archaeology groups. As intended in RAE2008, we have focussed on promoting the integration and dynamism of our research groups exploring new research dimensions through combinations of staff with diverse skill sets but mutual interests, allowing greater effectiveness in exploring major issues of past human development and thus contributing to debates about our collective future. As a result the scale and frequency of grant awards has increased by 25% compared with RAE2008 along with collaborations on consequent innovative papers (see Asouti, Baird, Grove, Pearson's jointly authored papers in the outputs); development of attractive scholarship winning PhD projects (see section cii); a consequent increase in PGR numbers and completions (e.g. 23% increase of completed PhDs since RAE2008); and effective delivery on major research projects.</p> <p>These groups provide ideal mentoring environments for the generation of innovative research ideas, project and research grant development, research writing, sharing and feedback on staff and PGR research results, impact strategy development and discussion of research topics with external peers, through both ad hoc discussions and more formal seminar series. They complement processes focused on the development and support of individual strategies described in section c. In addition they contribute to sustainability, provide a focus for our appointments strategy and minimise any disruption from individual staff turnover.</p> <p>2. We have developed inter-disciplinary activity through closer collaboration with Ancient History/Classics staff facilitated through our single Departmental structure; by interaction with History through, for example, shared supervision of PGRs; and through the University's research theme 'Living with Environmental Change' (LWEC), we provide a long term historical perspective on the human role in environmental change and response thereto - Baird is one of four research leads for the University theme. Through this collaborative work we have developed links with staff in Geography, Environmental Sciences and Biological Sciences. We have received pump priming for five interdisciplinary initiatives and two workshops. In these two workshops, Archaeology has been able to explore 1) inter-disciplinary collaboration relating to human-environment interaction, led by Baird, and 2) human dispersals, led by Grove; both workshops created good contexts for the fostering of the <i>Unfamiliar Landscapes</i> project and Grove's involvement in the <i>Chew Bahir</i> project. This inter-disciplinary activity enhances our ability to generate new projects and approaches that address major questions and challenges concerning the development of our species and societies.</p> <p>Looking forward, our twofold strategy will continue. Maintenance of the dynamism of our research groups will remain a priority with specific attention to researching major questions of key developments in long term human behaviour, where our range of expertise is indispensable. We</p>

seek to build on our increasing inter-disciplinary activity, exemplified by our recent *Unfamiliar Landscapes* Leverhulme award. We will do this by building projects with staff in Ancient History, Geography, Environmental Sciences and Biological Sciences at Liverpool and through our interdisciplinary collaborations externally (evidenced in Section e). Key themes relate to human population spreads, environmental change and the nature of the development of religion and the state. We will also continue to support the University's 'Living with Environmental Change' research theme to emphasise the benefits of long term perspectives best derived from Archaeology. The articulation between these broader aims and the future goals for our research groups is outlined below:

Archaeology of Human Origins (seven PGRs currently and 12 PhDs completed in REF period). The £1 million British Academy Centenary Project *Lucy to Language* (2003-2010), directed by **Gowlett** with Dunbar (now Oxford) and Gamble, with **Grove** as a PDRA, also involving **Barham**, developed interdisciplinary investigations into the 'social brain'. Major outcomes of this project in the REF period are detailed in Section d and a book on the Social Brain will follow in 2014. The project had two post-docs in Liverpool Archaeology in the REF period, one of whom, Uomini, went on to a Leverhulme EC Fellowship with us developing 'Lucy' initiated research on handedness and language evolution. **Gowlett** was central to the Lucy theme concerned with the effects of fire on human biology and sociality. The group's strategic objectives for building on the Lucy project over the next five years and broadening interdisciplinary research involve **Gowlett** in fieldwork in East Africa with a British Academy mobility and links scheme, including collaboration with Geography (see below). PGRs (including those who are AHRC funded) will also take forward this work on fire. Related projects will examine planning and innovation in early technology through refitting and study of the invention of hafting and its cognitive underpinnings, already seeing major outputs in **Barham's** REF monograph, *From Hand to Handle*. The *Human Origins* group has established a productive interdisciplinary network beyond the Lucy project linking the archaeology of human origins, associated Quaternary dating techniques, palaeoenvironmental change, evolutionary psychology, physical anthropology, and human dispersals.

