

General Editors' Introduction: The POPULUS Project

Graeme Barker and David Mattingly

This is one of five volumes being published by the POPULUS project, a European research network funded by the EU Human Capital and Mobility programme (Contract ERB CHRXCT930305) to address a series of methodological issues in Mediterranean landscape archaeology.

THE RESEARCH CONTEXT

Without a long historical perspective, research on changing demographic patterns in modern day Europe can only assess the impact of recurrent or perennial environmental and socio-economic aspects by constructing hypothetical models. The more empirically-based such models are, the greater their relevance to contemporary situations. This is particularly true of the less industrialized regions of Mediterranean Europe, where farming remains the principal economic focus and where the last decades have witnessed considerable migration of population to the cities or other more favoured economic regions. The problems facing these areas of the EU have an historic as well as a contemporary dimension and there is obvious importance in seeking to gain a clearer understanding of their long-term demographic trends.

Long-term demographic changes can be studied from many different perspectives and using many techniques, including history and the natural and social sciences. Numerous factors can be advanced to explain population growth and contraction (economic, environmental, social), but all research is hampered by the absence of detailed census records for much of the pre-modern period. However, landscape archaeology – a constellation of approaches and methodologies bridging the natural and social sciences, applied to both rural and urban contexts – has the potential to provide a major source of new information on the *longue durée* of human settlement in Mediterranean Europe. In recent years advances in field survey and excavation techniques, air photography, remote sensing, GIS (Geographical Information Systems), ceramic

provenancing and dating have led to the accumulation of a wealth of new evidence on past settlement patterns. Potentially, therefore, the techniques of landscape archaeology offer the best opportunity significantly to advance our knowledge of European human demography in pre-industrial times, c. 3000 BC–AD 1800.

Despite this potential contribution of landscape archaeology, however, development has been uneven across Europe. In Mediterranean countries in particular, the traditional dominance of art historical approaches in archaeology, compounded by the strength of academic boundaries in other disciplines, has mitigated against the development of an approach to landscape analysis and demographic modelling that by definition demands an inter-disciplinary framework linking the natural and social sciences. Fieldwork in landscape archaeology has been the exception, not the rule. Moreover, where pioneering research has taken place, each team has tended to develop and use its own special methods (often reflecting a particular national tradition of archaeological research), with too little attention being paid to the necessity of achieving greater standardization of data sets. There are also specific problems relating to the interpretation of the status, size and length of occupation of the many sites that have been discovered. Scientific techniques can assist in refining the data so that more reliable demographic assessments can be made, but many interesting and important projects have not been able to make use of the full range of scientific techniques because the appropriate expertise is not available at the regional level. If landscape archaeology is to realize its potential to contribute significantly to debates on long-term demographic trends in Mediterranean Europe, it has to overcome the present lack of agreement on approaches and methods that makes meaningful comparisons between regional data difficult or impossible.

THE POPULUS OBJECTIVES

The aim of the POPULUS project, therefore, was to

investigate the feasibility of establishing a common series of research goals and standards in Mediterranean landscape archaeology so as to advance the study of the ancient demography of the region on a broad comparative front. A research network was established at five EU universities, each hosting a Working Party and training a trans-national Research Fellow in a specific sub-discipline within Landscape Archaeology, as follows:

- Prof Graeme Barker (School of Archaeological Studies, University of Leicester, UK) coordinated the overall project, and his colleague Dr David Mattingly coordinated the work of Working Party 1, and the training of the Research Fellow, in **Geographical Information Systems**;
- Dr John Bintliff (Department of Archaeology, University of Durham, UK) coordinated the work of Working Party 2, and the training of the Research Fellow, in **Demographic Modelling**;
- Prof Philippe Leveau (Centre Camille Julian, Université de Provence, France) coordinated the work of Working Party 3, and the training of the Research Fellow, in **Geoarchaeology**;
- Prof Riccardo Francovich (Dipartimento di Archeologia e Storia delle Arti, Università degli Studi di Siena, Italy) coordinated the work of Working Party 4, and the training of the Research Fellow, in **Field-survey Methodologies**, with particular emphasis on ceramic recording, provenancing and dating;
- Prof Marinella Pasquinucci (Dipartimento di Scienze Storiche del Mondo Antico, Università degli Studi di Pisa, Italy) coordinated the work of Working Party 5, and the training of the Research Fellow, in **Remote Sensing**, with particular emphasis on non-invasive techniques of archaeological survey.

