Archaeology in the Age of the Internet

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Contents

Papers marked (ABSTRACT) are found in full on the accompanying CD-Rom.

Preface i

Introduction to CD-Rom i

Section 1: 25 Years of CAA
Twenty Five Years of Computer Applications in Archaeology S. Laflin 3
Twenty Five Years of Computer Applications to Archaeology Scollar, I. 5
Twenty Five Years of the CAA Conference Laffin, S. 11
Twenty Five Years of Archaeological Prospection A. Aspinall and J. Haigh 13
Data Into Information: Twenty Five Years of Data Collection and Curation J. Stewart 19

Plus Ça Change - Perceptions of Archaeological Statistics C. Orton 25

Twenty Five Years of Statistical and Other Techniques J.D. Wilcock 35

Archaeological Computing in Canada - the First (and Last) Twenty Five Years M. Tamplin 53

Section 2: Landscape Archaeology and GIS
How Archaeological Sites co-exist with Fast-paced, Intense Army Training Activities C.L. Huckerby and C.M. Poulsen 59

The Use of Monte-Carlo Techniques for the Estimation of Visibility K. Nackaerts, G. Govers, and L. Loots 63

Modelling Human Range Expansion Across a Heterogeneous Cost Surface C. Glass, J. Steele, and D. Wheatley 67

Deconstructing the Land: the Archaeology of Sacred Geographies C. Parcero-Oubiña 73

A GIS Study on the Spatial Development of Coastal Catalunya (ABSTRACT) F. Massagrande 81

Reconstructing Archaeology from the Landscape: GIS, CAD and The Roman Signal Station at Whitby (ABSTRACT) T. Bell 81

GIS in Palaeolithic Archaeology. A Case Study from the Southern Netherlands (ABSTRACT) H. Kamermans and E. Rensink 81

An Analysis of the Structure and Function of Prehistoric Maori Pa Sites (ABSTRACT) C. Reeler 81

Fuzzy Viewshed Analysis of the Hellenistic City Defence System at Sagalassos, Turkey (ABSTRACT) L. Loots, K. Nackaerts, and M. Waelkens 82

Modelling Prehistoric Land Use Distribution in the Rio Aguas Valley (SE Spain) (ABSTRACT) P. Verhagen, S. Gill, R. Micó, and R. Risch 82

Mapping the Fourth Dimension: the TimeMap Project (ABSTRACT) I. Johnson 82


GIS and Prehistoric Mammal Acquisition Patterns (ABSTRACT) C.L. Huckerby 82

Section 3: Numerical Methods
Coins, Copies and Kernels - a Note on the Potential of Kernel Density Estimates K. Lockyear 85
Time Series and Neural Networks in Archaeological Seriation. An example on early pottery from the Near East.
J.A. Barceló and J.M. Faura 91

Making Complex Radiocarbon Calibration Software More Accessible: a New Approach?
C. E. Buck and J. Andrés Christen 103

Testing Multivariate Normality, with Applications to Lead Isotope Data Analysis in Archaeology (ABSTRACT)
M.J. Baxter 107

Uses of Multivariate Kernel Density Estimates in Archaeology (ABSTRACT)
C. Beardah 107

Bayesian Seriation as a Tool in Archaeology (ABSTRACT)
U. Halekoh, U. and W. Vach 107

Some Aspects Of The Evolution Of The Gravettian Culture In The Eastern Balkans (ABSTRACT)
T. Tsonev 108

Neural Networks and Fuzzy Logic Analysis in Archaeology (ABSTRACT)
C. Reeler 108

Multivariate Statistic Analysis of the Relationship between Archaeological Sites and the Geographical Data of their Surroundings. A Quantitative Model (ABSTRACT)
J.A. Esquivel, J. A Peña, and M. Oliva Rodríguez-Ariza 108

Section 4: Database Developments

ImageFinder Cultura: An Image Database System for Classical Archaeology (ABSTRACT)
B. Kopf 111

Eques Data Management System (SGDE): a Research Tool for the Study of the Horse in the Iberian Iron Age (ABSTRACT)
F. Quesada Sanz, M. Gabaldón, and P.P. Herrero 111

Databases - Research Tools And Communication Aids (ABSTRACT)
H-D. Bader 111

Section 5: Vital Preservation of Great Information

Vital Preservation of Great Information: The Archaeology Data Service and Digital Archiving in Archaeology
A. Wise 115

Archiving Archaeological Data
H. Eiteljorg II 117

Digital Danish Archaeology. Gods and Graves - an Internet Publication on the Bronze Age
H.J. Hansen 121

Museums On-line: Access to Museum Information
D. Dawson 127

The Role of Data Standards in Digital Access and Interchange
G. Quine 129

The Importance of Metadata to Archaeology: One View from within the Archaeology Data Service
P. Miller 133