Following the Lucy project, **Grove** was appointed to build on the successes of this group, his contribution illustrated by his role as Col on a £1.29M NERC funded project awarded 2013 'A 500,000-year environmental record from Chew Bahir, south Ethiopia: testing hypotheses of climate-driven human evolution, innovation, and dispersal'. The £160k Liverpool component will fund a post-doc to develop a human dispersal model with **Grove** and major outputs will be seen in the next REF cycle. In 2003 **Barham** was awarded £243k by the AHRB/C for a five year project in Zambia to explore these themes. In the current census period he extended this work to cover Kalambo Falls intended World Heritage site and a key aim for this group is to support **Barham** in a continuation of a multi-disciplinary project at Kalambo generating new palaeoenvironmental data, using new dating methods and investigating the development of hafting. The projects designed by **Barham**, **Gowlett** and **Grove** will thus continue to investigate key themes of human evolution, the relationships between early human cognitive development, fire, environmental change, technological development and hominin dispersals.

The **Early Village Societies (EVS)** research group (12 current PGRs and 11 completed in REF period) researches major transitions in human societies, from forager to the first farming communities c.12000 years ago, to the emergence of complex societies preceding/ leading to the development of urban communities. It currently encompasses five ACE staff as primary members with the regular participation of **Grove** and **Routledge** (and until September 2013, Garrow, now Reading) and 12 PGR students, and illustrates our effective strategy of integration of staff in research groups. Furthermore, other ACE and Environmental Sciences staff members participate in the *EVS* research seminars, due to the innovative and inter-disciplinary approaches featured. These strengths are reflected in the reputation of the *EVS* group as an attractive environment for PGR students nationally, and especially internationally (six completed, four current), and the fact that it has generated a suite of large grant awards concerned with the spread of farming and early farming adaptations at either end of Europe (2010: **Baird**-BARDA; 2011: **Garrow**-AHRC; 2011 **Baird** Col on Australian Research Council award; 2012: **Asouti**, **Baird**, **Grove** and Chiverell Geography, Leverhulme).

The sustained success of this group in securing major prestigious external research income stems from the effective collaborative environment of the group and relationships with cognate

departments at Liverpool and elsewhere. 50% of the group's PGRs carry out research on material from these projects. Post-docs joining the group in the census period include Campbell on **Baird's** BARDA funded project; Anderson-Whymark in 2012, PDRA on Garrow's AHRC funded Stepping Stones project, and Collins and Bradley (appointed September 2012) modelling forager and first farmer land use in Anatolia on **Asouti, Baird and Grove's** *Unfamiliar Landscape* project which will see its main outputs in the next REF cycle. Additional major research foci include development of social complexity and identities from Neolithic to Iron Age (**Baird, Mytum, Pearson and Pope**); **Mytum** and **Pope** share a focus on settlement and identities in Iron Age Britain; **Mytum's** Castell Henllys monograph was published in this cycle, **Pope's** major monograph on prehistoric domestic archaeology relating to this theme will be published in the next cycle. The integration of the group is also indicated by the production of joint papers, some in the REF return (**Baird** outputs 1 and 2, and **Pearson** output 3) and collaboration on projects. In this regard, the *Origins of Sedentism and Agriculture in central Anatolia* projects led by **Baird** excavating Pınarbaşı and Boncuklu and **Asouti's** *Unfamiliar Landscape* project, form a closely related set involving **Grove** and **Pearson**. **Asouti** and **Baird** have been invited to initiate a project in Iraqi Kurdistan that over the next five years will extend the group's approach as applied in central Anatolia to the classic 'hilly flanks' of the fertile crescent.