The Working Parties were to bring together relevant expertise to define key issues in the methodologies of their research area, with a particular emphasis on the comparison of different research traditions and methods in different European countries. Each Working Party was to organise a Colloquium that would review methodologies and demonstrate best practice. The Research Fellows were to assist in the organisation of the Colloquia, and also to undertake research within their area of expertise and present their results to the relevant Colloquium. In addition, the Research Fellows and other members of the network were to collaborate in a programme of joint fieldwork to demonstrate the practical integration of improved and standardised methodologies in landscape archaeology. The principal outcome of POPULUS was to be the publication of the five colloquia, including the results of the joint fieldwork, together with a technical manual identifying best practice.

THE WORK PROGRAMME

The project started in January 1994 with the first meeting of the Steering Committee, composed of the coordinators in each of the partner universities. The Research Fellows were appointed through 1994: Leicester in January, Durham in April, Aix-en-Provence in April, Siena from February, and Pisa from June. The Working Parties met through 1994 and 1995, and the Research Fellows' training and field research were also undertaken during 1994 and 1995. In 1995 the project was expanded and strengthened with the addition of a team from the Department of Archaeology at the University of Ljubljana in Slovenia coordinated by Dr Predrag Novaković, under a supplementary EU grant (Contract ERBCIPD940624). The Colloquia took place in the autumn of 1995 and spring of 1996, the papers being revised by their authors through 1996, and then being edited at the five universities by the local coordinators and finally at Leicester (including several that were also translated into English after the main editing) by the General Editors during 1997.

THE WORKING PARTIES

The Working Parties were deliberately set up in terms of personnel from the network and from other universities and institutions to reflect the diversity of Community traditions and methodologies in each of the five main areas addressed. Working Party 1 had members from Britain, France, Greece, Holland, Italy, and Slovenia. Working Party 2 had members from Britain, France, Germany, Greece, Holland, Italy, and Slovenia. Working Party 3 had members from Britain, France, Italy, Spain and Slovenia. Working Party 4 had members from Britain, France, Holland, Italy, Spain and Slovenia. Working Party 5 had members from Britain, France, Greece, Italy and Slovenia.

THE RESEARCH FELLOWS

Under the terms of the Human Capital and Mobility programme, the Research Fellows were to be appointed from EU countries other than the designated place of work. This requirement of the Human Capital and Mobility programme was also seen as an extremely positive contribution to the goals of POPULUS, because the mobility of young archaeologists from one Community country to another was an important part of the process of integrating the different European intellectual and methodological traditions in landscape archaeology. The partner institutions proposed individuals where suitable qualified personnel were available, and the posts were also advertised widely through EU universities, museums and state archaeological services. The Leicester Research Fellow in GIS was Dr Jan van Dalen, a Dutch national with a first and second degree at Leiden University, who was

working for the Dutch Archaeological Service on a programme developing GIS for predictive modelling of site distributions to aid their strategies of heritage management. The Durham Research Fellow in Demographic Modelling was Dr Kostas Sbonias, a Greek national with a first degree at Athens University in archaeology, a PhD from Heidelberg University, and extensive postgraduate experience in Greek landscape archaeology projects. The Aix-en-Provence Research Fellow in Geoarchaeology was Dr Kevin Walsh, a British national with a first degree in archaeology and geography at Lampeter University and an MA and a PhD in environmental archaeology at Leicester University. The Siena Research Fellow in Field Survey Methodologies was a British national, Dr Helen Patterson, who had a first degree in archaeology at Reading University and a PhD in ceramic analysis at Sheffield University, the latter with a primary focus on the analysis of medieval ceramics from a field survey and excavation project in Italy. The Pisa Research Fellow in Remote Sensing was a French national, Dr Frédéric Trément, who had a first degree in archaeology at the University of Lille and a PhD at the University of Aix-en-Provence in landscape archaeology. The Ljubljana Research Fellow was a Greek national, Mrs Helene Simoni, with a first degree in classical archaeology at the University of Athens and an MA in Landscape Studies at the University of Leicester. Her MA had included training in GIS, and she was appointed to Ljubljana to receive further training, and then to undertake research, in GIS.

