

## Foreword

„Surveying and Documentation of Historic Buildings, Monuments and Sites – Traditional and Modern Methods“ is the theme of the International Symposium organised by the International Committee for Architectural Photogrammetry (CIPA) in Potsdam, Germany (18<sup>th</sup> -21<sup>st</sup> September 2001). One of the most successful modern methods in archaeological prospection is the highly sensitive magnetometry. On the occasion of the conference in Potsdam ICOMOS is therefore introducing some examples of magnetic prospecting in archaeological sites, published in its series of “Monuments and Sites”. These are examples which have partly been taken from another publication of the German national committee of ICOMOS, the publication of the Third International Conference on Archaeological Prospection, organised by the Bavarian State Conservation Office and the European Geophysical Society (EGS) in co-operation with ICOMOS Germany, Munich 9-11 September 1999 (ICOMOS-Journals of the German National Committee XXXIII, Munich 1999).

The last years have seen tremendous technological progress in archaeological prospecting. New devices, geophysical methods and evaluation possibilities have rendered field work much faster and more sophisticated. New ways of presenting results to the public have also become available, among them modern computer software to demonstrate the whole wide range of research being done aided by field models and 3D animation, which make even tiniest traces visible.

Prospecting archaeological sites looks back on a proud tradition of more than 100 years. Air photography, geophysical methods and remote sensing have proven to be the most successful. Air photography has been employed widely in archaeology for quite some time. Magnetometry, first successfully applied by Martin Aitken in 1957, has established itself as the most effective geophysical method. Measuring methods have improved substantially since Irwin Scollar first introduced computers in field work and in the evaluation of measured data in the 1960s

and 1970s. Especially, the use of caesium magnetometers in archaeological prospecting has made great strides.

Fundamental research and development in different applications of caesium magnetometers was conducted by the Bavarian State Conservation Office, notably by Helmut Becker and Jörg Fassbinder who kept improving measuring procedures. Continuous study of the theoretical principles contributed enormously to the understanding of the methods. The examination of the magnetic properties of archaeological sites and the discovery of magnetic soil bacteria, in particular, drew world-wide attention and can be regarded as the essential pioneer work in magnetic prospecting. The first measuring car bearing a caesium magnetometer developed by the Bavarian State Conservation Office is now already on exhibition in the Bonn branch of the „Deutsches Museum für Forschung und Technik in Deutschland nach 1945“.

The development of accelerated data processing in the field opened new dimensions for its application. Today even quite large archaeological sites can be measured within a reasonable amount of time; for instance Cichai in Siberia, Troy, Hellenic Palmyra, the Ramsessidean city of Qantir in Egypt and the city of Gilgamesh, Uruk, in Iraq, where the geophysicists have worked to show how precise images of ancient settlement structures can be obtained. Moreover, successful prospecting forms an ideal basis for archaeological research, because it reduces to a minimum the time-consuming search for the important centres of excavations. Accurate maps permit exact calculation, pinpoint plotting of sections and sieving out areas in which important results may be anticipated.

Thus at the beginning of the 21<sup>st</sup> century, a time when so many archaeological sites all over the world are threatened with destruction, improved prospecting methods in conjunction with scientific scholarship offer archaeological conservation new perspectives.

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