Mediterranean Archaeology Research Group (15 PGRs currently and 10 PhDs completed 2008-2013). This group involves staff operating in the Aegean, Anatolia, the Levant, Mesopotamia, Egypt and Italy/Sicily; it includes Archibald (returned to UoA 31). Its focus is the development of early cities and states, associated changes in their political worlds, and long-term human-environment interactions in the Mediterranean. Staff direct regional survey projects and major excavations in Greece, Sicily, Anatolia and Jordan. The evolution of cities, states, and political complexity in the Mediterranean is a key focus, especially in contexts on the fringes of the major power centres -from 3rd millennium southern Mesopotamia, to Classical Greece and Rome - and this relates well to the Egyptology group's interest in peripheries. **Routledge** researches the formation of early territorial states in Jordan. His rethinking of early state formation and underpinning power structures resulted in a monograph (output 1). **Fitzjohn** has developed innovative methodologies utilising visualisation and GIS to explore identity in relation to domestic architecture and Mediterranean landscape use, investigating the formation of the *polis* and colonisation in Iron Age Sicily. **Widell**, appointed 2007, has used cuneiform and medieval historical sources to disentangle human-environment relationships in North Mesopotamia, on the Chicago Modelling Ancient Settlement Systems project, a NSF Biocomplexity Project (\$1.2 million) producing a monograph (output 1), with Wilkinson (Durham). **Ponting** has also investigated questions of identity on the edges of the Roman world and in the Eastern Mediterranean through the study of metals. His 2005 AHRC large research grant to investigate procurement, production and standards of Roman silver coinage led to 9 articles, with a monograph in 2014. The projects of these staff are on-going and will lead to major outputs in the next five years.

Egyptology (19 PGRs currently and 13 PhDs completed in REF period). The *Egyptology* group is a large grouping of Egyptologists by international standards. Productive integration has been developed through two broad foci on language and literature and material culture. A distinctive research arena is the composition, transmission, performance and aesthetics of Ancient Egyptian literature. In particular, the group has focused on the study of Middle Kingdom literature with **Collier's** work on the Lahun corpus, **Enmarch** on Ipuwer, and **Eyre** on various texts. **Eyre** completed a major monograph in 2012 (output 1) on *The Use of Documents in Pharaonic Egypt*. Research into the Ramessid dynasty provides a primary vehicle for the integration of these approaches. Since 2007 the group has edited the *Journal of Egyptian Archaeology*. The interactions of the group are facilitated not just by their seminar series but by working together in the field and co-supervision of PhDs. Six major cooperative field projects have investigated previously poorly understood aspects of ancient Egypt. A key focus is the exploitation and political role of the 'peripheries'. **Shaw** has examined the quarrying settlements at Gebel el-Asr, Gebel Umm Kabu and Hatnub, funded by Wainwright, Egypt Exploration Society and British Academy. His monograph on Hatnub was published in 2010. **Shaw's** new work at Gurob, supported by the British Academy, is concerned with urbanization outside the Nile valley and will see major outputs in the next REF cycle. This focus on 'peripheries' will be developed further **Enmarch** over the coming 5 years with an epigraphic study of the sacred landscape of Hatnub and by the award of a

Marie Curie to Gasperini to study desert trade, with **Shaw**.

c. People, including:

i. Staffing strategy and staff development

We recruited a number of researchers early in their career in the latter part of the RAE 2008 period and have consolidated and developed their contribution, as indicated in our RAE2008 strategy. In the longer term, we seek to sustain and develop our research groups and contribute to the University's core research themes. This is exemplified by the strengthening of our Human Origins group with appointment of **Dr Matt Grove** to a new post designed to bring new skills to the group in statistics and modelling and further the group's contribution to the 'Living with Environmental Change' research theme. The success of this strategy is reflected in the financial support for **Grove's** work from the University's Environmental Change research theme, helping him build collaborations in support of his successful NERC grant bid with Aberystwyth for £1.29M.

