Institution: University of Liverpool

Unit of Assessment: 17B - Archaeology

Title of case study: Stepping stones to the Neolithic. Islands, maritime connectivity and the 'western seaways' of Britain, 5000-3500 BC

1. Summary of the impact

Garrow's *Stepping Stones* project is investigating the spread of the Neolithic via the islands of the 'western seaways', including Guernsey, Scilly Isles and South Uist. This research, which is ongoing, has already had direct impact on:

1. Museums on those islands, where a series of exhibitions and open days relating to the project have increased public interest in the museums and provided increased knowledge of collections to the curators;
2. Schools and teachers who have benefitted from the creation of completely new resources supporting prehistory teaching, a previously neglected area;
3. The general public, increasing knowledge of the significance of local heritage and prehistory; and
4. Public policy makers, informing historic environment management plans and coastal heritage development and protection planning and policies.

2. Underpinning research

The *Stepping Stones* project was a collaboration between Liverpool and Southampton led by Garrow (employed Liverpool until September 2013) and Sturt (Southampton). It is investigating the Mesolithic-Neolithic transition on the islands around the southern, western and northern coasts of Britain in order to understand the maritime spread of the Neolithic and the role of seafaring in this process. The project results are feeding into a broader body of research concerned with connections between Britain and continental Europe in prehistory. The project has been running since 2008 and will last until 2014. Garrow and Sturt have been lecturers at Liverpool and Southampton respectively over the whole duration of this project in the REF impact census period.

The project has excavated 3 Neolithic sites on Guernsey, Scilly Isles and South Uist. The results from those excavations are being combined with a database of all known Mesolithic and Neolithic activity within the western seaways zone. A major programme of C14 dating is underway to date the arrival of the Neolithic in those areas. A new programme of oceanographic modelling has established the locations of 5th and 4th millennia coastlines and provides a better understanding of the nature of sea-faring at those periods as well as a broader reconstruction of coastlines from 11000 BP to the present.

Garrow and Sturt directed excavation of a 5th millennium BC settlement site at L'Eree, Guernsey, 2008-2011. Post-excavation analysis of the site is now close to completion. This project revealed only the second extensively excavated Neolithic settlement site in the Channel Islands. It provided new evidence for the arrival of the Neolithic in Guernsey, and several suitable samples for radiocarbon dating (to help establish when this occurred). Excavation of an early 4th to 3rd millennium BC settlement site in South Uist, Outer Hebrides (June-July 2012) was also undertaken by Garrow and Sturt. Post-excavation analysis of the site occurred over the year following. This project revealed an important Neolithic settlement site, adding to the previous scant evidence and retrieved samples for radiocarbon dating (to help establish when the Neolithic arrived in this region).

To date research findings include the production of new sea level models for the UK. Incorporating new data from across the earth and ocean sciences, these represent by far the highest resolution models produced until now. Importantly, they reveal the character of the sea around Britain and Ireland (especially within the island groups which form the focus of the *Stepping Stones* project) during the 5th and 4th millennia, enabling new understanding of the conditions under which the Mesolithic-Neolithic transition occurred in this key zone. A paper is now published on this aspect of

the project (open access), and the sea level modelling results have been made freely available via the project website and via the Archaeology Data Service; they are also visible as .kmz files which can be viewed via Google Earth.

3. References to the research

Sturt, F., Garrow, D. & Bradley, S. 2013. New models of North West European Holocene palaeogeography and inundation. *Journal of Archaeological Science.* *http://dx.doi.org/10.1016/j.jas.2013.05.023*

Garrow, D. & Sturt, F. in press. The Mesolithic-Neolithic transition in the Channel Islands: maritime and terrrestrial perspectives. In T. Darvill & A. Sheridan (eds) *Hands across the water: the archaeology of the cross-channel Neolithic*. London: British Academy. [Submitted October 2012, due out 2014]

Garrow, D. & Sturt, F. 2011. Grey waters bright with Neolithic argonauts? Maritime connections and the Mesolithic-Neolithic transition within the 'western seaways' of Britain, c. 5000-3500 BC. *Antiquity* 85, 59-72.

The primary project grant from the AHRC was awarded to Duncan Garrow (at Liverpool): Stepping stones to the Neolithic Islands, maritime connectivity and the 'western seaways' of Britain, 5000-3500 BC. This grant runs from June 2011 to September 2014. The total value is £199,938 (FEC).