Digital Preservation in Archaeology
A. Wise and J. Richards 137

Section 6: Geophysics and Remote Sensing

The Use of Ground-Penetrating Radar on Small Prehistoric Sites in the Upper Midwestern United States
C.A. Dobbs, D.L. Maki, and D.M. Forsberg 145

GPR Analysis and Modeling with GIS Applications, Empúries, Spain
M.S. Watters 157

GPR Surveys in Three Estonian Medieval Towns (ABSTRACT)
R. Vissak 161

The Application of Geophysical Techniques at Wroxeter Roman City (ABSTRACT)
C.F. Gaffney and P.K. Linford 161

Digital Mapping and Remote Sensing at Merv (Digital Data Integration in a Field Context) (ABSTRACT)
G.L. Barrat, S. Bullas, and S. Doyle 161

Mud and Old Bullets: Geophysical and Behavioural Anomalies in Adverse Environmental and Climatic Conditions. A case study in the Use of Stratified Systematic Unaligned Sampling at Merv, Türkmenistan (ABSTRACT)
S. Bullas 161

Archaeological Prospection with GPR Approaches: Case Studies in Xian and Shangqiu, China (ABSTRACT)
L. Gao 162

Remote Sensing into the Study of Ancient Beiting City in North-Western China (ABSTRACT)
J. Liu 162

A PC-Based System for Computer Assisted Archaeological Interpretation of Aerial Photographs (ABSTRACT)
S. Redfern 162
Section 7: Museums, Education, and the Internet

The Virtual Museum - who needs it?  
S. Gordon 165

CIMEC - A Web Site for Romanian Archaeology: Dissemination by Integration  
L. Oberländer-Tarnoveanu 169

EARP – European Archaeological Research Projects. Fieldwork Opportunities Database on the Internet  
N. Negroni Catachico, M. Miari, B. Setti, G. Meloni, R. Ferrari, and E. Groppo 175

The Homer Project (ABSTRACT)  
P. Perkins 179

Digging the Web: German Archaeology on the Internet (ABSTRACT)  
A. Brunn 179

Section 8: Making History

Making History: the Once and Future Roles of the Royal Commissions  
J. Stewart 183

Understanding Englands Landscapes: An Aerial Survey Approach To A National Mapping Programme For England  
R.H. Bewley 185

The Use of Global Positioning System Technology to Record and Interpret Archaeological Sites and Landscapes  
H. Riley 189

Any Time, Any Place, Anywhere  
C. Watkins 195

Providing Access to the National Monuments Record of Scotland  
K.F. Byrne 201

New Developments at the RCAHMW  
L.P. Nikolic 205

Reaching the World  
R.J. Taylor 209

Making History: Copyright and Rights Management  
N. Beagrie 211

Section 9: The Strategic Management of Information Systems

B. Booth 217

Have we Failed to Provide a Strategic Vision for Information Systems in Archaeology?  
N.D. Clubb 219

Public Heritage in an Age of Decline  
Lang, N. 227

Ordnance Survey and the Depiction of Antiquities on Maps: Past, Present and Future. The Current and Future Role of the Royal Commissions as Suppliers of Heritage Data to the Ordnance Survey  
D. Murray 235

Electronic Commerce and Geomarketing  
A.A. Wild 241

Section 10: Moving Through Space

Engaging Place: a Framework for the Integration and Realisation of Virtual-Reality Approaches in Archaeology  
M Gillings 247

Presenting Archaeological Information with Java Applets  
R.M. Yorston 255

Visualising Danebury: Modelled Approaches to Spatial Theory  
G.P. Earl 259

From The Ground Up: Visualising Ligurian Archaeological Sites (ABSTRACT)  
M. McCullagh, R. Maggi, M. Pearce, and J. Ratcliffe 265

Using Visualization in the Archaeological Excavations of a Pre-Inca Temple in Peru (ABSTRACT)  

Virtual Stonehenge: a Fall from Disgrace? (ABSTRACT)  
N.R. Burton, M.E. Hitchen, and P.G. Bryan 265

Virtual Worlds for Archaeological Research and Education (ABSTRACT)  
D.H. Sanders 265

PAROS. Close Range Photogrammetry and Architectural Models (ABSTRACT)  
M.J. Florenzano, J.Y. Blaise, and P. Drap 266

"Data-In" or "Let's Try it with the Horse in Front". 3D modelling Automated but put in its Place (ABSTRACT)  
S. Nickerson 266
VisTA: An Interactive Visualization Tool for Archaeological Data (ABSTRACT)
R. Kadobayashi, E. Neeter, K. Mase, and R. Nakatsu

VRML, Virtual Reality and Visualisation: The best tool for the job? (ABSTRACT)
G. Goodrick

Section 11: Finds Analysis and Curation

Enhanced Reality Fieldwork: the Context Aware Archaeological Assistant
N. Ryan, J. Pascoe, and D. Morse