Mechanisms for support of Early Career Researchers (ECRs) include the allocation of a Research Mentor. ECRs also have reduced teaching, are assigned only minor administrative roles, and are given a semester's leave in their third year. The effectiveness of this approach is indicated by the UK Scopus Young Researcher of the Year Award Humanities (in 2011) awarded to **Grove**. An annual Portfolio of Activity forms a basis for discussions with the Head of Department as part of the University's annual Professional Development and Review (PDR) process for both temporary and permanent staff. This allows the identification of necessary support and training and the setting of short and long term career goals, e.g. we were able to send **Asouti** and **Grove** on a 2-year Research Leaders course.

Allied to the Portfolio is an online table of record which allows individuals to provide a real-time commentary on the progress of their research, and for research mentors to respond: this provides a structured, supportive and consistent approach to research planning. In 2011 the University was awarded the Bronze HR Excellence Badge in recognition of its progress in implementing the Concordat to Support the Career Development of Researchers, followed by the formation of a University 'Concordat Implementation Group'. The success of these staff development processes have resulted in the promotion of seven Archaeology staff to Senior Lecturer, three to Reader and three to Chair in 2011 and 2012. Equality and Diversity has also been promoted through these mechanisms. Since 2004 we have seen eight lecturer and five PDRA appointments which include four female lecturers and three female PDRAs with two of the female lecturers promoted to senior lecturer. We are fortunate that the British Women Archaeologists group, co-organised by **Pope**, is partly based in Liverpool. Whilst it is not concerned only with academic archaeologists it provides a supportive environment for female staff and has promoted a series of National Role Model profiles.

The ACE Research Committee also has a primary role in developing overall strategy and providing support for research. It advises staff on their individual research, publication and grant application plans (annually); identifies areas for support; reviews and identifies opportunities for collaborative applications under major strategic research initiatives; and advises the Head of Department on the programme of research leave, issues relating to the research environment and the research/teaching balance in the Department. Project proposals and grant applications are reviewed internally by members of the Departmental research group and fed to other relevant staff for review. This is facilitated by our Departmental Research Officer, one of whose primary roles is the management and quality enhancement of the peer review process. Larger grant applications are also reviewed by the HLC peer review group. There is a regular Faculty grant writing workshop, to which staff can submit applications for discussion. For staff, especially those in the early stages of their career, these mechanisms help ensure integration within a research group and the identification of potential collaborations across the Department, School and beyond.

HLC has a research support budget of £102,200 to which application can be made for research support. This funds conference and research-related travel and seminars, staff receive a minimum allowance of £500 with opportunities to apply for additional support. It also supports PGR conferences. The HLC Director of Research also allocates substantial funds for research assistance and for teaching relief to facilitate the completion or initiation of projects, exemplified by the support for the launch of a new ACE research project in Iraqi Kurdistan involving **Asouti**, **Baird** and **Widell** and support for **Barham's** trip to Africa develop a new major project at Kalambo Falls.

As a result of a recent initiative the University disburses pump priming money through its major

research themes. Archaeology received five awards of c.£2,000 each from the 'Living with Environmental Change' research theme in 2011-2012, two of which facilitated major workshops promoting collaboration within and outside the University on human response to climate change and variability in human mobility as a response to environmental change. One of these awards led to funding by National Geographic of interdisciplinary research on past climate change in Zambia. Under guidance from the ACE research committee, these provide excellent opportunities for our staff to trial research project concepts on an internal review committee that provides significant feedback to the applicants, thus helping with grant proposal and project development as well as underwriting 'proof of concept' research and supporting collaborative networks.

ii Research students

We have 63 current PhD students (our largest annual cohort to date) 10 cross over research groups-so not in individual figures above) and 45.6 completed PhD students, a 23% increase of completed PhDs over RAE2008. From the inception of their studies, the close integration of PGR students into research groups, through the presentation of their work in our seminar series and to interdisciplinary audiences (e.g. LWEC workshops), combined with a strong procedural framework, ensures that their research reaches its full potential. They are also actively involved in the development of our research culture through their involvement in the planning of the seminar series and student-led conferences. Ongoing supervisor and student training is supported by a well-developed University programme which was cited as a model of good practice in the AHRC's 2004 'Framework of Research Training Requirements'. Liverpool was one of three institutions in the country to receive the top rating for 'exceptional' postgraduate study in the first AHRC Block Grant Partnership, with Archaeology singled out as having excelled in the training and supervision of PGR students.

