

## A Brief history of the PARIS conferences

Towards the end of the twentieth century it was becoming increasingly clear that the response to construction and other adverse impacts on the historic environment was no longer sustainable. Up to that time investigation of sites that would be damaged or destroyed by new buildings and infrastructure were a matter for agreement between the archaeological community and the company carrying out the work.

In Europe, in response to the Valetta Treaty (European Convention on the Protection of the Archaeological Heritage) many countries were implementing laws and policies designed to mitigate the impact of development and other land uses on buried archaeological sites. However, in many countries, archaeologists, conservators and scientists recognised that significant archaeological evidence was being degraded by changes to changes to the ground environment caused by human activity such as land drainage, changing agricultural methods, pollution, and construction and infrastructure improvements. Climate and other natural changes were also seen as a risk to the survival of the evidence that enables the past to be better understood.

The pressure to provide land for industry and housing was increasing across Europe and particularly in historic cities. In England the crunch came in 1989 when the remains of the Elizabethan Rose Theatre were discovered towards the end of a pre-development excavation. The ensuing pressure from leading members of the theatrical profession, historians of the period and the general public for the site to be preserved resulted in the government having to meet the costs of redesigning the planned building and to pay for the costs of preserving and protecting the site. The £5 million cost of the changes to the design was carried by the Government who insisted that there should be a continuous check to ensure that the site maintained suitable conditions to ensure the survival of the buried evidence. The Theatre site became the first to be monitored in this manner and it continues to this day. The response of the Government to this was to bring forward a planning policy guidance that required developers to commission archaeological assessments of sites and, if significant archaeological evidence was present either to mitigate the impact of the development on to enable full excavation when mitigation was not feasible. Other countries introduced similar laws or guidance that required developers to pay for assessments of the archaeological significance of their sites, and to enable proper excavation where the impact of the ground disturbance could not be mitigated.

Concerned that the Rose Theatre was being used as an exemplar for reburial and monitoring and that the site was not typical of sites elsewhere, a number of research projects were promoted to improve understanding of the relationship between hydrology, soil science and survival of archaeological evidence; another project brought together data relating to the physical impacts of construction.

Simultaneously researchers in other countries were developing monitoring protocols at sites such as Nydam in Denmark and in the Netherlands. The results of these investigations were presented and published at a variety of conferences, but it was

increasingly apparent that the issues were complex and that a dialogue was needed between the wider scientific community and archaeological scientists so that both could be more focussed in their research programmes.

The first PARIS conference was held in London in 1996, supported by English Heritage and the Museum of London Archaeological Services (MoLAS). The proceedings were primarily a dialogue between engineers, scientists and archaeologists and predominantly focussed on the nature of the ground environment and the technical and scientific impacts on buried archaeological remains. The papers were almost all concerned with wetland and other saturated sites extending from land sites to the intertidal zone to underwater sites and shipwreck with papers on engineering and geotechnical issues, groundwater modelling and monitoring and the physical nature of the burial environment, its chemistry and biology and the geochemistry of groundwater. There was a strong feeling of common purpose among the delegates and the conference concluded with declarations of the value of the event, hope that there would be more research and that it would be repeated.

The second conference was duly held in 2001, again in London and again sponsored by English Heritage and MoLAS. This time the conference was structured to cover three main themes: recent research; decisions, case studies and monitoring regimes; and issues in preservation and conservation strategy. The delegates at the first conference were predominantly from the UK but the second attracted a wider range of contributions from Europe and elsewhere. The overall focus remained on wetland sites but new challenges and new foci added to the range of the conference. New tools for assessing sites condition using archaeological evidence included plant and insect remains, bone, artefacts and wood; a model for assessing the diagenetic changes in situ was proposed. Physical threats were covered in two papers that considered the problems of imposed sediment stress – one included the entertaining use of rice grains as a proxy for soil under compression. The range of case studies was broader than at the first conference as archaeologists and scientists found a new platform for presenting their research to an audience with common interests.

For the third conference PARIS was hosted by the Free University of Amsterdam in 2006 with the proceedings published as an issue of *Geoarchaeological and Biological Studies*. The conference themes were degradation processes; site preservation; preservation in context; and ended with an overview of two decades of PARIS. There was a shift of paper authorship towards archaeologists, conservators and archaeological scientists who in the first session covered subjects ranging from taphonomy of plants and insects, degradation of lignocelluloses to an examination of the effect of degradation of bone on DNA amplification. On a wider scale carbon cycle modelling was used to predict the decay of organic material. An estimation was made of the loss of artefacts using as evidence a major report on site loss or damage in England, and, new to PARIS, the results of monitoring woodborer attack at shipwreck sites. The final paper in this section was concerned with the impact of driven piles on archaeological deposits. Site preservation papers included the

introduction of more sophisticated and focussed strategies for monitoring, methods for monitoring unsaturated sites in woodlands, assessing the leaching from concrete piles and rewatering desiccated sites. As in previous conferences the geographical spread of papers was mostly North European but with welcome additions from Egypt which described the challenges of preserving exposed mud brick and from Israel where the paper concerned the degradation of rock art at Timna. Preservation in context included papers that considered the impacts of climate changes and water management, putting monitoring results into the wider context of landscape management, issues on in situ preservation and urban stratigraphy, preserving submerged prehistoric settlements, relocating and reburial of shipwrecks and artefacts made necessary by the regeneration a port, and the impact of earthquakes. The conference concluded with a paper that reviewed the impact of PARIS type policies and the different approaches of various states of Europe and North America; a project to investigate the relationship between biotopes and human activity was described as were the challenges of preserving shipwrecks in north west Europe; the possibility of flexible approaches by developers and archaeologists to achieve in situ preservation; and finally the decision processes following the unexpected discovery of a Bronze Age boat.