4. Details of the impact

The beneficiaries of *Stepping Stones* are 1) local museums on/concerned with the islands where the excavations occur, 2) the general public, 3) UK schools and teachers, 4) government/public sector policy makers. 1-3 have developed impact as of the end July census date. 4 has had initial impact with more substantive impacts planned to occur following the census date.

Context: English Heritage's *Research Strategy for Prehistory* states that "prehistory is poorly understood among the British public in comparison to other historical periods", highlighting the All-Party Parliamentary Archaeology Group's 2003 report which severely criticised the "neglect" of prehistory within the UK's school curricula. In response to these issues, EH's strategy highlights the need for "displays, web resources, community projects and other outreach initiatives to do with prehistory ... in order to engage new audiences and provide teachers with what they need". The first three pathways to impact have provided a set of resources which have benefitted the museums, schools and the wider public in exactly these ways, with impact continuing well beyond the REF impact census date.

The strategy for project impact involves 4 distinct pathways aimed at these beneficiaries.

1. New museum displays.
2. Public participation in excavations and media attention to them.
3. Innovative web-based learning resources aimed primarily at school children.
4. Creation of new knowledge to inform government/public sector policy.

1. The local museums with which this project works include the Museum nan Eilean [Museum of the Western Isles], the Isles of Scilly Museum, and Guernsey Museums and Galleries. Each has hosted a locally relevant 'western seaways' exhibition of the *Stepping Stones* project's work and results, set in a broader context. These displays were largely designed and delivered by the *Stepping Stones* team, who enhanced the prehistory content of these museums significantly as a result. The Museum nan Eilean exhibition was held at the Sgoil Lionacleit, Benbecula site from 1st June – 30th August 2012. The Guernsey Museum display, from 27th August – 17th September 2011, had 2,639 visitors in August and 1,626 in September 2011 indicating how the active projects associated with these exhibitions stimulated an interest in the islands' heritage and museums. These are two-part displays, one detailing the broader project and major issues involved in the research, the other focusing directly on each specific island group. The project also includes the analysis and publication of artefact collections previously recovered from each site; this has added considerably to curatorial expertise on existing museum resources. The museum curators attest to the way in which the displays, in drawing on a 'live' excavation and current research project,brought a fresh, contemporary feel to each museum and significantly enhanced their

resources for reaching the public. The museums have also acknowledged the substantive development of the knowledge base that underpins their collections/records.

2. The project's most immediate impact has occurred during the course of excavations, which has involved a broad cross-section of the local community. There have also been 5 general talks for the public in other parts of the UK. For each site, there has been an Open Day and public lecture. At L'Eree, 11th September 2011, 180 people visited, including 20 members of Junior Société Guernesiaise. On 14th July 2012 an Open Day on site at An Doirlinn was attended by 60 people. The museum talks in relation to these seasons had audiences of c. 90.In hosting these events, the project engages the general public in aspects of their island's cultural heritage, so contributing to their knowledge and quality of life. Members of local amateur archaeology societies have been invited to take part in the excavations, providing them with an opportunity to develop archaeological skills and experience, and to share their ideas and expertise with the project. Feedback, in the form of questionnaire responses from the talks and Open Days, has been good. In 26 questionnaires collected from the public on Uist in 2012, over 70% indicated that their knowledge of regional prehistory, of the appearance of the Neolithic, and of prehistory in general was transformed by the Open Day and briefing events. Media interest has also been strong, providing a further channel for dissemination and impact. Media reports include:

TV and Radio:
Wednesday 31st August 2011– 3 minute appearance on the Jim Cathcart morning show, BBC Radio Guernsey. 22,000 listeners per week.
26th September 2011 4.20 pm - BBC Radio Solent.
Tuesday 10th July 2012, 8pm – 2 min report (with interview) on our excavations at An Doirlinn on BBC Alba TV news (the BBC's Gaelic channel average audience of 50,000)
Monday 16th July 2012 - 2 min TV report on the 'Frankenstein mummies from Cladh Hallan' also included a piece on our excavations at An Doirlinn and an interview with Fraser Sturt on STV
News articles:
Saturday 3rd September 2011 – half-page article in *The Guernsey Press*. *The Guernsey Press* has a daily circulation of more than 16,000, and is read by some 38,000 people every day, more than 80% of the island's adult population.
23 September 2011 – Article about the project as whole in *The Independent*
24th September 2011 *Financial Times*, general article.
Thursday 19th July 2012 – half-page article summarising the results of the project in the *Stornoway Gazette* (weekly circulation of *c* 11,000)
February, April and August 2012 *Island News & Advertiser* (monthly paper for Harris and the Uists) articles.