This training framework comprises an online Personal Development Record (an important tool in staff-student interactions), annual skills audits, a Research Skills Workshop for first-year research students, a Career Skills Workshop for second and third years, annual Research Days where research students present a poster of their research, as well as at least one week of subject-specific training overseen by the School Coordinator of Postgraduate Research Training and currently including discipline-specific language classes and/or specialist archaeology skills courses such as GIS and/or subject specific outreach activity. The progress of all research students is overseen by our Departmental Director of Graduate Studies, who organises an annual interview for all PGRs. Confirmation of PhD status requires an oral presentation and submission of a detailed written evaluation of aims, methods and data sets, before end Year 1. Students complete an online Annual Report where they detail progress, training completion and needs, conference participation and potential problems. This is reviewed by supervisors, followed by the School and then Faculty Director of Postgraduate Research.

Initiatives include plans for cooperation and joint supervision with Manchester Archaeology in the successful NW consortium AHRC BGP2. This will allow new supervisory combinations over the course of the next REF period in areas of joint strength, such as Mesolithic to Neolithic Archaeology, Egyptology, Mediterranean and Near Eastern Archaeology and, in addition, will allow a unique discipline specific training programme drawing on links with regional and local museums such as Manchester and National Museums Liverpool. Such planned training components include: managing and archiving data; statistics for archaeologists; GIS; public outreach; teaching archaeology; science and archaeology; implementing exhibitions on PGR research and will thus build capacity for Archaeology PGRs in the NW, e.g. Universities such as Manchester Metropolitan, Liverpool John Moores, Chester, Salford and UCLAN. The Archaeology pathway will host an annual PGR conference to share research approaches, a supervisor meeting to coordinate supervision and share good practice, an employability workshop, and an outreach programme to inculcate and engage PGRs in structured knowledge exchange practices.

In the REF period our PGRs have formed a large international cohort from Belgium, Denmark, Canada, France, Germany, Finland, Greece, Norway, Turkey, Egypt, Japan, USA, as well as the UK, and have been supported by AHRC (11), ORSAS (one), British Academy Centenary Project (two), overseas government (two), Çatalhöyük Project (one) and University studentships. Two Archaeology PhD students have held the prestigious UoL Duncan Norman scholarship (one per year awarded across all disciplines). All staff play an active role in supervision and training of

PGRs through joint supervision arrangements and contributions to training modules, as well as collectively through our research groups, each with significant PGR cohorts (Section b).

All PGRs have office space equipped with PCs. Students can apply to the PGR Student Team and HLC to support fieldwork and conference participation; our students have had a high success rate of 90%. Archaeology has its own Peet travel awards which support c. five students annually to travel to the Mediterranean for research. These different sources have helped a number of students collaborate on research group projects such as **Shaw's** Gurob project and **Baird's** Boncuklu project. Thus, three PGRs, are undertaking research topics which include Gurob, partly funded by these sources. Likewise, during the REF period, three completed and five current PGRs have participated in the Boncuklu project, are contributing to the publication of the Boncuklu volume I in the next REF period (and 2 current outputs) and have been supported in their travel by these sources. Students have organised major student international conferences between 2008 and 2013: Mediterranean Death and Burial, HOBET. In addition they have played a major role in organising Liverpool TAG 2012 and BANEA 2008 and organised the Second Postgraduate conference of Conflict Archaeology conference in October 2013. PGRs can and have drawn on School funds to support these initiatives, through research group, staff discretionary and a PGR conference funding fund.

