ANALECTA PRAEHISTORICA LEIDENSIA 28

ANALECTA PRAEHISTORICA LEIDENSIA 28

PUBLICATIONS OF THE INSTITUTE OF PREHISTORY
UNIVERSITY OF LEIDEN

INTERFACING THE PAST

COMPUTER APPLICATIONS AND QUANTITATIVE METHODS IN ARCHAEOLOGY CAA95 VOL. II

EDITED BY
HANS KAMERMANS AND KELLY FENNEMA

UNIVERSITY OF LEIDEN 1996

Graphic design: Henk de Lorm

Computer graphics: Peter Heavens

Copy editor: Marianne Wanders

ISSN 0169-7447

ISBN 90-73368-10-3

Subscriptions to the series Analecta Praehistorica Leidensia and single volumes can be ordered from:

Institute of Prehistory
P.O. Box 9515
2300 RA Leiden
The Netherlands

contents

VOLUME I

Archaeometry

Statistics and Classification

preface

CAA95, the 23rd annual Computer Applications in Archaeology conference, was held at the University of Leiden from 31st March - 2nd April 1995, and was hosted by the Faculty of Pre- and Protohistory.

The conference was organised jointly by the R.O.B. (State Service for Archaeological Investigations) in Amersfoort, the RAAP Foundation of the University of Amsterdam and the Faculty of Pre- and Protohistory of the University of Leiden.

One hundred and ninety nine people attended the 1995 conference, 44 of which were students. Apart from archaeologists connected with universities and museums, many participants came from local, regional and national government bodies concerned with the management of our cultural heritage.

The geographical distribution of the participants was: United Kingdom 59, the Netherlands 53, France/Spain/Italy/Greece 22, Germany/Switzerland/Austria 20, Norway/Sweden/Denmark 16, Poland/Romania/Slovenia/Hungary/Czech Republic 13, USA/Canada 11, and the Argentine/Japan/Australia 5.

At the conference, a total of 93 papers and 6 posters were presented, while there were 20 demonstrations of systems and applications. The papers were given in four parallel sessions and were grouped into eight different themes, with the following number of contributions: Analysing Ritual 6, Archaeometry 7, Classification 12, Cultural Resource Management 12, Databases 12, Free Range Subjects 13, Geographic Information Systems 19, and Multi Media 12.

For the 1995 proceedings we have regrouped the subjects under six main themes: Database Management, Archaeometry, Statistics and Classification, Geographic Information Systems, Visualisation, and Education and Publication. Reviewing the proceedings of conferences over the last twenty years, one sees that particular fields of research seem to be 'fashionable' at certain times. What does 1995 show us?

Database Management

In the first ten years, most papers presented at CAA conferences fell into two categories, data capture/management and analytical techniques. Database management remains a dominant topic in archaeology, 20-30% of the papers in the last ten proceedings dealt with this subject. With 18% this subject is still well represented this year. Improvements in both hardware and software allow larger and more complex databases. We now have relational databases on sites, combining excavation, curation and site management data, and databases containing nationwide information on archaeological sites and monuments. There are also museum databases, integrating site files, museum catalogues and bibliographic files.

Archaeometry

Until now archaeometry has not been treated as a separate subject in CAA proceedings. It was grouped with, for instance, 'applications of quantitative methods' or 'statistics — methods & techniques'. For our overview we have grouped archaeometry with 'statistics and classification'. We have therefore no history to compare with but the trends described

under 'statistics and classification' apply.

Statistics and Classification
Statistical applications have always been very popular at CAA conferences. Ranging from between 20% (1990) to almost 80% (1980) of the contributions have been on this subject. There has been some decline in popularity in recent years because statistical methods are less popular with 'real world' archaeologists than twenty years ago. Statistical approaches were very much part of 'new archaeology', now called processual archaeology, and post-processualists seem to feel less at ease with this subject. But there are signs that in the near future the pendulum will swing again in the other direction. The application of 'hard science' in archaeology is on its way back. The main reason for this is that much of the funding of scientific archaeological research is by way of 'hard science' projects linked to the environment. We are not sure whether statistical applications in archaeology are part of 'hard science' but they will certainly benefit from this development. In the present proceedings 33% of the articles are devoted to this subject, a fairly low percentage that continues the trend of the last five years. We should, however, expect an increase in future years.

