

Discoveries provide evidence of a celestial procession at Stonehenge

Posted on Saturday 26th November 2011

Archaeologists led by the University of Birmingham with the Ludwig Boltzmann Institute for Archaeological Prospection have discovered evidence of two huge pits positioned on celestial alignment at Stonehenge. Shedding new light on the significant association of the monument with the sun, these pits may have contained tall stones, wooden posts or even fires to mark its rising and setting and could have defined a processional route used by agriculturalists to celebrate the passage of the sun across the sky at the summer solstice.



Aerial view of the Stonehenge site

Positioned within the Cursus pathway, the pits are on alignment towards midsummer sunrise and sunset when viewed from the Heel Stone, the enigmatic stone standing just outside the entrance to Stonehenge. For the first time, this discovery may directly link the rituals and celestial phenomena at Stonehenge to activities within the Cursus.

The international archaeological survey team, led by the University of Birmingham's IBM Visual and Spatial Technology Centre (VISTA), with the Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology in Vienna (LBI ArchPro) have also discovered a previously unknown gap in the middle of the northern side of the Cursus, which may have provided the main entrance and exit point for processions that took place within the pathway. Stretching from west to east, the Cursus is an immense linear enclosure, 100 metres wide and two and a half kilometres across, north of Stonehenge.

Professor Vince Gaffney, archaeologist and project leader from the IBM Visual and Spatial Technology Centre at the University of Birmingham, explains:

"This is the first time we have seen anything quite like this at Stonehenge and it provides a more sophisticated insight into how rituals may have taken place within the Cursus and the wider landscape. These exciting finds indicate that even though Stonehenge was ultimately the most important monument in the landscape, it may at times not have been the only, or most important, ritual focus and the area of Stonehenge may have become significant as a sacred site at a much earlier date."

"Other activities were carried out at other ceremonial sites only a short distance away. The results from this new survey help us to appreciate just how complex these activities were and how intimate these societies were with the natural world. The perimeter of the Cursus may well have defined a route guiding ceremonial processions which took place on the longest day of the year."

Archaeologists have understood for a long time that Stonehenge was designed to mark astronomical events, built by farming societies whose everyday concerns with growing crops linked their daily lives to the passage of the seasons and in particular the sun, on which their livelihoods depended. This new evidence raises exciting questions about how complex rituals within the Stonehenge landscape were conducted and how processions along or around the Cursus were organised at the time Stonehenge was in use.

Professor Gaffney adds:

"It now seems likely that other ceremonial monuments in the surrounding landscape were directly articulated with rituals at Stonehenge. It is possible that processions within the Cursus moved from the eastern pit at sunrise, continuing eastwards along the Cursus and, following the path of the sun overhead, and perhaps back to the west, reaching the western pit at sunset to mark the longest day of the year. Observers of the ceremony would have been positioned at the Heel Stone, of which the two pits are aligned."

Dr Henry Chapman, Senior Lecturer in Archaeology and Visualisation observes:

"If you measure the walking distance between the two pits, the procession would reach exactly half-way at midday, when the sun would be directly on top of Stonehenge. This is more than just a coincidence, indicating that the exact length of the Cursus and the positioning of the pits are of significance."

Stonehenge, while certainly the most important monument in the later Neolithic and Bronze Age landscape, was surrounded by a dense concentration of other sacred sites, some of which were already ancient when Stonehenge itself was built. The team has also revealed a new horseshoe arrangement of large pits north-east of Stonehenge which may have also contained posts and, together with the henge-like monument discovered last year and a number of other small monuments, may have functioned as minor shrines, perhaps serving specific communities visiting the ceremonial centre.

Paul Garwood, Lecturer in Prehistory at the University of Birmingham, comments:

"Our knowledge of the ancient landscapes that once existed around Stonehenge is growing dramatically as we examine the new geophysical survey results. We can see in rich detail not only new monuments, but entire landscapes of past human activity, over thousands of years, preserved in sub-surface features such as pits and ditches. This project is establishing a completely new framework for studying the Stonehenge landscape."