Our research students and post-docs have seen notable success in developing academic or closely related careers. Among those who have completed during the census period, they have held/hold 14 post-doctoral fellowships from Nottingham to Berlin, Istanbul, Ankara and Australia. Five are lecturers, Baysal at Zonguldak in Turkey; Lycett, a Lucy post-doc, secured a lectureship in Canterbury; Hemsley a position in Manchester graduate school leadership programme; Godenho a UT position at Liverpool; Campbell Price a position in Manchester jointly with a University Museum and one has become curator of our Garstang Museum. Of PGRs graduating in the previous census period, four have become permanent curators, three at National Museums Liverpool, one in Cairo and three have become lecturers in Qatar, Australia and Uppsala, over the course of the past five years. A number gained significant positions in archaeological companies and local government in the UK and internationally, notably US and Australia.

d. Income, infrastructure and facilities

Through the mechanism of our research groups we have developed an increasing number of project concepts, obtaining large awards from AHRC, British Academy and Leverhulme and a significant set of medium level awards (in the £10-40k range) from competitive grant giving bodies, including National Geographic (3 awards); British Academy grants (10 awards); AHRC (4 awards); American Society for Prehistoric Research (3 awards); British Institute at Ankara (4 awards); Leverhulme (2 awards). Large grants include the Lucy to Language, £1M British Academy Centenary award which continued to 2010; a British Academy Research Development award 2010, **Baird** £114k; AHRC 2011 Garrow £134k; Leverhulme, **Asouti Baird** and **Grove** £232k, **Grove** 160k as CoI on a £1.29M NERC award; and £272k from Manx Heritage and English Heritage for **Mytum's** work on Isle of Man and UK. Our new grant awards (as opposed to spend) in the REF period total £1.877M - an increase of 25% compared with the RAE2008 return.

In the REF period, the Lucy project resulted in a British Academy conference in London in 2008, three volumes with **Gowlett** as co-editor (see **Gowlett** REF outputs 1 and 4 and **Barham** output 3), including an OUP volume of key papers, with a Thames & Hudson book on the Social Brain to follow in 2014 and an additional 200 plus papers in the REF period by project members. Although only awarded in 2010, **Baird's** BARDA funded *Boncuklu* project work contributed to two outputs in the current REF. It also supported the collaboration, and results, that led directly to **Asouti, Baird** and **Grove's** Leverhulme funded *Unfamiliar Landscapes* project.

The appointment of three science-based staff in the RAE2008 period (**Asouti, Pearson** and **Ponting**) has led to the enhancement of specialised research laboratories and new facilities providing support for staff and PGRs. Our labs will move to new purpose refurbished spaces during the next REF period with c.£500k of associated investment. The geomagnetism and OSL laboratories support Quaternary dating and the research of the *Human Origins* and *EVS* group. Lithics, environmental, faunal and experimental archaeology labs, trace element lab and stable isotope facility, play a major role for the *Egyptology* and *Early Villages* groups. 3D colour laser scanners are used to advance *Human Origins* research on artefact design. **Ponting** has developed facilities and equipment for metallography, petrography, and atomic absorption spectrometry.

£7000 of new microscopes in 12/13 are dedicated to archaeobotany and materials research. Within the REF period the purchase of a Department SEM has increased the range of microscopy projects in all four research groups. Support for field projects and the increased numbers of research students in the various groups has been enhanced with new IT and graphics facilities, with a particular emphasis on GIS/computer modelling, GPR, electronic survey and other field equipment and an enhanced photographic and digitising facility. With an annual equipment fund of c.£25,000 for Archaeology and our Museum, and additional annual discretionary funding from the University, there is a rolling programme of infrastructure renewal and expansion. We have two Archaeology technicians to service these facilities and support staff and PGR research. Facilities in other departments are deployed in new inter-disciplinary projects including Environmental Sciences high precision Mass Spectrometer and Protein characterisation equipment in Biological Sciences notably by **Pearson**.