The Research Fellows prepared discussion documents for each meeting of their respective Working Party. For the first meetings they gathered information about current archaeological research in the Mediterranean relevant to the activities of their Working Party, to help define the key issues for the subsequent Working Party meetings and the themes of the Colloquia, and to suggest names of appropriate speakers. In subsequent meetings they reported further developments in this data-gathering exercise, and also reported on their own field research. Supported by their supervisor (the regional coordinator), they were charged with the primary responsibility for the organization of their respective Colloquia including the soliciting of papers, the circulation of pre-prints to discussants, the running of the Colloquia, and liaison with speakers afterwards to secure finalized versions of papers. They also undertook as much of the preliminary editing of the proceedings as possible before the cessation of their contracts. Dr Trément in particular undertook much of the editing of the Aix as well as the Pisa Colloquia after the Aix Research Fellow left the project before the end of his contract for another post, Dr Trément transferring from Pisa to Leicester from February to June 1995 for this purpose. Each Research Fellow contributed an introductory paper to their Colloquium identifying the major strengths and weakness of current methodologies in their area of specialism, and has provided the supplementary information for the Manual of Best Practice. They also undertook field

research that is published as separate Colloquia contributions and/or in publications on specific projects.

THE POPULUS COLLOQUIA

The five Colloquia took place on 13–16 October (Aix), 6–8 November (Leicester), 25–26 November (Durham), 1–3 December (Siena) and 4–6 December (Pisa) in 1995. Each Working Party coordinator was successful in obtaining limited additional funds locally (university, local administration etc) or nationally to augment the POPULUS budget for the travel and accommodation costs of speakers, and the Project Coordinator also secured a grant of £500 from the British Academy towards the travel costs of a speaker from the US attending the Leicester and Durham Colloquia. The Colloquia were structured to enhance debate amongst the different EU traditions of landscape archaeology. All papers were pre-circulated, and the main focus for each paper at most of the Colloquia was a presentation not by the authors of the paper but by a discussant from another country, followed by a brief response by the author(s) and then an open debate amongst the Colloquium participants. All five colloquia were characterized by vigorous but positive and friendly debate, and the papers were re-written by their authors in the light of the discussions and the general themes and issues that emerged.

THE POPULUS VOLUMES

The five Colloquia are being published as a series by Oxbow Books under the title *Mediterranean Landscapes*, with Graeme Barker and David Mattingly as Series Editors. The five volumes are: 1. *Reconstructing Past Population Trends in Mediterranean Europe (3000 BC – AD 1800)* edited by John Bintliff and Kostas Sbonias; 2. *Environmental Reconstruction in Mediterranean Landscape Archaeology* edited by Philippe Leveau, Frédéric Trément, Kevin Walsh and Graeme Barker; 3. *Geographical Information Systems and Landscape Archaeology* edited by Mark Gillings, David Mattingly and Jan van Dalen; 4. *Non-Destructive Techniques Applied to Landscape Archaeology* edited by Marinella Pasquinucci and Frédéric Trément; and 5. *Extracting Meaning from Ploughsoil Assemblages* edited by Riccardo Francovich and Helen Patterson. The POPULUS volumes bring together a remarkable array of EU expertise in current approaches to Mediterranean landscape archaeology: the papers present the researches of 30 British, 4 German, 6 Dutch, 27 French, 4 Greek, 35 Italian, 8 Slovenian, and 6 Spanish scholars, as well as those of 11 Canadian/US scholars working in the region. They bridge the disciplinary and national boundaries that have mitigated against the development of a coherent methodology in Mediterranean landscape archaeology. The contents are as follows:

