PUBLIC PRESENTATION OF A STONE AGE PHENOMENON IN SLOVAKIA

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Background and objectives

The great stone circle at Stonehenge, in southern England, is one of the most famous prehistoric monuments in the world. But thousands of years earlier, around 6800 years ago, prehistoric societies all over Central Europe started to create large timber circles enclosed by monumental circular ditch systems. These oldest known monumental structures in Europe have been revealed through aerial archaeology in Austria, the Czech Republic, Germany, Hungary, Poland and Slovakia. Today these uniquely monumental sites, on löess or sandy soils, are under massive threat of destruction, dramatically accelerated by the intensive agricultural use and industrial transformation of the modern landscape.

The Slovak part of the project, promoted by the Archeological Institute of the Slovak Academy of Sciences, takes as its focus these so-called circular enclosure systems in the south-western part of Slovakia, mainly in the region of Nitra, which is particularly rich in archaeological sites. Before aerial survey only two circular enclosures were known in Slovakia. Nowadays more then 50 are known, 25 of them in the region of Nitra.

The main objectives of the work are as follows.

- To use aerial survey and related methods of remote sensing, along with ground-based survey, to illustrate the known sites and to discover previously unrecognised examples.
- To present the monuments and their interpretation to the general public, using new technologies made possible by the Culture 2000 funding.
- To engage in discussion with Culture 2000 co-partners about the interpretation of the Slovakian evidence and the wider European phenomenon.
- To train young archaeologists in aerial survey and thereby contribute to the preservation of these remarkable features of the shared European cultural heritage.

Progress to the end of 2005

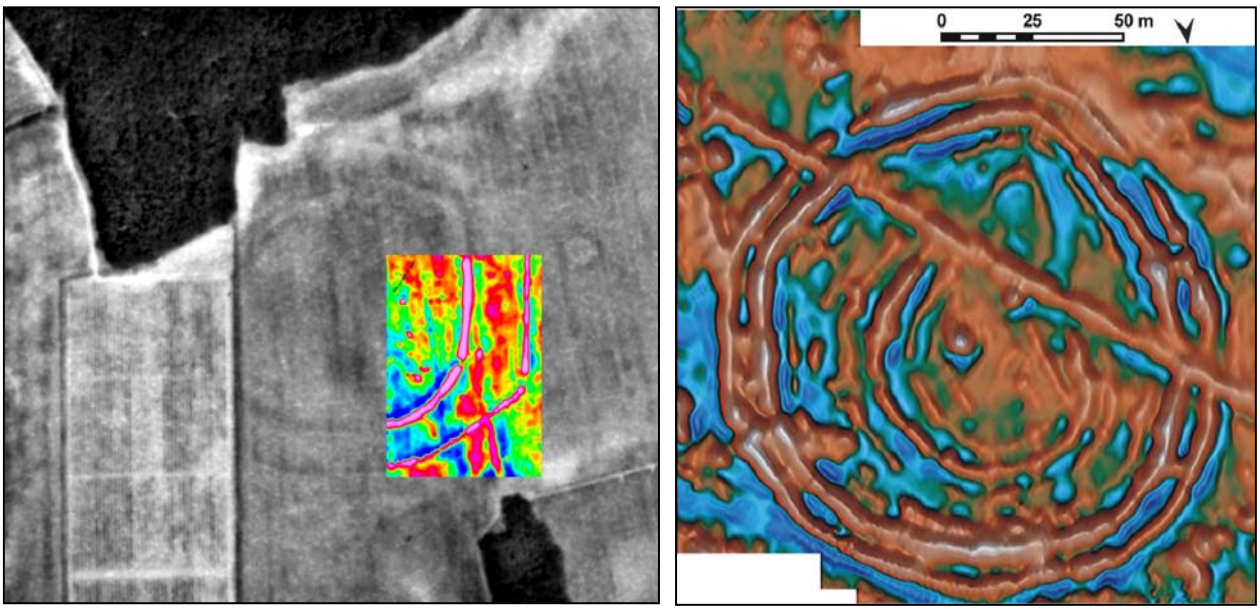
Aerial exploration in 2005 has revealed many new archaeological sites and the resulting data are being prepared for analysis and public presentation. Discussions have been held with specialists throughout Europe. Slovakian students and young research workers have taken part in various aspects of the project, including active aerial photography.