ACE has its own **Garstang Museum of Archaeology**. This contains important collections from major research projects over a century of archaeological activity including primary archive material, as well as artefacts. Some of this material has provided key elements of PGR theses, especially those relating to ancient technology of the Mediterranean. The Garstang has recently undergone a £583k refurbishment to facilitate access to these research materials for Liverpool staff, PGRs and those from external institutions, with dedicated study areas. We created and filled three new posts, a dedicated Curator and two PGR curatorial assistants partly to provide research support in use of the museum by ourselves and other researchers. A current large scale photographic documentation of the collections will be invaluable for international researchers. Heritage Lottery Funding allowed creation of a digitisation suite, seeing on-going digitisation of Garstang's original slide collection which will become a unique online record of early archaeology in the eastern Mediterranean and the results of his excavations. As a consequence of the creation of the Institute of Archaeology in 1904, whose focus matches aspects of our current research groups today, we have enviable library resources through over a century of acquisition to support our strengths. This inheritance is enhanced by the major commitment of the University library to ongoing acquisitions in these areas, notably e-resources. The library has the second largest e- book holding in the Russell group and is one of only two UK libraries in an international consortium to provide rapid (electronically delivered) supply of journal articles ("Article reach").

e. Collaboration and contribution to the discipline or research base

Collaboration is fostered at a number of levels and enhances our research group and inter-disciplinary goals. Within the University, this collaboration allows the development of teams that can more effectively answer our key research questions, bring extra-departmental dimensions to the dynamism and vitality of our research groups, with our collaborators visiting the groups, and make the larger projects with which we are jointly engaged more manageable. Inter-disciplinary activity is developed partly through our contributions to the 'Living with Environmental Change' theme, in which **Baird** is coordinator of a component contributing to long term perspectives on environmental change. Combined with strategies developed in our research groups, the institutional research theme has helped generate and support collaborations between **Pearson** and Beynon in Biological Sciences, developing innovative ways of applying Proteomics to aid faunal identifications; **Grove** and Webster in Geography, developing new approaches to researching climate change and human speciation and diversification events; **Barham**, Plater, Lang in Geography and Marshall in Earth Sciences, working in Africa on environmental change and human settlement; **Asouti**, **Baird** with Chiverell in Geography, looking at transitional forager farmer landscape exploitation/impact in the Leverhulme funded *Unfamiliar Landscapes* project; **Barham** and **Gowlett** have a key collaboration with Fabienne Marret-Davies on palaeo-environmental change and hominin evolution in Kenya and Zambia which will yield important results in the next REF. The geomagnetism lab in Earth Sciences is a shared facility with ACE, used in Quaternary dating.

Outside Liverpool, important archaeological collaborations enable major projects including the work of **Gowlett** and Gamble (Southampton) and Wrangham (Harvard), Wiessner (Utah) on the Lucy project and **Grove** with Ariane Burke (Montréal) on hominin dispersal, to be published in 2014 as a special issue of the *Journal of Human Evolution*. **Grove** works with Henry Lamb (Aberystwyth), Chris Bronk Ramsey (Oxford), Melanie Leng (British Geological Survey), and Richard Bates (St Andrews) on the NERC funded *500,000-year environmental record from Chew Bahir*; **Baird's**