IT-based Documentation of Large Scale Excavations - Drenstegd: A Case Study
L.C. Norbach

Mobile Computing for Real Time Support in Archaeological Excavations (ABSTRACT)
M. Ancona, G. Dodero, V. Gianuzzi, C. Fierro, V. Tiné and A. Traverso

Theoretical Foundations and Enabling Technologies for Cultural Resources Management Systems (ABSTRACT)
C.A. Gonzalez Pérez

A GIS and Hypertext-based System for Excavation Documentation (ABSTRACT)
M. Dekoli and T. Hadzilacos

Quantifying shape: African Red Slip Ware and eating habits (ABSTRACT)
P. Durham and J.J. Hawthorne

A Computerized Data Base for Lithic Use-Wear Analysis (ABSTRACT)
E.S. Lohse and D. Sammons

The Effect of Computerisation on Pottery Recording (ABSTRACT)
P.D. Rauxloh and R.P. Symonds

Computer usage in post-excavation: what do we really, really want? (ABSTRACT)
C.J. Evans

Demonstrations held on the CD-ROM

VRML, Virtual Reality and Visualisation: The best tool for the job?
G. T. Goodrick

A Computerized Data Base for Lithic Use-Wear Analysis.
E.S. Lohse and D. Sammons

Mapping the Fourth Dimension: the TimeMap Project
Ian Johnson
Reconstructing Archaeology from the Landscape: GIS, CAD and The Roman Signal Station at Whitby
Tyler Bell

This paper is a concise presentation of the ACAD and GIS methodology by which the probable height and location of a Roman signal station at Whitby can be determined, and is intended to complement a separate paper which discusses in full the archaeological evidence for such a station (Bell forthcoming). Here a CAD-based schematic of the topography between Whitby and the neighbouring station at Ravenscar is used to determine a height for the signal stations to have been intervisible (50 metres). This finding is tested using a GIS viewedsh function to determine the minimum height (45 metres) and probable location of the structure on the Whitby coast. Without aiming to prove conclusively that a Roman signal station existed at Whitby, this paper introduces a methodology by which further information about the missing signal station may gleaned from the landscape in which these structures existed.

A GIS Study on the Spatial Development of Coastal Catalunya
Federica Massagrande

GIS and multivariate statistical analysis were used to study the development of the Roman settlement pattern in the region of Tarragona and the Maresme in Spain. Though these two areas are geographically similar and almost neighbouring, the Roman settlement pattern varied considerably between the two throughout the time in which Spain was under Roman rule. The data clearly shows the effect the foundation of the town of Tarraco (Tarragona) had on the Roman rural settlement, while the lack of a strong centre in the Maresme caused the rural organisation of the area not to change significantly after the rural settlement was first established. The influence of the pre-existing Iberian settlement on the Roman settlement pattern was also investigated. Correspondence Analysis was also used to study the distribution of different pottery types in the two areas and assess which pottery types were associated with sites with certain characteristics and with the main communication routes. The GIS and CA study clearly shows that despite the geographical proximity of the two areas, the rural settlement pattern was shaped by different factors at play in the two territories.

GIS in Palaeolithic Archaeology. A Case Study from the Southern Netherlands.
Hans Kamermans and Eelco Rensink

This paper examines locational features of Palaeolithic and Mesolithic finds spots in the loess region of the southern Netherlands, using a Geographic Information System (GIS). GIS applications in hunter-gatherer archaeology have so far been rather rare, although (as is true for later periods) GIS could be a useful tool for the locational analysis of hunter-gatherer stone artefact distributions. This paper deals with the methodological problems encountered when trying to extract environmental variables from a GIS and using them for analysis. The accuracy of digital maps, the statistical tests to investigate the relationship between artefact distribution and environmental variables and the use of predictive modelling are discussed using the south of Dutch Limburg as the study area. It will be concluded that, in our study, GIS has proven to be a valuable tool as a first step of research, dealing with the representativeness and interpretation of Palaeolithic and Mesolithic lithic scatters documented from a geologically dynamic loess landscape. However, due to a number of methodological flaws, GIS is as yet not the analytical tool we can use to answer our research questions.

An Analysis of the Structure and Function of Prehistoric Maori Pa Sites
Claire Reeler

Maori pa sites are fortified settlements built in the prehistoric period in New Zealand, usually situated on an elevated position. A sample of sites has been mapped using a total station theodolite in order to provide data for the 3D modelling of these sites. GIS analysis in ARC/INFO of the 3D models of pa is used to answer questions about the structure of the these sites, their relationship with the landscape and aspects of their function within prehistoric society. The relationship between the internal organisation of these sites and the landform on which they are situated is particularly important. The use of GIS allows several types of analysis of these features, such as slope and aspect, area and arrangement of features, line of sight between parts of the site and immediate surroundings and movement of sunshine across different parts of the site at different times of the year. These types of analysis can add to our understanding of how and why pa sites were built where they were.