Aerial survey and related work

Aerial survey is one of the most effective methods of archaeological investigation. When combined with innovative technologies such as digital aerial photogrammetry and high-resolution magnetic prospection the technique becomes even more effective. During 2005 systematic aerial survey was undertaken in six flights over western Slovakia. Many known archaeological sites were photographed, along with 50 entirely new features, including four new circular enclosures. Fieldwalking and geophysical prospection on six circular enclosures, using a caesium magnetometer, produced excellent results in most cases. Cataloguing, indexing and archiving of the aerial photographs (taken in digital format in 2005) has been completed. Preparation of the air-photo database is in hand, along with the archaeological interpretation and mapping of selected sites.

In 2006 and 2007 the data from aerial reconnaissance, terrestrial survey and geophysical prospection, along with topographical and land registry information, will be entered into the Institute's GIS to facilitate the standardised mapping and interpretation of the various sources of information. The local environment of the circular monuments will then be examined

through the thematic layers of the GIS, focusing on the intra-site analysis of water supply, site characteristics, inter-visibility, settlement patterns, sustainability and agricultural potential.



Left: *Hosťovce. Vertical air photograph of two circular enclosures, 300m and 60m across, the larger with a plot of residual magnetic anomalies. The geophysical data adds detail not visible from the air.*
Right: *Žitavce. Geophysical measurement of one of the more complex of the circular enclosures.*

Public presentation

The work just described will be used to develop functional interpretation models, of which trial examples have already been created. Based on prospection and excavation data, standardised datasets will be used to create virtual reality models of selected sites. These will be produced at differing degrees of detail for use in virtual simulations and presentations to research workers, schoolchildren, young adults and the general public.

In 2006 it is planned to place on the Internet a home page for scientific and public access, including a virtual exhibition. The results will also be presented through the pan-European website of the Culture 2000 project as a whole. Broadcasting companies have been invited to document and popularise the project and to explain the place of these fascinating Stone Age monuments, both in Slovakia and in the broader European context.

During 2005 the Culture 2000 project leader, Dr Ivan Kuzma, contributed discussions of the circular enclosures and their interpretation, both regionally and as part of a pan-European phenomenon, to local and specialist journals in Slovakia, Poland and Germany. With Dr Jan Tirpák he also wrote on the subject of 'New Neolithic circular enclosures' in a special issue of *Contributions to Geophysics and Geodesy*, published in Bratislava, Slovakia, during 2005.

Meetings and specialist discussion

The function of the circular enclosures in Central Europe has been under discussion for over 20 years, as has their relationship with the later phenomenon of timber circles, henges and palisaded enclosures in Britain. Discussions have been held with specialists at various meetings associated with the Culture 2000 project, including the coordination meeting and Aerial Archaeology Research Group (AARG) conference at Munich in September 2004 and the Archaeological Prospection conference at Rome in September 2005. Attendance at the Culture 2000 and AARG meeting later the same month was prevented by travel problems.

ACROSS EUROPE: ASSOCIATED EVENTS AND NETWORKING

Associated events
In several cases members of the Culture 2000 team have acted as instigators and facilitators for events funded mainly or wholly from outside the Culture 2000 project. In addition to advice and experience the project has been able to offer small grants to students for attendance at such meetings. An example was an aerial archaeology workshop at the British School at Rome in November 2004, mainly funded by AARG, ACE and the British Academy. Students from the former Soviet states have been helped to attend Culture 2000 events in Helsinki, Germany and Lithuania. Through Culture 2000 contacts student grants have also been made available by the Aerial Archaeology Research Group (AARG).

Airborne laser scanning (lidar)
In addition to experiments by Culture 2000 co-partners in Germany and Italy the Culture 2000 project has been able, through small travel-grants to Dr Benoit Sittler of the University of Freiburg, to keep members in touch with wider development in the use of this revolutionary technique. Lidar allows precise three-dimensional models of the ground surface to be made for individual sites or wider heritage landscapes. The technique can even 'see through' trees to reveal otherwise hidden archaeological and historical features beneath.