The reach of the public engagement aspect of the project through its web and social media presence and responses to blogs is fast growing. To date there have been 3,260 hits/views of the project Youtube video and blogs about the project. There are 4,303 Twitter and Facebook followers/subscribers of project related accounts/blogs. There have been 207 likes/recommendations on Facebook and other related media.

3. The project has allocated a significant tranche of its resources towards the construction of an innovative set of educational web-based resources. These are open-access and fully sustainable after the end of the project. Importantly, since the project deals not just with archaeology (in a narrow sense) but with subjects such as migration and climate change, these will be of continuing relevance right across the school curriculum and beyond.

Each of the three content areas have drawn directly on the project's findings; there is a direct and meaningful relationship between the products of the academic research and the public impacts. This includes considerable use of the comprehensive application programmer's interface (API) available within Google Earth. Google Earth is an extremely popular and easy to use application which is also available as a 'plugin' enabling the program to be incorporated into a webpage.

The 3 elements include A) A project website acting as a central hub from which users are directed

to all of the resources available. In addition to the introductory front page, this has island- and site-specific pages, providing information about the excavations (including videos, captioned photos of key features, etc.), details of other sites nearby (drawn from the project database), announcements about Open Days and public lectures. Also analysed is the number of hits on each of the webpages to determine the popularity of the constituent parts of the site.

B) A 'western seaways' navigation game in development. Users choose (a) departure and arrival locations, (b) the type of prehistoric boat they want to travel in, and (c) the season; they will then be able to see if they end up in the right place, and how long it takes to get there. The palaeo-oceanographic models produced as a result of the research are combined with these input parameters to generate a Google Earth 'tour'. The tour will then be imported into the Google Earth plugin in the website and displayed as a 3D journey. This will give children (and others) a fun angle on prehistoric seafaring, making them aware of genuine past maritime networks.

C) A set of chronologically animated Google Earth overlays, enabling users to visualise changing sea levels in the past, and to locate specific Mesolithic/Neolithic sites (and even their own houses) in relation to these. A number of overlays are already available which help users to appreciate how sea level change will affect the planet in future. Outputs from the research were used to generate the overlay frames at given moments in time. In focusing on change in the prehistoric past, the model provides an important deep-time context for modern and future environmental change. Together, these outputs represent an exciting and significant set of new educational web resources, focusing on the prehistoric past. In order to maximise their impact potential, they are advertised via links on other relevant websites. Our project partners also link to their own webpages. Again, the structure of this element is tiered, with the local scale of each island group being made clearly relevant to bigger issues (e.g. sea level change over time). These provide schools with a new teaching resource.

4. Impact on Government/Public sector policy is a significant goal and this has commenced although this area requires most development. The project is working with local and national bodies such as English Heritage to inform their coastal heritage development and protection planning and policies. In particular, the project has provided time series environmental data which can be used by a range of different researchers and government bodies (climate scientists, English Heritage, Historic Scotland, local authority coastal planners, etc.). Data collected on the nature of beach profiles, rates of sedimentation and erosion, along with changing sea-levels/hydrological conditions, can all be used to inform coastal management plans, heritage management strategies, sea-level and climate modelling initiatives.

The initial instances of this impact on public policy are documented in 1) the *Isles of Scilly Historic Environment Research Framework Resource Assessment and Research Agenda*, where Garrow advised on sections relating to the Neolithic and Early Bronze Age and related research agenda items. In particular this contributed to Research Agenda items 3, 5, 8, 14-16, 18-20, 20, 27, 30, 45 and 46. 2) The second instance is a contribution to the States of Guernsey Environment Department, charged with maintaining the island's coastal defences, where evidence relating to the specific impact of local sea level changes was utilised.

5. Sources to corroborate the impact

1. *Isles of Scilly Historic Environment Research Framework. Resource Assessment and Research Agenda* exemplifies the contribution of Garrow's research to heritage management assessment and planning. The Senior Archaeologist, Cornwall Council, in a letter provided corroborates the project's impact on their Historic Environment resource assessment and creation of a research agenda.
2. Museums Development Officer, Museum nan Eilean, Benbecula has provided a statement to corroborate the impact on the public and museums in the Outer Hebrides.
3. States Archaeologist, Guernsey Museums and Galleries, has provided a letter corroborating the impact on the public, museums and heritage and coastal management on Guernsey.
4. Feedback forms from the public lecture in Uist and feedback forms from the site open day in Uist indicate the transformational effect on local community's understandings of prehistory.