1. Reconstructing Past Population Trends in Mediterranean Europe (3000 BC – AD 1800)

edited by John Bintliff and Kostas Sbonias

ARCHAEOLOGICAL SURVEY AND DEMOGRAPHY:

1. *Introduction to issues in demography and survey.* Kostas Sbonias.
2. *Regional field surveys and population cycles.* John Bintliff.
3. *Counting people in an artefact-poor landscape: the Langadas case, Macedonia, Greece.* Stelios Andreou and Kostas Kotsakis.
4. *Demographic trends from archaeological survey: case studies from the Levant and Near East.* Tony Wilkinson.
5. *Archaeological proxy-data for demographic reconstructions: facts, factoids or fiction?* John Chapman.
6. *An attempt at the demographic interpretation of long-term settlement processes in the prehistory of Slovenia: the case of the 'archaeological map of Slovenia'.* Predrag Novaković.
7. *Prospection archéologique et démographie en Provence: approche paléodémographique de la Rive Occidentale de l'Etang de Berre sur la longue durée.* Frédéric Trément.
8. *Demography and Romanization in central Italy.* Franco Cambi.
9. *Beyond historical demography: the contribution of archaeological survey.* Simon Stoddart.

INTERDISCIPLINARY APPROACHES:

10. *Chance and the human population: population growth in the Mediterranean.* Ezra Zubrow and Jennifer Robinson.
11. *The potential of historical demography for regional studies.* Malcolm Smith.
12. *Clearing away the cobwebs: a critical perspective on historical sources for Roman population history.* Tim Parkin.
13. *The population of Roman Italy in town and country.* Elio Lo Cascio.
14. *Documentary sources for the history of medieval settlements in Tuscany.* Maria Ginatempo and Andrea Giorgi.
15. *The Ottoman Imperial Registers: central Greece and northern Bulgaria in the 15th–19th centuries – the demographic development of two areas compared.* Machiel Kiel.
16. *Investigating the interface between regional survey, historical demography and palaeodemography.* Kostas Sbonias.
17. *The contribution of palaeoanthropology to regional demographic history.* C. A. Marlow.
18. *Problems and prospects in palaeodemography.* Claude Masset.
19. *Relating cemetery studies to regional survey: Rocca San Silvestro, a case study.* Riccardo Francovich and Kathy Gruspier.
20. *Counting heads: an overview.* Jeremy Paterson.

2. Environmental Reconstruction in Mediterranean Landscape Archaeology

edited by Philippe Leveau, Frédéric Trément, Kevin Walsh and Graeme Barker

1. *Mediterranean landscape archaeology and environmental reconstruction.* K. Walsh
2. *Landscape archaeology and reconstruction of the Mediterranean environment based on palynology.* S. Bottema
3. *A computerized database for the palynological recording of human activity in the Mediterranean basin.* V. Andrieu, E. Brugiapaglia, R. Cheddadi, M. Reille and J.-L. de Beaulieu
4. *Reconstructing vegetation and landscapes in the Mediterranean: the contribution of anthracology.* J.-L. Vernet
5. *Some examples of climatic reconstruction in the Mediterranean using dendroclimatology.* F. Guibal
6. *Geomorphological techniques in Mediterranean landscape archaeology.* A. G. Brown
7. *L'apport de la micromorphologie des sols à la reconstitution des paléopaysages (Application au bassin méditerranéen pour la période 3000 av. J. C. – 1800 ap. J. C.).* N. Fédoroff
8. *Reconstructing past soil environments in the Mediterranean region.* R. S. Shiel
9. *Energy dispersive X-ray micro-analysis and the geochemistry of soil sediments.* D. D. Gilbertson and J. P. Grattan
10. *Searching for the ports of Troy.* E. Zangger, M. Timpson, S. Yazvenko and H. Leiermann
11. *Case studies from the Pontine region in central Italy on settlement and environmental change in the first millennium BC.* P. Attema, J. Delvigne and B. J. Haagsma
12. *Karst dolinas: evidence of population pressure and exploitation of agricultural resources in karstic landscapes.* P. Novaković, H. Simoni and B. Mušić
13. *Archeologia ambientale padana: un caso di studio – la pianura padana centrale tra il Bronzo medio ed il Bronzo finale (xvi–xiii sec. a. C.).* M. Cremaschi.
14. *Human impacts and natural characteristics of the ancient ports of Marseille and Fos, Provence, southern France.* C. Vella, C. Morhange and M. Provansal
15. *Developing a methodological approach to the evolution of field systems in the middle Rhône valley.* J.-F. Berger and C. Jung