collaboration with Fairbairn (Queensland) led to large Australian Research Council grant on which Baird is Col, for the 'The first farmers in Anatolia project'. **Pearson** collaborates with Larson (Ohio State) and Meskell (Stanford) on study of Çatalhöyük human identities. **Asouti** collaborates closely with Fuller (London) on her early agriculture research. **Collier** collaborates closely with Quirke UCL on the Lahun papyri research. **Widell** works with Wilkinson (Durham) on the 'Modelling Mesopotamia' project (output 1), supplying text related insights key to the land use modelling. **Barham**, Maher (Lancaster), Duller (Aberystwyth) and Phillips (Edinburgh) apply new dating techniques to the African record (published *Journal of Human Evolution*) and he works with Max Planck (Leipzig) on the genetics of population interaction in Zambia (*American Journal of Physical Anthropology*). External interdisciplinary collaborations include **Baird's** work with Richards (Hull) on *Complete genome sequence of modern MtDNA and settlement of Eurasia* (Leverhulme) also addressing our theme of past human dispersals published in *American Journal of Genetics*. **Gowlett** and **Barham** work with Dunbar on the application of the Social Brain hypothesis, **Baird** with Whitehouse Oxford on early religions in the Neolithic. **Routledge's** projects operate with colleagues from Princeton and Stanford, funded by NSF and British Academy, underwriting the sustainability of these large projects.

We have presented 177 invited papers at international conferences in the UK and abroad in the REF period to disseminate our contributions. Several staff have been invited to give prestigious lectures in the USA and Australia (**Baird, Greaves, Pearson, Shaw**) e.g. Brisbane, Melbourne, Sydney, Baylor Texas, Stanford, New York, New Orleans, Brown University RI. We have given invited talks in many major European cities e.g. Alexandria, Ankara, Istanbul, Dublin, Vienna, Palermo, Paris, Berlin, Copenhagen, Uppsala and Tokyo. We have examined 55 PhDs at other UK institutions and eight at overseas institutions. We are regular reviewers for AHRC, NERC, British Academy, British Institute at Ankara, Council for British Research in the Levant, Egypt Exploration Society, Wellcome, and Leverhulme with four staff on the AHRC peer review college and internationally Australian Research Council, Austrian Academy of Sciences, DFG Germany, Israel Science Foundation, Research Promotion Foundation of Cyprus, The French National Research Agency, Fonds de la Recherche Scientifique Belgium, Government of Ireland Postdoctoral Fellowship Programme, NSF and NEH in USA, Social Sciences and Humanities Research Council of Canada and Wenner Gren. Our staff have reviewed for 35 major archaeology and ancient languages journals key to our research areas. Exemplifying our support for the areas of the discipline pertinent to our research groups, our staff comprise the editorial board of the *Journal of Egyptian Archaeology*, **Collier** and then **Enmarch** have been Chief Editor. **Barham** is Editor *Before Farming*, **Routledge** Editor *Levant* until 2011. Our staff are on the editorial boards of 17 key journals for our disciplines.

2008-2013 staff have been members of the management committees of a number of the British Academy's Schools and Institutes Abroad and other key bodies helping to guide research policy in some of our key areas of operation: British Institute at Ankara (**Baird** and **Pearson**), Council for British Research in the Levant (**Asouti** and **Routledge**) British Institute in East Africa (**Barham**), Egypt Exploration Society (**Eyre, Shaw**), Council of The Prehistoric Society (**Garrow, Pope**), American Schools of Oriental Research (**Routledge**), Council for Scientific and Industrial Research South Africa (**Barham**). In the first part of the period **Eyre** was the Elected President of the International Association of Egyptologists. **Gowlett** is Vice-President, Section H, British Association for the Advancement of Science.

We organised a series of important conferences 2008-13, including primary venues in the UK for our sub-elements of the discipline, including British Association of Near Eastern Archaeology 2008, the British Egyptology Conference in association with the Egypt Exploration Society, TAG 2012, revived the Conference on Hunting and Gathering Societies (CHAGS) in 2013 – last held in 2002, supported by Wenner-Gren and NSF. The CHAGS conference was attended by delegates representing 25 countries and led to the formation of a society (International Society for Hunter-gatherer Research) with its own journal and a biennial conference schedule (after a lapse of 11 years). Other major events included an International Workshop 'Working with Limited Data' the grammar of Old and Middle Egyptian, Brown University, April 2013; Ceramics on the Edge, Medieval Pottery Research Group annual conference, June 2012. These will be followed by Society for Post-Medieval Archaeology, Archaeologies of War 1618-1918, to be held in 2014.