Developments in the Baltic and Scandinavian States
The Culture 2000 Symposium at Helsinki in October 2004 prompted the formation of a regional sub-group of AARG (with Ars Baltica imprimature) to assist the development of aerial archaeology and landscape conservation around the Baltic Sea. In Finland aerial archaeology is now being considered for post-graduate studies and contacts have been made with pilots in aero clubs and in the space lab of the Helsinki University of Technology.

Aerial Archaeology Training School in Denmark
In recent decades air photography has been little used in Denmark, though its use showed great promise in the past. Through Culture 2000 events and with the help of Culture 2000 members, archaeologists in Denmark are now planning a self-financed training school in June or July 2007. Tutors from the Culture 2000 team will of course contribute to the event.

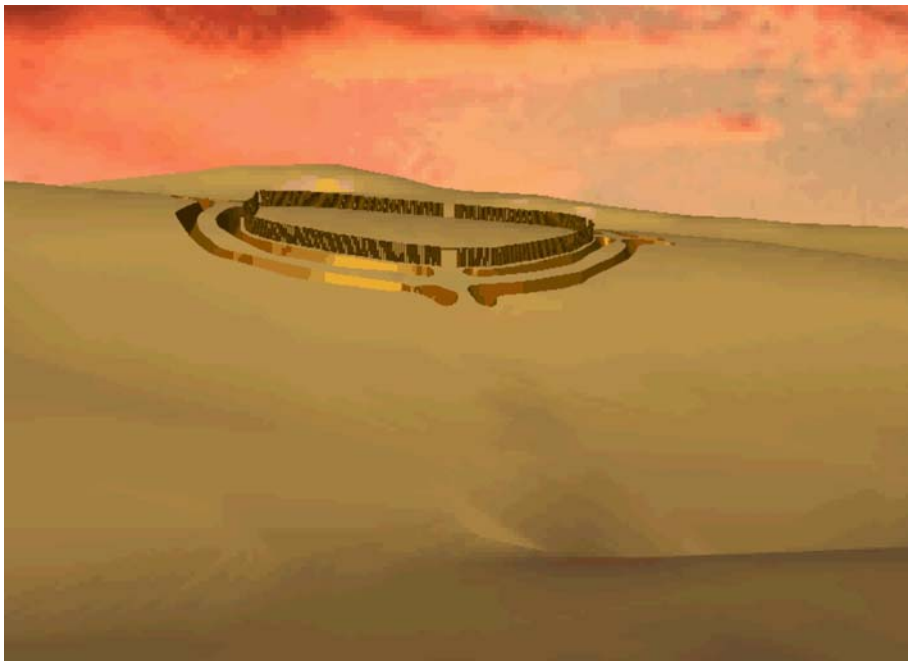
First contacts in the USA and Syria
Following contacts with AARG and the Culture 2000 team in 2004 and 2005 an archaeologist from the USA, already experimenting with aerial observation in America, will probably join the UK training school in July 2006. A Hungarian team-member made approaches to introduce the idea of archaeological air photography in Syria while on fieldwork there in Sept 2005.

Expanding the European network
Culture 2000 events have helped to boost membership of the Aerial Archaeology Research Group (AARG) from about 160 in 2003 to well over 200 at the end of 2005. The Group's meetings and twice-yearly newsletter *AARGnews* keep members of the 'European network' in touch with one another, and with latest developments in heritage-based 'aerial' studies.

aarg
Aerial Archaeology Research Group

The Culture 2000 project could not have been conceived or carried out without the unstinting assistance of the Aerial Archaeology Research Group and its members across Europe. By enhancing the Group's membership the Culture 2000 project will make a long-term contribution to skill-sharing in heritage studies and landscape conservation throughout Europe.

EUROPEAN LANDSCAPES: past present and future



Speculative reconstruction of one of the circular monuments discovered in recent years through aerial survey in Slovakia. Their impact on the people and landscapes of Europe nearly 7000 years ago, before the construction of Stonehenge in Britain, must have been immense (Appendix A, pages 34-35).