16. *Progradación fluvial y cambios en la línea de costa en época histórica en el Golfo de Valencia (España)*. P. Carmona
17. *The integration of historical, archaeological and palaeoenvironmental data at the regional scale: the Vallée des Baux, southern France*. P. Leveau
18. *The integration of historical, archaeological and palaeoenvironmental data at the regional scale: the Étang de Berre, southern France*. F. Trément
19. *Geoarchaeology in Mediterranean landscape archaeology: Concluding comments*. G. Barker and J. Bintliff.

3. Geographical Information Systems and Landscape Archaeology

edited by Mark Gillings, David Mattingly and Jan van Dalen

1. *Introduction* Mark Gillings and David Mattingly.

GIS AND ARCHAEOLOGY

2. *Geographical Information Systems: today and tomorrow?* Peter F. Fisher.

GIS AND ARCHAEOLOGICAL THEORY

3. *GIS and landscapes of perception* Robert Witcher
4. *Cartography and landscape perception: a case study from central Italy* Peter Attema.

THEORY AND METHOD

5. *Regional survey and GIS: the Boeotia Project* Mark Gillings and Kostas Sbonias
6. *Towards a methodology for modelling surface survey data: the Sangro Valley Project* Gary Lock, Tyler Bell and John Lloyd
7. *Between spaces: interpolation in archaeology* Jennifer M. Robinson and Ezra Zubrow.

GIS AND FIELD SURVEY DATA

8. *GIS-based analysis of the population trends on the island of Brač in central Dalmatia* Zoran Stančić and Vincent Gaffney
9. *Analyzing Rome's hinterland* Martin Belcher, Andrew Harrison and Simon Stoddart
10. *Reconstructing the population history of the Albegna Valley and Ager Cosanus, Tuscany, Italy, in the Etruscan period* Philip Perkins.

DEVELOPING TECHNIQUES AND APPROACHES:

11. *Probability modelling: a Bayesian and a geometric example* Jan van Dalen
12. *Multispectral classification of satellite images* Krištof Oštir, Zoran Stančić and Majda Trušnovc
13. *Geographic Information Systems and archaeology: methodological aspects of the presentation and display of results* Javier Baena Preysler, Concepcion Blasco, Javier Espiogo, Alberto Rio

4. Non-Destructive Techniques Applied to Landscape Archaeology

edited by Marinella Pasquinucci and Frédéric Trément

1. *L'apport des méthodes non destructives à l'analyse des sites archéologiques: le point de vue de l'archéologue*. F. Trément.

REMOTE SENSING

2. *Télédétection et archéologie. Concepts fondamentaux, état de l'art et exemples*. B. Marcolongo and E. Barisano.
3. *Environmental studies through active and passive airborne remote sensing systems*. R. M. Cavalli, C. M. Marino and S. Pignatti.
4. *Metodi di telerilevamento in archeometria e nella diagnostica non invasiva*. A. Tonelli.
5. *Aerial archaeology around the Mediterranean*. B. Jones.
6. *Détection aérienne des camps néolithiques en Languedoc occidental*. J. Vaquer.
7. *La restitution des parcellaires anciens et des limitations antiques à partir des techniques de la télédétection et du traitement d'images*. D. Charraut and F. Favory.
8. *Digital classification and visualization systems of archaeological landscapes*. M. Forte.

GEOPHYSICS

9. *The IGAPS Project: integrated geophysical acquisition and processing system for cultural heritage*. D. Patella, S. Piro, L. Versino, F. Cammarano, R. Di Maio and P. Mauriello.
10. *La mesure de la résistivité (ou de la conductivité) électrique du sol en prospection archéologique*. A. Hesse.
11. *Magnetic techniques applied to archaeological survey*. D. Jordan.