These new discoveries have come to light as part of the Stonehenge Hidden Landscape Project, which began in summer 2010 as the world's biggest-ever virtual excavation using the latest geophysical imaging techniques to reveal and visually recreate the extraordinary prehistoric landscape surrounding Stonehenge.

Professor Wolfgang Neubauer, Director of the Ludwig Boltzmann Institute, adds:

"The LBI provides the best academics, technicians and young researchers in a team of 20 people and uses multiple systems designed for use on projects where the scale of work was previously unachievable. The use of non-invasive technologies provides information for virtual archaeologies that can be disseminated to the public via the web, iPad or mobile phone."

Dr Christopher Gaffney, lecturer in Archaeological Geophysics at the University of Bradford, concludes:

"Building on our work from last year we have added even more techniques and instruments to study this remarkable landscape. It is clear that one technique is not adequate to study the complexity of the monuments and landscape surrounding our most important archaeological monument and the battery of techniques used here has significantly increased the certainty of our interpretation."

Professor Vince Gaffney explains further in his [podflash \(MP3 - 10MB\)](#). ([Audio/news/Vince-Gaffney-podflash.mp3](#))

Notes to editors

1. The new discoveries were made as part of the Stonehenge Hidden Landscapes Project, a study which is using multiple geophysical imaging techniques to visually recreate the iconic prehistoric monument and its surroundings. To do this it has brought together the most sophisticated geophysics team ever to be engaged in a single archaeological project in Britain, working alongside specialists in British prehistory and landscape archaeology.

2. The project is led by the University of Birmingham's IBM Visual and Spatial Technology Centre (VISTA) (http://www.vista.bham.ac.uk/iaa_VISTA_SPLASH.htm) and the Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology in Vienna. British partners are Birmingham, the Division of Archaeological, Geographical and Environmental Sciences at the University of Bradford, and the Department of Earth Science at the University of St Andrews. European partners include Austria, Germany, Norway and Sweden.

3. The project is supported by the landowner, the National Trust, and assisted by English Heritage.

4. The IBM Visual and Spatial Technology Centre (VISTA) is a division of the Institute for Archaeology and Antiquity at the University of Birmingham. VISTA supports academic research and application development for spatial analysis, visualisation and imaging using state-of-the-art technology in one of the best-equipped archaeological visualisation laboratories in Europe. VISTA is involved in projects across the world and staff use the unparalleled opportunities provided for VISTA for research, postgraduate and professional training in archaeology, the humanities and associated sciences. Its director is Professor Vince Gaffney.

5. The Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology (www.archpro.lbg.ac.at (<http://www.archpro.lbg.ac.at/>)) is a research institute of the Ludwig Boltzmann Gesellschaft (www.lbg.ac.at (<http://www.lbg.ac.at/>)) and was founded in 2010. The institute carries out its research activities together with several international partner organisations and aims to create a network of archaeological scientists supporting interdisciplinary research programmes for the development of large scale, efficient, non-invasive technologies for the discovery, documentation, visualisation and interpretation of Europe's archaeological heritage. The lead partners of the institute based in Vienna, are the University of Vienna (A), the Vienna University of Technology (A), the Austrian Central Institute for Meteorology and Geodynamics (A), the Province of Lower Austria (A), Airborne Technologies (A), RGZM-Roman-Germanic Central Museum Mainz (D), RAÄ-Swedish National Heritage Board (S); IBM VISTA-University of Birmingham (GB) and NIKU-Norwegian Institute for Cultural Heritage Research (N). Its director is Professor Wolfgang Neubauer.

6. The Division of Archaeological, Geographical and Environmental Sciences at the University of Bradford uniquely integrates archaeological sciences, geography, environmental sciences, biological anthropology and forensic sciences in a single profoundly multidisciplinary department bridging the sciences and humanities.

For more information

Please contact Amy Cory, University of Birmingham Press Office, tel: 0121 414 6029 / 07789 921163 / 07789 921164 or a.cory@bham.ac.uk (<mailto:a.cory@bham.ac.uk>)

[Privacy](#) | [Legal](#) | [Cookies and cookie policy](#) | [Accessibility](#) | [Site map](#) | [Website feedback](#) | [Charitable information](#)

© University of Birmingham 2015