The last PARIS conference was held in Copenhagen in 2011. It was hosted by the National Museum of Denmark and supported by national agencies. The proceedings have been published in *Conservation and Management of Archaeological Sites*. Climate warming which in time is likely to be one of the principal drivers of degradation of archaeological evidence came onto the agenda at this conference with two papers that addressed different aspects. One of the papers was concerned with the preservation of a permanently frozen kitchen midden in Greenland and will hopefully begin a dialogue about the problems posed by sites that have been under permafrost; the second paper reported an assessment of the evidence for wood borer colonisation in Baltic Sea; previously these had been inhibited by the low salinity of the sea, and threaten the high quality of preservation of the many shipwrecks. The research done in this project may help similar inland seas that are primarily fed by river outflows. In a similar vein a paper considered the implications for the carbon footprinting when wetlands are dried.

Preservation of maritime sites also featured high in the programme. Progress of the multidisciplinary RAAR (Reburial and Analysis of Archaeological Remains) project which was introduced in PARIS 3 and which is concerned with the relocation of the prolific finds and shipwrecks in Marstrand Harbour. This project is making a significant contribution to understanding deterioration processes and rates and the durability of packing and marking materials underwater. The difficulties experienced in working in the dynamic environment of the Western Australian coast where research was described to devise methods to protect a copper clad wooden shipwreck. In addition to shipwrecks there are also considerable remains of buildings and monuments that have been inundated by sea level changes and we heard two

papers, one concerning the control of biofouling of stonework and reducing rates of corrosion of iron cannons off the coast of Italy. We were reminded that not everything found on the sea bed can be saved by a graphic set of images of the rapid destruction of a 17<sup>th</sup> century ship exposed by the movements of the sands of the North Sea's Dogger Bank.

Risks to waterlogged structures in non marine sites were covered by a report of investigations into risks to the world heritage listed piled dwellings of Bodensee and Lake Zurich. The construction of lakeside harbours and the consequential increase in boat traffic and other water based recreation has endangered the stability of the sites by eroding sediments [and no doubt increasing oxygenation] and the paper reported efforts to develop physical protection and management to protect the sites and to educate water users. We look forward to hear more of these efforts at our forthcoming conference.

While field studies are essential to understand the manner in which the archaeological evidence is preserved in differing soil environments much can be learned from laboratory microcosms in which the variable parameters can be controlled and altered to assess the effect on test samples. Papers describing such experimental work have been reported at previous conferences and at this one bacterial degradation of wood and corrosion of ferrous metals were the subjects studied.

Physical impacts were described in two papers, one addressing the impact of building activities and piling and the compressive effects of the structure itself and how the soil chemistry can change because oxygenated rainwater is less able to penetrate the compressed soil.

John Cole's archaeological research in the Somerset Levels did much to raise awareness of the rich heritage preserved in wetlands and of the threats to them from peat extraction and land drainage. His pioneering work has led to long term research in the Levels and elsewhere and is represented by numerous papers at Copenhagen, two specifically related to the Levels.

The most important legacy of the PARIS Conferences should be a greater identification of those places where the impacts of human activities can be mitigated, and conversely those where the ground conditions are so delicately balanced that any development would risk degradation or even destruction of valuable evidence of the past. It should also focus on global scale changes and to what extent the impacts of them on in situ evidence of the past can be mitigated. These solutions to human and natural threats to the remains of human development should be rigorously tested so that mitigation is not an excuse for doing nothing. These issues have been the subject of numerous PARIS papers reporting sites that have been investigated to assess the results of injudicious changes, or to use data to ring fence places where any change should be avoided. This perhaps should be the fundamental purpose of

PARIS, to exchange information and to identify research needed and to bring together like minded researches to form multidisciplinary and geographically diverse research programmes that deliver robust results that can be adapted to a wide range of circumstances. This has to some extent taken place: The RAAR project extends its research collaborators to six Swedish institutions with partners in Norway, Denmark and Australia; the European funded BACPOLES project is a partnership between ten institutions in seven countries and is concerned with bacterial degradation of wood; while the research into the erosion and protection of the Swiss and German lake dwellings is funded under the European Interreg IV programme.

For the forthcoming conference we will be keen to have papers that build on the scientific work of the previous ones, and particularly we would like to see the geographical spread of PARIS with more news of work in the Americas and Asia. An aspect of site preservation that could be explored might be the impact of mass tourism on fragile sites and particularly the risks imposed by large cruise ships sailing close to vulnerable underwater sites and the effect on land sites when their thousands of passengers are landed for a few hours of cultural enlightenment.