12. *Radar (G. P. R.) methods for historical and archaeological surveys.* E. Finzi and S. Piro.
13. *Seismic methods.* L. Sambuelli and G. P. Deidda.
14. *The role of gravity surveys in archaeology.* M. Di Filippo, T. Ruspandini and B. Toro.
15. *Acoustic methods in archaeology: prospecting on a site of Parco Marturanum.* G. B. Cannelli, E. D'Ottavi and A. Alippi.
16. *Integration of high resolution georadar and geoelectrical methods: detection of subsurface shallow bodies.* S. Piro.
17. *Filtrage numérique des données géophysiques.* J. Tabbagh.

GEOCHEMICALS

18. *Soil phosphate survey.* J. Taylor.
19. *Soil geochemistry and artefact scatters in Boeotia, Greece.* J. N. Rimmington.

SURFACE COLLECTION OF ARTEFACTS

20. *The concepts of 'site' and 'off-site' archaeology in surface artefact survey.* J. Bintliff
21. *The comparison of surface and stratified artefact assemblages.* M. Millett
22. *Définition ou hiérarchisation des sites? Approche intégrée en Gaule méditerranéenne.* F. Favory and C. Raynaud.

INTEGRATED STUDIES

23. *The Pisa territory project.* E. Marchisio, M. Pasquinucci, E. Pranzini and G. Vigna Guidi.
24. *Two examples of using combined prospecting techniques.* D. Grosman.
25. *Expérience de croisement de méthodes de prospection sur le site des Girardes à Lapalud (Vaucluse, France).* F. Trément (avec la collaboration de P. Clogg, P. Druelle, G. Ducomet, J.-P. Mariat and J. Taylor).

GENERAL ISSUES

26. *Du site au réseau: archéologie, géographie spatiale ou géographie historique.* Ph. Leveau.

5. Extracting Meaning from Ploughsoil Assemblages

edited by Riccardo Francovich and Helen Patterson

INTRODUCTION

1. *Extracting meaning from ploughsoil assemblages: assessments of the past, strategies for the future.* S. Alcock.

METHODOLOGY

2. *Methods of collection, recording and quantification.* D. Mattingly
3. *Cultural depositional processes and post-depositional problems.* J. Taylor, with comments by Peter van Dommelen.
4. *Ceramics and the site: is survey enough?* Vincent Gaffney.
5. *What are we counting for?* Elizabeth Fentress.
6. *Dating, quantifying and utilizing pottery assemblages from surface survey.* Martin Millett.
7. *The visibility of sites and the interpretation of field survey results: towards an analysis of incomplete distributions.* Nicola Terrenato.
8. *Quando i campi hanno pochi significati da estrarre: visibilità archeologica, storia istituzionale, multi-stage work.* Franco Cambi.
9. *Prospection et chronologie: de la quantification du temps au modèle de peuplement. Methodes appliquées au secteur des étangs de Saint-Blaise (Bouches-du-Rhone) France.* Frédéric Trément.
10. *Discussion.* Martin Millett.

CERAMIC STUDIES IN MEDITERRANEAN SURVEY

11. *The current state of prehistoric ceramic studies in Mediterranean survey,* Caroline Malone and Simon Stoddart
12. *The current state of Roman ceramic studies in Mediterranean survey, or, handling pottery from surveys.* John W. Hayes.
13. *The current state of early medieval and medieval ceramic studies in Mediterranean survey.* Helen Patterson.

CASE STUDIES:

14. *Surface survey analysis of the copper ages site of La Pijotilla (Spain).* Victor Hurtado.
15. *On-site surface distributions and geophysics: the site of Rodik-Adjovscina.* Božidar Slapšak, Branko Mušič, and Verena Perko
16. *La ceramica preromana come indicatore di processi socio-economici: il caso dell'Italia medio-tirrenica.* Andrea Zifferaro, with comments by Alessandro Guidi.
17. *Ceramic chronology and Roman rural settlement in the lower Guadalquivir Valley during the Augustan period.* Simon Keay.