Geographic Information Systems
After a hesitant start with one article in 1986, none in 1987, and two in 1988, GIS has become popular in the CAA proceedings. The proceedings of the conference in Aarhus in 1992 contained already 11 articles on the subject and today GIS is widely used among archaeologists. We suggest, however, that it should not be treated as a separate subject. It is a combination of a (spatial) database management system with a (most of the time rudimentary) statistical package and it creates, often beautiful, pictures. Most of the problems people have with using GIS in a useful manner, stem from the fact that they consider it as something completely new and different. It is not. An often used definition of GIS is that it is a computer assisted system for the capture, storage, retrieval, analysis and display of spatial data. We could do all these things before. All components, database management, graphic applications and statistical analysis were there. New is the integration and the pretty pictures. The picture is, however, not the answer but only the question. A computer can not (yet) replace human thought and analysis. To get at the right question requires study of the tool. In the present volume 23% of the articles are on GIS, the highest score so far!

Visualisation
The number of articles in the CAA proceedings on this theme has varied a lot over the last ten years, from about 5% in 1983 to almost 30% in 1993. In the 1995 proceedings it scores 13%. The main topics in this field are visualisation and the use of CAD, and multi-media seems to be the new buzz word here.

Education and Publication
This has always been a regular topic, usually scoring about 13%. Also in this volume the percentage is 13. Though often enlightning, we have noted that so far the subject of Education has not shown any article explaining why the education in statistical techniques creates so many problems for archaeologists. It does not seem to matter whether you use difficult or simple textbooks, most archaeology students and archaeologists have problems with statistics. Fletcher and Lock speak in this respect of an 'instant mental paralysis in many otherwise competent archaeologists'. We are looking forward to the day when Education in quantitative analysis will solve this problem.

So these proceedings do not really show many changes in the interest of 'computer' archaeologists, but follows the past trend. CAA times are not yet 'a-changin'.

Acknowledgments
The realisation of the conference was made possible by the hospitality and support of the University of Leiden and financial support from the Department of Education, Culture and Science, the Royal Netherlands Academy of Arts and Sciences, and the Leiden University Fund.

Computers for the demonstrations were generously made available by JCN Computer Systems BV and CRI Institute for telecommunication and computer services (University of Leiden), while apparatus for the ARCHIS demonstration was provided by SUN Microsystems Nederland BV.

The State Museum of Antiquities offered the use of the Taffeh hall for a reception on the first evening of the conference which was financially supported by the Committee for the celebration of the 420th anniversary of Leiden University and by Taylor & Francis of London.

We are greatly indebted to Roel Brandt, Monique van den Dries, Jenny Hes, Marianne Wanders, Philippine Waisvisz, Milco Wansleeben, Paul Zoetbrood and the many students who helped before and during the conference.

For the realisation of this book we would like to thank Prof. Dr L.P. Louwe Kooijmans and Prof. Dr C.C. Bakels for their invitation to publish these proceedings in the Analecta Praehistorica Leidensia series, Marianne Wanders for the text editing, Peter Heavens for the computer graphics, Henk de Lorm for the layout and cover design, and of course the reviewers Roel Brandt, Eelco Rensink, Iepie Roorda, Mark Spanjer, Pieter van de Velde, Philip Verhagen, Albertus Voorrips, Milco Wansleeben, Ronald Wiemer, and Paul Zoetbrood for their useful criticism and commentary. We are very grateful to the Foundation for Anthropology and Prehistory for their financial support in the publication costs of this volume.

Hans Kamermans
Kelly Fennema

February 1996

Faculty of Pre- and Protohistory
University of Leiden
P.O. Box 9515
2300 RA Leiden
The Netherlands
e-mail: H.Kamermans@rulpre.LeidenUniv.nl