18. *Terracotta and its territory: a tormented relationship*. Franco Cambi.
19. *The Adriatic Islands Project: contact, commerce and commercialization*. Vincent Gaffney, Branco Kirigin, John W. Hayes, and Peter Leach.
20. *De la fouille à la prospection, et retour: céramologie et histoire du peuplement dans la cité de Nîmes*. Claude Raynaud.
21. *Il rapporto fra superficie e sottosuolo; dal survey allo scavo: insediamento e circolazione ceramica fra V e X secolo nella Toscana centro-meridionale*. Riccardo Francovich and Marco Valenti.
22. *Reconstructing the classical landscape with figures: some interpretive explorations in North-West Keos*. Todd Whitelaw.
23. *Demographic trends: the contribution of regional survey data*. John Bintliff and Kostas Sbonias.
24. *Conclusion*. Susan E. Alcock, Franco Cambi, Simon Keay, and Claude Raynaud.

SCIENTIFIC OUTCOMES

All five working groups in the POPULUS network were able to agree on areas of best practice, whilst eschewing the idea of a 'cookbook' approach to methodologies in landscape archaeology, the results of which have been incorporated into the Manual of Best Practice that is currently in the final stages of completion. Its future use by Community archaeologists working in Mediterranean landscape archaeology will be the ultimate test of the effectiveness of the POPULUS project in integrating the best of the diversity of current methodologies in the discipline.

During the discussions of the Working Parties, several alternative views were expressed about the way regional archaeological research and landscape archaeology should be conducted. At one end of the spectrum were some archaeologists who advocated that they (the archaeologists) should enlist a battery of natural scientists and tap into their results for the purpose of understanding the environmental context of an excavation or survey record. At the other end of the spectrum were some geographers who proposed that they (the scientists) should run the regional archaeological projects, the head scientist being partnered by an archaeologist. As Graeme Barker and John Bintliff comment at the end of the Aix-en-Provence volume *Mediterranean Landscape Archaeology 2*, the conclusion from the Colloquia is that both these positions lack one fundamental component: where do we find the interpretative approaches for the human-landscape interaction that constitutes the prime reason that these many specialists are working alongside each other? The work of the POPULUS network has emphasized the enormous potential of effective partnerships between broad-based teams of geoarchaeologists and modern intensive survey teams. Reconstructing the history of Mediterranean landscape change and demography certainly needs natural scientists to analyze the changing forms of the landscape, and archaeologists to analyze changing settlement morphologies and systems. To *understand* that history, however, in terms

of the interactions between landscape and people, and the perceptions, choices and adaptations that have underpinned human actions, will need effective partnerships between broad-based teams of archaeologists, geoarchaeologists, historians, and anthropologists. The greatest challenge of inter-disciplinary landscape archaeology in the Mediterranean in the coming years will be how to bridge the divide between the ecological approaches of the natural sciences to past landscapes, on the one hand, and the concerns of social archaeologists on the other with the interface between human actions and landscape.

In terms of modelling major trends in Mediterranean landscape history, one consistent theme for teams working in the eastern and western Mediterranean emerging from the POPULUS network is evidence for settlement shifts, population increase and agricultural intensification in the third millennium BC, and the extent to which these changes coincide with and are related to marked increases in the scale of human impact on sediments and vegetation and/or with climatic change. Regional inter-disciplinary landscape projects are also contributing as profoundly to our understanding of the impact of Roman imperial expansion and subsequent Romanization on the human and natural landscapes of the Mediterranean. Another central concern is the relative impact of climatic fluctuations and human impact in terms of dramatic environmental change: here, one significant weakness of current work is the lack of emphasis on investigating the prehistory and history of Mediterranean uplands. Some of the major landscape changes we can now detect in the Mediterranean region were the result of gradual long-term processes, others may have been caused by catastrophic events of short duration and very long recurrence intervals. The widespread application of dating techniques such as luminescence and palaeomagnetism in the coming years is likely to have an enormous impact in this respect: more refined chronologies seem likely to emphasize different rates of landscape change rather than uniformity, with profound implications for our understanding of human interactions with their landscape.